

Plus, you can fit the dough balls in between the other stuff in the fridge or even place them on top of other things. They're actually easier to fit into a small fridge than a larger size bowl, not to mention that they will cool down more efficiently than a single larger size dough. Bring the individually bagged dough balls out of the fridge to warm to at least 50F prior to opening, some like to allow the dough to warm to 60F (Note: this is in reference to internal dough ball temperature), but depending upon your skill level at opening the dough balls into skins you might want to experiment with the temperature. The colder the dough is the easier it is to handle but it can be more difficult to open as the dough tends to be more elastic when cold. By allowing the dough to warm up a bit it becomes softer and more extensible which is easier to open if you have the necessary skill-set.

Tom Lehmann/The Dough Doctor

[Re: Why shape dough into balls before fermenting?](#)

2001

If you are looking for an oil to use to seal a wood work surface look no further than plain old white mineral oil.

You flood the surface with it, allow it to soak in a few hours and then wipe off any remaining oil and burnish the surface with a clean dry towel. Periodically clean the surface by using a metal blade bench scraper.

Tom Lehmann/The Dough Doctor

[Re: Does dough absorb wood board oil ?](#)

2002

If I understand your dilemma correctly the dough was too extensible (stretchy) is that correct?

What can you tell me about how the dough was mixed as well as the finished dough temperature and the dough management procedure you used.

Tom Lehmann/The Dough Doctor

[Re: In need of guidance](#)

2003

That's a good question, you don't! That's just one of the nicer things delivery does to your pizzas. That's one of the reasons why I never recommend delivery unless the community you're in demands delivery, then it's only through one of the contracted delivery companies.

Tom Lehmann/The Dough Doctor

[Re: Is delivery worth it??](#)

2004

With a dough temperature of 19C (cold) and a room temperature of 20 to 22C (more like room temperature) you should not be getting much, if any, condensation, that being the case I would consider mixing the dough longer.

Tom Lehmann/The Dough Doctor

[Re: Excessive hydration?](#)

2005

There has been much past discussion here on how to properly determine the dough absorption when using whole wheat flour.

Tom Lehmann/The Dough Doctor

[Re: "Healthier" pizza?](#)

2006

What is your dough temperature and what is the fermentation room temperature? Most fermentation rooms are also humidified so they can maintain temperatures of around 90F/32.2C with 80 to 85% R.H. (relative humidity) which means that under these conditions the dough doesn't need to be covered. It's the temperature difference between the dough and the surrounding environment that can result in condensation on the dough. Also keep in mind that a dough that is not sufficiently developed will exhibit stickiness and be difficult to handle.

Tom Lehmann/The Dough Doctor

[Re: Excessive hydration?](#)

2007

You've lost me here? You said you want to bulk ferment in the cooler because you don't have sufficient room in the cooler but yet you have room to inventory the balled dough in the cooler after the bulk fermentation. I'm confused. Maybe it would help if you described your work flow to me for clarity.

Tom Lehmann/The Dough Doctor

[Re: bulk fermentation yeast](#)

2008

Regarding your question #2 where you ask about getting a stronger, but more elastic dough. Elasticity is a characteristic of a of a stronger dough. Are you sure you are not looking for a dough that is stronger but more extensible? This would be a dough that opens easier without tearing, and can be stretched to a greater extent without it tearing or exhibiting excessive snap-back/dough memory. If it is strength and extensibility that you are looking for changing to a stronger, higher protein content flour might be what you need, BUT keep in mind that a thinner dough does not translate to a crispier crust, just the opposite is true, so if you want to achieve a crispier center section going with a SLIGHTLY thicker center section might be the direction you need to go.

Tom Lehmann/The Dough Doctor

[Re: How can I make my pies and process better -Made in Blackstone oven](#)

2009

While dough formulation is an important factor as well as fermentation and baking conditions I've found that dough absorption probably has the greatest influence on crispiness. Within reason, the higher the dough absorption, the more crispy the finished crust will be.

Tom Lehmann/The Dough Doctor

[Re: Hydration Percentage, Baking Time, and Oven Temperature](#)

2010

If you can drop the finished dough temperature to 65F/20C, 0.15% compressed yeast should work OK for you. Are you planning to cut the dough directly off of the bulk dough or are you going to scale and ball it after the bulk fermentation period?

Tom Lehmann/The Dough Doctor

[Re: bulk fermentation yeast](#)

2011

You're going to need to make sure you have at least 1-inch of clearance on all four sides. This is necessary to allow for airflow around the pizza and to keep the pizza far enough away from the walls of the oven to allow for a consistent bake. Rack

position will be more critical than it would for a smaller diameter pizza, a slightly higher than normal rack position will probably provide the best bake.

Tom Lehmann/The Dough Doctor

[Re: 18inch pizza screen in a home oven](#)

2012

Your 11.7% protein content flour should work well for a starting point.

Tom Lehmann/The Dough Doctor

[Re: Achieving biscuit-like pan pizza](#)

2013

Things to keep in mind about baking deep-dish pizzas:

- 1) Allow the dough to proof in the pan for about 45-minutes, or more between fitting the dough to the pan and dressing/baking.
- 2) Use oil in the pan for a fried effect, but shortening makes it easier to fit the dough into the pan.
- 3) Most deep-dish pizzas bake better without a stone.
- 4) Use a dark colored deep-dish pan.
- 5) A 2-inch deep pan is the best as it helps to prevent scorching the toppings in view of the long bake time required. (A little physics at play here, the higher walls hold the cool, moist air over the top of the pizza to protect the toppings during baking).
- 6) Most deep-dish pizzas are going to take close to 20-minutes to bake in a home oven at 450 to 500F.
- 7) Remove the pizza from the pan IMMEDIATELY after baking.
- 8) Not knowing anything about your oven you will need to experiment with rack placement.

Tom Lehmann/The Dough Doctor

[Re: Cooking pizza with a thick crust?](#)

2014

Neither is correct as the greatest factor involved with cooling the dough is going to be the surface exposed to the walls of the container and to a lesser extent the material the fermentation container is made from. Due to the number of variables we have never been able to accurately predict the rate of fermentation of large doughs when the dough is bulk fermented in the cooler. You will need to experimentally find the yeast level that works best in your specific case, the good news is that once you find the correct yeast level, if you always get the same finished dough temperature, and always ferment in the same container (has to be the same size dough), and always place it in the same spot in the cooler, your end result should be somewhat consistent with regard to fermentation BUT do realize that you will, in essence, have two different doughs in the fermentation container, that which is in contact with the wall of the container will be significantly different (due to more effective cooling) than that which is in the center of the dough mass where heat is not being removed very efficiently so it will show the impact of more fermentation. This characteristic of bulk fermentation in the cooler is the reason why the process never gained any popularity and is seldom used.

Tom Lehmann/The Dough Doctor

[Re: bulk fermentation yeast](#)

2015

Warm dough + Cold refrigerated temperature + closed box = condensation.
How to prevent it? Place dough ball(s) in box/container, lightly oil said dough

ball(s), leave container open (all the way open) as this will promote consistent and complete cooling of the dough ball(s). Leave container uncovered for whatever period of time is necessary for the dough to cool to 50F (internal temperature), then cover for the remainder of the cold fermentation time. To use the dough: Remove from cooler/fridge and leave the container covered until the internal dough ball temperature reaches 50 to 60F, then remove dough and begin opening into skins by your preferred method.

No condensation. This is how the stores do it.

Tom Lehmann/The Dough Doctor

[Re: Excessive hydration?](#)

2016

Begin by moving away from the high protein flour and move more towards a lower protein bread type flour with around 10 to 11% protein content. Don't use oil, instead use shortening at 8%. Whole egg only contributes to a dry, firm crumb structure, instead, if you have to use an egg product, use only egg yolk at 5%. Remember to mix the dough JUST until it's well incorporated...5 to 6-minutes, don't over mix it. Also remember to proof it after forming, 30 to 45-minutes should be sufficient.

Tom Lehmann/The Dough Doctor

[Re: Achieving biscuit-like pan pizza](#)

2017

That's because the flour has had more time to hydrate. Remember that pizza doughs are NOT fully developed at the mixer so they are naturally a little tacky when balling right after mixing. If your dough is indeed "sticky" you are probably not mixing it enough. If you are using a high dough absorption you can also use an autolyze where you mix just the flour and water together (just enough to wet the flour) and allow this to rest in the mixing bowl for 30-minutes, or so, then add the remaining ingredients and mix the dough just until it takes on a smooth, satiny appearance.

Tom Lehmann/The Dough Doctor

[Re: Hydration Percentage, Baking Time, and Oven Temperature](#)

2018

My own personal "go to" flour for making pizza is Pillsbury Bread/Bread Maker Flour which is available at most supermarkets across the U.S. It comes in at approximately 12.6% protein content, it is the same as General Mills Full Strength but in a consumer size package.

Tom Lehmann/The Dough Doctor

[Re: Best Flour to use at HR 65%-70%](#)

2019

Sure.....I do it all the time.

For most home pizza makers the doughs size is so small so as to be equivalent to a single dough ball anyways so in my opinion, there is little or no significant difference between ball and bulk fermentation when the dough weight is less than 1-Kg. (2.2-pounds) or so. This does not mean that there isn't a difference between cold and room temperature fermentation, there's a huge difference. The only difference between "bulk" fermentation where we have a larger dough mass (under 1-Kg.) and individual dough balls weighing 225 to 500-grams is that it will take a little longer for the bulk dough to change in temperature. Additionally, the temperature gain due to heat of metabolism in the bulk dough mass is minimized if

not cancelled out by its small size. Where bulk dough fermentation really makes a big difference is where we have large size doughs capable of retaining the heat generated by the yeast fermentation (about 1F per hour of fermentation). These doughs will ferment vastly differently than doughs of small size or in dough ball form.

Tom Lehmann/The Dough Doctor

[Re: Hydration Percentage, Baking Time, and Oven Temperature](#)

2020

Next time also show a picture of the bottom, it's a lot easier to assess the bake of a pizza if you can also see the bottom.

Tom Lehmann/The Dough Doctor

[Re: Where to start? Starting over, that is.](#)

2021

Jerry5010;

Not a problem at all, feel free to jump right on in at any time.

The main reason for using cold fermented dough at pizzerias is because of the ease and consistency of dough management. Dough which is managed through the cooler (cold fermented) is overall, much more consistent performing than dough which is managed at room temperature (remember that room temperature can be highly variable). Since temperature is the main driver of fermentation, even slight differences in the finished dough temperature can have a dramatic impact upon the dough and finished crust when projected out to several days when the dough is managed at room temperature. When the dough is managed at refrigerated temperature slight differences in finished dough temperature are not as critical as the dough will be subdivided into individual, smaller weight pieces for the fermentation process, this allows for faster, more consistent cooling of the dough which in turn allows for improved dough consistency. Does this mean that room temperature managed dough is not as good as cold fermented dough? Absolutely not, it's just a different animal that must be managed entirely differently and I hate to say this BUT, when one considers the quality of help (workers in the food industry) today we have to take as much of the human factor out of dough processing as possible if we want to have a consistent product for our customers. I'm not sure I fully understand your last question, but if you want your dough to bake faster, look not further than your oven, if you want the dough to open easier consider increasing the dough absorption and/or increasing the dough fermentation. Along these lines it's been my experience that while most properly managed cold fermented doughs can be used after 24-hours, their "sweet spot" is at about 48-hours. Keep in mind too that the flour you're using will also influence both dough absorption and fermentation time. As a rule, the higher the protein content of the flour the higher the dough absorption will be and it will require more fermentation time to open without exhibiting excessive dough memory aka snap back. Along these same lines, have you ever wondered why high protein flours are synonymous with pizza? The answer goes back to the 1950's when pizzerias were all operating using some form of room temperature fermentation procedure which usually involved mixing the dough and just leaving it in the bowl or some other container and allowing it to ferment for the better part of the day. This dough was used for making pizzas until the dough was gone, then the lights were turned off (not a good business model, I know). In order for the dough to withstand all of the fermentation it received by this process we needed to use a high protein flour with excellent tolerance to fermentation. Flour suppliers soon recognized this and when the next person approached them and said that they too wanted to open a pizza

shop the response was "well then you will need to buy a high protein flour", today though we seldom use processes like this in a commercial setting as cold fermentation dough management procedures have replaced it and with more effective dough management we have been able to reduce the need for high protein flours too, so today it is common to see flours being used in commercial pizzerias that are in the range from a low of 11.8% to about 12.8%. While many stores still use higher protein content flours (13 to 14+%) we finding that their pizzas can be made better with a lower protein flour, especially if they are a DELCO shop, which are popping up like mushrooms in the spring.

Tom Lehmann/The Dough Doctor

[Re: Hydration Percentage, Baking Time, and Oven Temperature](#)

2022

Your dough balls REALLY LOOK GOOD! :)

Tom Lehmann/The Dough Doctor

[Re: Problems with my dough \(not elastic: stretching is too easy, no leopard skin,...\)](#)

2023

Johnny;

If by equation you mean dough formulation, here it is.

Flour: 100% (12 to 12.8% protein content)

Salt: 1.75%

Sugar: 2% (optional)

Oil: 2%

IDY: 0.375%

Water: 62% (variable)

Tom Lehmann/The Dough Doctor

[Re: Tom Lehman's dough recipe](#)

2024

I like to use semolina flour to dust the dough balls in preparation for opening, most of it will come off as you open the dough into a skin.

Tom Lehmann/The Dough Doctor

[Re: Where to start? Starting over, that is.](#)

2025

I'm in agreement with Craig.

Tom Lehmann/The Dough Doctor

[Re: storing stiff starter in water](#)

2026

Not much to add except that when you place the dough ball into the bag pull the bag snug to the dough ball DO NOT leave an air space as this will contribute to condensation forming in the bag. The bag will expand just fine with the dough ball.

Tom Lehmann/The Dough Doctor

[Re: Where to start? Starting over, that is.](#)

2027

Approach this in the same manner as you would eat an elephant, this is one bite at a time. If you can get it, use All Trumps flour, if not use one of the KA flours with 13 to 14% protein content. Here is a dough formula:

Flour: 100%

Salt: 2%

Water: 62%

IDY: 0.4%

Oil: 2%

Put water (70F) in mixing bowl, add salt, add flour.

Mix just until you don't see any dry flour in the bowl, then add the oil and continue mixing just until you get a smooth dough appearance.

Targeted finished dough temperature: 75 to 80F

Divide into desired weight pieces, round into balls.

Oil the dough balls, place into individual plastic bread type bags.

Twist the open end of the bag to form a pony tail and tuck it under the dough ball as you place it in the fridge.

Allow to cold ferment for at least 24-hours, 48-hours is better.

Use a rolling pin to CAREFULLY open the dough ball about 2-inches smaller than what you want.

Finish opening the dough skin by hand stretching to full diameter.

Skin is now ready for dressing and baking.

Dough weight: For a 12-inch pizza try starting with 11-ounces of dough weight.

Adjust up or down from there depending upon the thickness you're looking for.

Tom Lehmann/The Dough Doctor

[Re: Where to start? Starting over, that is.](#)

2028

Water does play an important part in pizza dough. Hard water is good for the dough while soft water is not good for the dough as it imparts tackiness into the dough. Ditto for distilled water as well as R.O. water. The pH of the water can be critical with how the dough ferments, typically water has a pH of 6.8 to 7.2 which is fine. When the pH is higher than this the water is alkaline and will slow the start of fermentation. Water that is lower than this is said to be acid water which can be good for the dough as yeast is an acid loving micro organism so it can actually speed up the rate of fermentation slightly, BUT you will seldom find acid water coming from a municipal water supply as the acidity can erode copper pipes but more so, the lead in the joints holding it together, the dissolved lead then goes into the drinking water...not a good thing. There are cases where we want to acidify the dough slightly such as is the case when making an emergency dough, in that case some will replace 1% of the dough absorption with 1% of a white, household 50-grain strength vinegar to achieve a slight acidification, but this is all done in the mixing bowl, not out of the tap. I've written a couple of articles about this in PMQ Magazine.

Tom Lehmann/The Dough Doctor

[Re: Water types as a factor in pizza flavor/crust texture?](#)

2029

That's about what one would expect with such a low salt level, most relate the flavor of a dough with such a low salt level to tasting "starchy". Actually, you could have just added the corrected amounts of each ingredient to the dough and reballed it for later use.

Tom Lehmann/The Dough Doctor

[Re: Dough SNAFU - Should I throw it out?](#)

2030

Even more amazing is that your birthday is the same as my wife's!

Tom Lehmann/The Dough Doctor

[Re: Tom Lehman, 1962](#)

2031

To add to my my previous post, you are going to need to make a calculated 412.5-pounds of dough, divide this by your total dough weight for a single dough and you will have the number of doughs needed to make the order. To be more precise I still need to know your total bakers% as well as flour weight.

Tom Lehmann/The Dough Doctor

[Re: Need 600 dough balls in one Day](#)

2032

To answer your question we need some important information, what is sum of the bakers % of the ingredients used in your dough formulation and how much flour do you use to make a single dough?

Tom Lehmann/The Dough Doctor

[Re: Need 600 dough balls in one Day](#)

2033

I think a good deal of your problem is stemming from the low % total dough absorption you're using which was further lowered when you added an additional 50-grams (5%) flour right up front. Staying with the method you're using, the changes I would make are as follows:

1) Suspend the IDY in a small portion of 95F water not the cool tap water. This will be much less damaging to the yeast.

2) Increase the dough absorption to at least 70% you will probably be able to go even higher but start at 70% and work up from there.

3) After hand mixing the dough in the Cambro tub, drape the tub with a piece of plastic and allow the dough to hydrate/ferment for 1-hour, or you can use an autolyze method where you mix only the flour and the water, then set it aside and allow it to hydrate for at least 30 to 60-minutes, then add the remainder of your ingredients and continue with your process.

This should help to address the stickiness and give you improved oven spring.

Tom Lehmann/The Dough Doctor

[Re: First post, first NP, so yeah, I have questions](#)

2034

Two main things to remember about English muffins, if trying to replicate the Thomas brand, 70% dough absorption and calcium propionate at 1% for the flavor. We did a sensory panel evaluation of English muffins one time when looking at alternatives to calcium propionate as there was some speculation that it might be banned (thankfully never happened). What we found was that without the propionate our panel participants did not readily recognize the product as an English muffin. It's the calcium propionate that provides the sinus clearing effect when you smell an English muffin being toasted. It's also the reason why you never see an English muffin getting moldy too, calcium propionate is the most commonly used rope and mold inhibitor used in yeast leavened foods.

Until we got our English muffin griddle we made our English muffins using an McDonalds 3D/triple decker (Big Mac) bun pan with a snug fitting lid,

The dough was placed into the lightly greased and corn meal dusted pan, allowed to proof for 15-minutes and then went to the oven at 500F. The resulting muffins were pretty close in appearance, looking a lot like hockey pucks.

Tom Lehmann/The Dough Doctor

[Re: First try at tartine English muffins](#)

2035

For myself personally, I'm on track to enjoying the second 40 as much or more than the first 40. Sure, I've gotten a little help along the way but that just makes things more interesting, and I really have to say that since my retirement 5-years ago my enjoyment factor went up by several notches and that's saying a lot since I really loved my job at the American Institute of Baking where I was employed for almost 50-years. So, why did I retire? To prove to myself that indeed there is a life outside of AIB.

Tom Lehmann/The Dough Doctor

[Re: average age?](#)

2036

If it's true about what they say about life starting at 40, I guess that makes me 35. Right in line with the rest of the pack. :-D :-D :-D

Tom Lehmann/The Dough Doctor

[Re: average age?](#)

2037

JPB;

That edge sure doesn't look flat to me! :-D

Great lookin' pizza man!

Tom Lehmann/The Dough Doctor

[Re: Elastic? Shrinkage?](#)

2038

General Mills Full Strength flour about 12.6% protein content, essentially the same flour as the Pillsbury Bread/Bread Maker Flour available in many supermarkets.

Tom Lehmann/The Dough Doctor

[Re: Elastic? Shrinkage?](#)

2039

Peter;

It was the one referenced in the link in reply#2.

Tom Lehmann/the Dough Doctor

[Re: Flat dough](#)

2040

The flour that you've referenced is a durum semolina flour which is not well suited for use by itself as a pizza flour but it can be blended with a regular bread type flour at levels of up to 25% for improved chew and crispiness. The problem with durum semolina flour is that it produces a dough with EXTREMELY tough, elastic properties. This is a characteristic of the durum wheat from which this type of flour is milled, it's a different type of wheat than what is used for making regular bread type flours. I would suggest that you pick up a bag of any regular white flour suitable for making bread and give that a try, I'm betting it'll work better for you. Once you begin making pizzas more to your liking you can begin experimenting by blending in some of the Caputo and/or semolina flour that you have to see if you like the characteristics imparted by these flours when used as a blending flour.

Tom Lehmann/The Dough Doctor

[Re: Flat dough](#)

2041

I've got a bag of Caputo Pizzeria Flour (blue bag) that I've been working with lately and one thing I can say about it is that it sure doesn't have tolerance for much more than 12 to 18-hours of total fermentation. When I evaluated it for fermentation tolerance I saw the same thing that you are seeing. The next time you make your dough schedule your fermentation sequence to keep the total dough fermentation within the 12 to 18-hour window. You don't mention anything about the finished dough temperature, this can also have a significant impact upon how much fermentation the flour/dough will exhibit.

As you were previously using a 14% protein content flour (All Trumps?) I'm assuming it was a U.S. milled flour which is very different from Italian milled flour. One of the greatest differences I'm seeing is in fermentation tolerance. U.S. milled flours are milled from wheat varieties that are bred for fermentation tolerance as one of their breeding criteria. Another is protein strength, our wheat varieties are bred to have high protein content and also high strength (elastic) characteristics. Italian flours are designed to have a shorter fermentation tolerance and a significantly more extensible gluten characteristic. If your pizzas were OK with the 14% protein content flour but the dough was just too difficult to open a better approach might have been to just change to a lower protein content flour, possibly something in the 10.8 to 12% protein content range.

Tom Lehmann/The Dough Doctor

[Re: Flat dough](#)

2042

JPB;

That sounds as if you might be over extending the dough (opening it too much). The dough in the rim shouldn't get there by shrinking it back onto the peel, it's formed at the time of opening the dough ball into a skin by keeping your fingers away from the edge during the opening process. If you want to accentuate the rim on the finished pizza the correct way to achieve it is to use a bit more dough. I'd suggest trying 2-ounces more dough weight the next time and just opening the dough to fit the peel, if done right the center section should be like a normal pizza for you and the extra dough will end up more so at the edge where it will contribute to a more pronounced rim on the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Elastic? Shrinkage?](#)

2043

Q.J. is spot on with his time and temperature recommendations, couldn't have said it better myself. :)

Tom Lehmann/The Dough Doctor

[Re: Hydration Percentage, Baking Time, and Oven Temperature](#)

2044

If the skin is shrinking significantly during transfer to the peel it was most likely due to insufficient fermentation. Much of this can be either reduced or eliminated by placing the opened skin directly onto the peel and then dressing the skin on the peel. If this is the way you are presently handling the skins the problem is almost guaranteed to be due to insufficient fermentation. If it was due to excessive fermentation which results in a "bucky" dough condition the dough would have been much more difficult to open from a dough ball.

Tom Lehmann/The Dough Doctor

[Re: Elastic? Shrinkage?](#)

2045

The only off aromas that I'm familiar with in baked products are best described as over ripe cantaloupe, acetone/nail polish remover both of which are due to bacillus mesentericus/bacillus subtilus aka "rope", but this are found in the finished/baked product not in the dough. Rope is due to a spore forming bacteria which not only survives baking temperatures it is also more active after being exposed to baking temperatures. Beside its characteristic aroma, it is also identified by a slight brown discoloration in the crumb which when touched is very sticky and forms a thread (rope) when the finger is pulled away. Rope is insidious and the #1 fear of any facility processing baked goods.

Tom Lehmann/The Dough Doctor

[Re: Isoamyl acetate in dough?](#)

2046

From the looks of it I'm guessing that it's nothing more than IDY with an added inactive white sour for flavor. We have been doing this for decades in the wholesale baking industry as well as in some segments of the frozen dough and frozen pizza industries. Red Star manufactures both of these items so it would only be natural that they combine them.

Tom Lehmann/The Dough Doctor

[Re: Instant Sourdough Yeast](#)

2047

Both brewers and bakers yeast can be used in making dough. There is little, if any, significant difference in the finished product when either yeast is used. The only main difference between the two yeasts is in their tolerance to alcohol, brewers yeast has about a 1% higher tolerance to alcohol than bakers yeast.

Tom Lehmann/The Dough Doctor

[Re: Nonfat milk powder vs Full Cream milk powder vs Oil vs High hydration](#)

2048

Here's a dough formula for puff pastry in bakers percent so you can adjust the amount to any size dough you wish to make.

Flour: (pastry or bread type flour may be used) 100%

Salt: 2.5%

Nonfat dry milk: 2% (variable to adjust crust color).

Water: (ice cold) 35%

Shortening: 20%

Roll-In : 60% (this is a high temperature plastic fat containing water) This portion of the fat is added ONLY as a roll-in fat.

Note:

While a commercial Roll-In fat designed specifically for puff pastry application works best butter or margarine can also be used. Danish butter works better than other types of butter due to its unique plasticity at low temperature. DO NOT USE A PLAIN ALL PURPOSE SHORTENING FOR THE ROLL-IN AS IT DOESN'T CONTAIN THE NECESSARY WATER NEEDED FOR EXPANSION (LEAVENING) OF THE DOUGH.

Add flour, salt and NFDM to the bowl first, then add the shortening in chunks, using a pastry knife mixing attachment cut the fat into the flour, then add the water in a steady stream while continuing to mix at low speed. When a "shaggy" dough consistency is achieved change to a dough hook/reverse spiral dough arm and mix

at low speed JUST until the dough begins to take on a smooth appearance. Remove the dough from the mixer, cut into approximately 3Kg. pieces, pin out to fit onto an 18 X 26 lightly floured sheet pan, cover with plastic and refrigerate about 30-minutes. Process all of the dough in this manner. Remove a pan of dough from the cooler and begin sheeting it to about 1/2-inch / 12.5 mm thickness, add roll-in fat to 2/3 of the dough and give the dough a 3-fold, pin out to fit the sheet pan again and refrigerate for 20 to 30-minutes (time will be variable), roll the dough out again to 1/2-inch / 12.5 mm thickness and give the dough a 4-fold. Roll out again to fit the pan and refrigerate. NOTE: You will need to experiment with the number of folds to give the dough to determine the type of flake you want. Some will stop at just one 4-fold while others will go to one additional 4-fold followed by a 3-fold.

The idea is to keep the dough cold as you are rolling/sheeting it as this will prevent the roll-in fat from being incorporated INTO the dough which will destroy the flake properties of the finished pastry.

When sheeting the dough for cutting/shaping reduce the dough to about 1/4-inch / 6mm thickness.

Puff pastry is typically baked at about 400F/205C.

Things to keep in mind:

As you continue to give the dough more folds you may need to leave the dough in the cooler longer for it to sufficiently relax between folds. The dough will be easier to work with if you allow the dough to relax in the cooler for a few hours before sheeting the dough to it's final thickness for shaping.

Depending upon the finished color you are looking for and the strength of the flour you are using you may want to consider adding 1% vinegar or lemon juice to the water. This will help to relax the dough as well as reduce the crust color development during baking.

NOTE: After you have divided the dough into 3kg. pieces, be sure to divide the roll-in fat into the same number of pieces as you will need to use one portion of the roll-in to one portion (3Kg) of the dough.

Tom Lehmann/The Dough Doctor

[Re: Anyone got the recipe for "puff pastry dough"](#)

2049

Very few pizzerias use NFDM or dry milk derivatives due to their extraordinarily high cost v/s benefit. The benefit to be gained is the introduction of lactose sugar aka milk sugar which helps to induce crust color development just as any other sugar would. While there would be some potential dough strengthening due to the calcium ion effect this would be important only in bread production as pizza doughs are not based upon full gluten development as bread doughs are. It is true that the addition of oil at high levels too soon in the mixing process can/will interfere with gluten development this is easily addressed by adding the oil later in the mixing process as we do in my delayed oil addition mixing procedure. It is indeed the addition of water to the dough (increased dough absorption) that is responsible for developing crispiness in the finished crust but only if the crust is baked properly to begin with. This means that you will want to experiment with balancing baking time and temperature with sugar level to allow the crust to be baked for optimum oven spring and crispiness without excessive crust color development. A number of factors will come into play when doing this, for example type and weight of pan, color of pan, type of oven, gas or electric oven, baking surface, oil or shortening in the pan and of course dough formulation. Most of

these will cancel out as a constant, but if you change any thing it will become a variable so just record it and track the changes to help you keep track of what's happening.

Tom Lehmann/The Dough Doctor

[Re: Nonfat milk powder vs Full Cream milk powder vs Oil vs High hydration](#)

2050

Not so strange here, we're all here to help you, more like a family.

Are you in Watertown, South Dakota?

Tom Lehmann/The Dough Doctor

[Re: Dough recipe questions](#)

2051

The dough ball has a smooth skin with no rips or tears, looks great to me.

What was the finished dough temperature?

Tom Lehmann/The Dough Doctor

[Re: Pizza rim came out flat](#)

2052

If the 24-ounce dough balls are being used for the 16-inch deep-dish pizza your dough loading factor is 0.1194 so 0.1194×113 gives you a suggested scaling weight of 13.5-ounces for the 12-inch deep-dish pizza as opposed to the 12-ounces you're presently using.

If you would like to discuss these issues with me please feel free to call me at 785-537-1037, I think I can get you pointed in the right direction with a short phone call.

Tom Lehmann/The Dough Doctor

[Re: Dough recipe questions](#)

2053

I make mostly a New York style pizza, and I typically use 65 to 67% dough absorption. My "go to" baking temperature is 500 to 550F. The Marsal deck ovens are the deck ovens of preference for me, they have a deck that is thicker than most deck ovens and they hold heat and retain baking temperature very well. As for the oven, it all depends upon what style of pizza you're making. For N.Y. style pizza the Marsals are hard to beat in both performance and price.

Tom Lehmann/The Dough Doctor

[Re: Hydration Percentage, Baking Time, and Oven Temperature](#)

2054

The whole objective in baling the dough is best summarized by one word....consistency. If the dough is balled sometimes tight and sometimes loose there can be considerable variation in the way the dough ball expands during fermentation as well as the way it reacts during opening. One thing I can say about mechanical rounders is the they are consistent in the way they round the dough balls. If you want the dough balls rounded tighter you just pass them through the rounder twice aka double rounding.

Tom Lehmann/The Dough Doctor

[Re: Dough rounder BALLMATIC 1000](#)

2055

After I responded I Googled them and saw that they are made in Italy. I don't have any experience with that brand, but the Round-O Matic is a great performer and

very fast too. As there are only 4 parts to remove for cleaning there isn't much to go wrong. Cost is about \$9,000.00 depending upon specific model. At \$3,300.00 this would appear to be a pretty good buy, maybe if you also post in the PMQ Think Tank you might be able to find someone who has one and can comment on their experience with it.

Tom Lehmann/The Dough Doctor

[Re: Dough rounder BALLMATIC 1000](#)

2056

Where is it made? Assuming China?

Tom Lehmann/The Dough Doctor

[Re: Dough rounder BALLMATIC 1000](#)

2057

That's a knock-off of the AM-Manufacturing Round-O-Matic R-900 series dough ball rounder.

I can't speak for the one you have referenced but the Round-O-Matic is a great little dough ball rounder as long as the dough absorption isn't much above the 66 to 68% range (American type flour) and the dough isn't overly soft/extensible. Only four parts to clean, super easy.

Tom Lehmann/The Dough Doctor

[Re: Dough rounder BALLMATIC 1000](#)

2058

Actually, you're not making a poolish, instead you are making a "pre-ferment" aka "brew". This is likely contributing to the over fermentation condition. Try making your poolish without added yeast, you only need to leave the poolish hydrate for 1 to 3-hours, so even go shorter than that. I seldom ever use a poolish unless I'm working with a high absorption dough (70% and above). As to total fermentation time 48-hours on the dough is a good target to shoot for, once you have mastered that, you can go for 72 then 96-hours if you wish.

Pizzerias, unless they are making deep-dish type pizzas don't proof their dough very often, they get all of their fermentation in the walk-in cooler. A typical dough management procedure for a pizzeria is:

Mix (75 to 80F)

Immediately scale and ball.

Box and oil dough balls

Cross-stack in the cooler for 2 to 3-hours (until dough reaches 50 to 55F)

Down-stack

Cold ferment for 24 to 48-hours (72-hours is typically max).

Remove from cooler (keep covered) and allow to warm to 50F. (internal ball temperature)

Begin opening balls into skins (dough will be good to use for a 3-hour period of time)

If you would like to have a copy of the procedure with all of the details send me an email at <thedoughdoctor@hotmail.com> requesting a copy of my Dough Management Procedure.

Tom Lehmann/The Dough Doctor

[Re: Stiff dough that resists opening](#)

2059

Your problem with stretching the dough wasn't due to lack of gluten development

during mixing, biochemical gluten development takes care of the gluten development for you when you ferment the dough for 24 hours or more, instead, the problem was most likely due to not allowing the dough to warm sufficiently before opening it into a skin. In pizzerias we use 50F as the target temperature but in home use where you are only making a few pizzas at most many people opt to go with 60F. Anything above that can result in a gassy dough that can be difficult to work with and open into a skin.

Tom Lehmann/The Dough Doctor

[Re: dough temperature question](#)

2060

If your dough is being properly managed it should not need to be re-balled. I only re-ball if the dough is over fermented and then you will need to allow the dough ball to rest again for a sufficiently long time for it to relax sufficiently to be easily opened, this can and usually does require several hours.

Tom Lehmann/The Dough Doctor

[Re: Pizza rim came out flat](#)

2061

If you can get some VWG use it to increase the protein content of your flour to something in the 12.5 to 13% protein range. How much VWG to use?

Using the 11% protein flour you have available to you, subtract 11 from 13 = 2 (this means that you will need to increase the protein content of the 11% protein flour by 2%. Divide 2 by 0.6 = 3.3 (this means that you will need to replace 3.3% of the 11% protein content flour with 3.3% VWG.

The rule is: Determine how much you want to increase the protein content by, then divide that number by 0.6, the answer will be the % VWG that will need to be used to increase the protein content of the flour to the desired level. BUT remember that for each % VWG that you add you MUST increase the dough absorption by an additional 2%, so in the above example where we found that we need to add 3.3% VWG you will also need to increase the dough absorption by an additional 6.6% to adjust for the absorption properties of the VWG. To add the VWG just lightly blend/whisk it into the flour.

Tom Lehmann/The Dough Doctor

[Re: Pizza rim came out flat](#)

2062

Frozen pizza dough is made by some of the major frozen dough manufacturers here in the U.S. (Drayton and Rich's) to name but two. The market is pretty significant in size too. Users include small pizza shops, restaurants, bars, snack food facilities, as well as home use applications. As for cost, the cost of pizza dough in the U.S. is around \$0.25 to \$0.35 per pound but with the cost to manufacture the dough included (2.5 X actual ingredient cost) the cost rises to about \$0.55 to \$0.66 per pound. Frozen dough will typically sell for about \$1.00 to \$1.25 per pound. The individual dough ball cost will less depending upon the weight of the dough ball but an average dough ball will sell for \$0.75 to \$1.00 each. How high have I seen frozen dough being sold for? \$1.50 to \$2.00 per pound is about the highest I've seen it go for in some of the more remote areas of the country.

Tom Lehmann/The Dough Doctor

[Re: Is there a need for frozen pizza dough?](#)

2063

Yael;

No truer words were ever spoken. ^^^

When doing research we learn from both our successes and our failures. I've learned a lot from both ends of that stick.

One thing that I might add regarding baking low absorption pizza doughs is to bake them at a lower temperature than high absorption doughs. Low absorption (50% and less) doughs typically bake better at around 500F/260C.

Tom Lehmann/The Dough Doctor

[Re: Help! Accidentally made 50% hydration dough! What now?](#)

2064

What is the Lintner Value of your malt?

Tom Lehmann/The Dough Doctor

[Re: Diastatic malt powder and autolyse](#)

2065

From your description I'm guessing that your dough is being over fermented. You might try this; Reduce the CF time to 6-hours and then follow your usual procedure and let us know if you see any improvement. I can say for sure that your dough is not being over mixed.

It's hard to say much more than that without knowing your dough formula and finished dough temperature.

Tom Lehmann/The Dough Doctor

[Re: Stiff dough that resists opening](#)

2066

Your dough temperature was quite cold and the water temperature in which you suspended the IDY in was WWAAYY too cold and in all probability resulted in some damage to the yeast. IDY should never be suspended in water colder than 95F/35C.

Tom Lehmann/The Dough Doctor

[Re: Pizza rim came out flat](#)

2067

Peter;

Nothing like exploring a path never traveled.

Tom Lehmann/The Dough Doctor

[Re: Help! Accidentally made 50% hydration dough! What now?](#)

2068

Peter;

He is still going to get good fermentation in 24-hours. I don't know what the fermentation tolerance of his flour is so I'm hesitant to say that a longer fermentation time would be beneficial. Besides, there's nothing wrong with making a thin crispy crust once in a while, remember there have been some pretty significant products made as a result of a mistake.....bagels for one.

Tom Lehmann/The Dough Doctor

[Re: Help! Accidentally made 50% hydration dough! What now?](#)

2069

With 3% salt and 2.8% sugar 0.3% IDY was probably not enough yeast. It would have been better to use something closer to 0.5% IDY. Additionally, what was the water temperature that you suspended the IDY in? That's important to know here along with the finished dough temperature.

Tom Lehmann/The Dough Doctor

[Re: Pizza rim came out flat](#)

2070

Congratulations! You're going to be making some thin crispy pizzas! :-D
Just handle the dough in your usual manner and when it comes time to open the dough balls into skins use a rolling or pastry pin and dusting flour as needed. Open to about 1.5 to 2-mm thickness, dock the dough skin with a dough docker if you have one or use a new lead pencil for a docker. Oil the eraser end and use this to dock the dough skin....a bit tedious but it works in a pinch. Don't use a fork as that is NOT docking. If necessary, trim the skin to the exact diameter you want. dress to the order and bake at 500 to 550F/260 to 288C.

Let us know how it turns out. You might like it. ;D

Tom Lehmann/The Dough Doctor

[Re: Help! Accidentally made 50% hydration dough! What now?](#)

2071

Thank you! I'll toast to that! :pizza: ;D

Tom Lehmann/The Dough Doctor

[Re: A Frivolous Question For The Dough Doctor](#)

2072

Rolls;

Occasionally I get those feelings but then I'm reminded that there are so many new things happening with pizza and so many people in need of assistance that I quickly put those thoughts to rest and jump right back into the pool and seldom ever look back or have any regrets. I'm always up to trying one more slice because I'm afraid I'll miss something if I don't.

As for my favorite pizza, I'd have to say it's AJ's New York Pizzeria, Manhattan, Kansas. I have to admit that I'm partial to it because my DNA is all over the pizza as well as the pizza concept, so if I don't like it I only have myself to blame. I have two favorite pizza chasers, if I'm driving it's a large, cold root beer. If I'm not driving it'll be a tall Guinness Stout ;D

I've always considered it an honor to be able to participate in sites like this as well as the PMQ Think Tank and to be asked to participate in Pizza Expo (don't know how many years I've done P.E. but it's been most of them).

In the end, my own personal rewards come when someone writes me or approaches me and starts the conversation by saying "You probably don't remember me but your advice helped my get my store off the ground".....what more can one ask for?

Tom Lehmann/The Dough Doctor

[Re: A Frivolous Question For The Dough Doctor](#)

2073

While indeed, there are a number of different ways to formulate a starter into the dough, in the end the only one that counts is the one that works best for you.

Dough formulas are the same way as well as dough management procedures (there are soooooo many!), some might be better than others for any number of reasons, but in the end the best one is the one that works best for YOU.

Tom Lehmann/The Dough Doctor

[Re: Goopy Sticky Dough at 64% w/Starter](#)

2074

Working in a little fresh flour into the dough will help to restrengthen the dough

which is most likely being weakened by prolonged exposure to the high acidity of your sourdough starter.

Tom Lehmann/The Dough Doctor

[Re: How to fix overfemented retarded dough balls](#)

2075

You can even make a pretty decent pizza using just the cook top (burners) and a covered frying pan, similar to the way camp pizza is made.

Tom Lehmann/The Dough Doctor

[Re: is that good or bad if i making pizza by Microwave](#)

2076

5F could put you into the 40 to 45F or higher range depending upon at what temperature you keep your fridge set at. You say you used colder water temperature, how much colder? How much did it lower/reduce the finished dough temperature? If your dough didn't seem to want to stop/slow down with regard to the fermentation rate I'm guessing that your fridge got into the mid to high 40's and couldn't cool the dough sufficiently so as the dough continued to ferment it continued to increase in temperature due to heat of metabolism which continued to drive fermentation at an increasingly faster rate.

Tom Lehmann/The Dough Doctor

[Re: Low IDY = D.O.A.](#)

2077

Rolls;

Here is the dough formula in grams based on 300-grams of total flour weight.

Flour: 100% 300-grams

Water: 62% 163.5-grams ($186 - 22.5 = 163.5$) Test: $163.5 + 22.5 = 186$ 186
divided by 300 X 100 = 62 (62%)

Starter: 15% 45-grams (22.5-grams flour + 22.5-grams water)

Oil: 7% 21-grams

Salt: 3% 9-grams

Malt: 0.25% 0.75-grams

Tom Lehmann/The Dough Doctor

[Re: Gooeey Sticky Dough at 64% w/Starter](#)

2078

With the typical soft dough condition with the Caputo flours and relatively high dough absorption when combined with the high baking temperature you get rapid expansion during the oven spring part of the baking process which results in the characteristic open, porous crumb structure. If the flour was malted you would get too much crust color on the bottom of the crust during baking...hence, they don't malt the flour.

Tom Lehmann/The Dough Doctor

[Re: Is Caputo 00 just hype or am I missing something?](#)

2079

Total flour weight (in the dough, not to include that which is in the starter) is indeed the best way to calculate the weight of the starter to be used. Think of it as just another ingredient. The reason why I don't like to use total dough weight as the basis for calculating the weight of the starter to be used is because if your dough happens to be made using a high dough absorption percent it will result in a

greater weight for the starter, and a high absorption dough may not be able to tolerate the weakening affect of the starter where as if everything is based on the actual dough flour weight this will not be a problem.

Tom Lehmann/The Dough Doctor

[Re: Gooley Sticky Dough at 64% w/Starter](#)

2080

Hopefully you will be using a "dough formula" based on actual ingredient weights as opposed to a "dough recipe" based on volumetric portions as formulas are much more accurate and reproduce able plus they have the added advantage of allowing you to easily manipulate the size of the dough you want to make. :-D

As for using dough formulas from this or any other public site, everything here is in what is referred to as "public domain" so you're free to use it as you wish. For additional help you can also go to my web site at <www.doughdoctor.com> for help with dough mixing and management procedures.

Tom Lehmann/The Dough Doctor

[Re: Question about using recipes?](#)

2081

With all of the flour in the bowl you don't need to worry about the salt and yeast playing well together....they'll be just fine. Your procedure already has me worn out, but remember that I'm a firm believer in the KISS principle, so take it with a grain of salt. Yes, I think you should still take a look at a procedure along the lines of which I proposed, I think it will work well for you.

Don't sweat the coffee thing. Sometimes I'm up until the wee morning hours conversing with International clients, and just before I shut down for the night I come back here to answer any new questions, probably not the best thing to do as my brains are pretty well scrambled and it sometimes shows in my responses as many here can attest to...heck! I have even managed to spell my own name wrong!!! :-D

Tom Lehmann/The Dough Doctor

[Re: difference between IDY and ADY \(glutenboy method vs what Gemignani says\)](#)

2082

The "00" flours are not malted so unless you can bake the pizzas at or above 750F you're wasting your money on it. These flours also have a short fermentation tolerance so, depending upon which one you're looking at think in terms of 12 or 24-hours total fermentation time. Because the flour is made from soft wheat varieties the resulting dough is very extensible which can be a blessing or a hindrance depending upon your skills at opening the dough into a skin. There are a handful of flour mills in the U.S. making "00" type flours but they are really not all that common or popular when you look at the big picture of flour as it pertains to use in making pizza....think of it as a specialty flour. Most people do a pretty respectable job of making decent Neapolitan style pizzas using some of the A.P. and bread type flours.

Tom Lehmann/The Dough Doctor

[Re: Is Caputo 00 just hype or am I missing something?](#)

2083

The main difference between ADY and IDY is that the IDY doesn't need to be suspended in water and allowed to activate prior to addition to the dough. That's right, it is added in the dry form. The best way to add it is to just place it right on top of the flour, the hook/dough agitator will disperse it in the flour for you. The

reference to "instant" in IDY does not have anything to do with activity, it is a reference to the rate of hydration of the yeast. Due to the differences in moisture content between ADY and IDY you will need to use less IDY to achieve the same fermentation as ADY. On average, you will need to use 25% less IDY than ADY to achieve similar fermentation rates.

There are some cases where the IDY must be suspended in water prior to addition, such as when making a totally hand mixed dough. In this case the IDY is only suspended in 95F water (the temperature is CRITICAL, use a thermometer) it does not need to be activated like ADY. Another case where the IDY needs to be pre-suspended is when the total machine mixing time is less than 5-minutes such as is the case for cracker type crusts as well as use of VCM and similar types of mixers. I'm not sure I understand your mixing process. Put water in mixing bowl, add half of the "dough" do you mean dough ingredients? Let it sit for 15-minutes (without mixing?) I see that you are also adding the salt last, there is really no need to do this as it can be added in the second part of the addition. Something you might want to explore is putting the water in the bowl, adding the yeast, malt (don't know why if your flour is already malted), all of the flour and the salt on top of the flour, mix to incorporate, then proceed as you presently do. Makes for a much more straight forward process.

Tom Lehmann/The Dough Doctor

[Re: difference between IDY and ADY \(glutenboy method vs what Gemignani says\)](#)
2084

Check to see if you can find Pillsbury Bread/Bread Maker flour. This is the same as Pillsbury Superlative flour as it comes in at about 12.4% protein content. I've personally used it to make all types of pizzas quite successfully. I like to refer to it as my "all-purpose" pizza flour (not to be confused with All-Purpose flour). With your "J" hook I'm betting that you are not getting sufficient mixing at low speed prior to adding the oil. Try mixing in low speed for 2-minutes and then going to a higher speed, where you can visually see the dough getting a better mixing action for at least 2 more minutes before adding the oil. The oil does not have a whetting effect upon the flour, it only has a lubricating effect. Since your starter is based on 50/50 flour+water, when adding 15% starter you will need to reduce the added dough water by the amount of water contained in the starter. You show a total dough absorption of 64% (this should include both added water and the water coming from the addition of 15% starter. If you are not doing this your absorption is actually $64\% + 7.5\% = 71.5\%$ and on top of that you are adding 7% oil which further loosens the dough. The oil should not cause a sticky dough but instead only a soft, extensible dough condition. Remember, the percentage shown as the total dough absorption is based on the TOTAL amount of water going into the dough divided by the total flour weight (NOT to include the flour in the starter). To adjust for the lubricating effect of the oil and to improve dough handling properties you might want to reduce the total dough absorption to 59 to 60%.

The oil itself is not going to be directly responsible for a sticky dough condition unless one of two things are happening; 1) The oil is not added AFTER the flour has had a chance to hydrate in the mixing bowl prior to the oil addition. 2) Since the oil is a lubricant it will lubricate the dough during mixing, thus reducing actual gluten development so a longer mixing time will be required than a dough made with a much lower oil level. It is not uncommon to see dough mixing times (with a reverse spiral dough arm) run out to 12 to 15-minutes because of this lubricating effect. With a straight "J" hook it is impossible for me to say how long the mixing time might be without actually watching the dough being mixed, but you can bet it will be in the 10 to 15-minute bracket. With that said, if the dough is clinging to the

hook or climbing up the hook (both common problems with the "J" hook) it might never get properly developed unless you can mix the dough at a sufficiently high speed so the dough gets flung off of the "J" hook.

Just to make sure there isn't an issue with ingredient amounts can you please share your dough formula showing the ingredient amounts in both bakers percent (I know you have already done that) and also in the weight measurements you are using.

Tom Lehmann/The Dough Doctor

[Re: Goopy Sticky Dough at 64% w/Starter](#)

2085

When it comes to impact upon fermentation the yeast doesn't care when the salt is added, it's all the same. As to the impact of salt on dough mixing, you can develop gluten faster without salt in the dough. In a commercial bread or bun bakery the mixing time is reduced by about 2-minutes when the delayed salt addition mixing method is employed (this is when the salt is added to the dough about 4-minuted before the end of the mixing time).

In the mixing of pizza doughs where there is no need or desire to fully develop the gluten the delayed salt addition mixing method is seldom ever used. When making commercial frozen pizza dough, that's a different story, now the salt is almost always delayed as full gluten development is desired plus there doughs are mixed very cold making the doughs quite tough in the mixer, by delaying the salt addition in this case the gluten is developed faster and the dough is not quite as tough so it's overall easier on the mixer too, when you consider that the mixer carries a price tag of the better part of \$100,00.00 this is an important consideration.

Tom Lehmann/The Dough Doctor

[Re: adding salt too early??](#)

2086

Easiest way is to put the water in the mixing bowl first, then add salt and sugar (if used) no need to stir. Add the flour and the IDY (dry) or ADY (suspended/activated) and begin mixing. As soon as the flour is whetted (dry flour is no longer visible in the bottom of the bowl, add the oil and continue mixing. NOTE: If compressed yeast (CY) is used just crumble it right on top of the flour and begin mixing. As you can see, I'm a firm believer in the KISS principle. Besides, it works just fine.

Tom Lehmann/The Dough Doctor

[Re: adding salt too early??](#)

2087

While I don't have a hard and fast answer to the problem, lets begin by saying that your starter is the "great unknown" since we don't have a clue as to what we're culturing or how much and specifically what acids are being formed. My recommendation is to reduce the amount of starter being added by 75%, if the dough looks better, then you can begin increasing the amount gradually until you find the optimum addition level for the flour that you're using.

Your dough mixing procedure might also have something to do with it too, how are you mixing your dough?

Tom Lehmann/The Dough Doctor

[Re: Goopy Sticky Dough at 64% w/Starter](#)

2088

If you treat your peel with a little mineral oil it will help to prevent the grain from raising every time you get something wet on it.

Tom Lehmann/The Dough Doctor

[Re: Looking after a wooden peel](#)

2089

Those mixers are OK for bread type doughs but if your pizza doughs are going to be higher absorption than a bread dough (above 68%) that mixer will struggle to give you a consistent dough. Where are you located?

Tom Lehmann/The Dough Doctor

[Re: Sideways spiral mixer? What is it? Any good?](#)

2090

I'm pretty sure your sticky/tacky dough is due to under mixing. You need to mix the dough just until it takes on a smooth, satiny appearance, as soon as it reaches that point the stickiness will disappear.

Also, are you using the delayed oil addition mixing method? If not you really should be with that amount of oil.

Delayed oil addition mixing method: Put water in mixing bowl, then add activated ADY suspension followed by the flour, add salt and sugar, mix JUST until the flour is whetted, add the oil and continue mixing until you achieve the described smooth dough appearance.

Tom Lehmann/The Dough Doctor

[Re: Dough Hydration](#)

2091

You can use just about any type of sugar in your dough but at the typical use levels used in pizza dough (1 to 3%) it really won't impact flavor and it will have little, if any impact upon crumb color. Sugar is mostly all about crust color...the more you use, the darker the crust color assuming all things equal. Sugar also provides nutrient for the yeast to feed upon (exception being lactose).

If sugar is not used in the dough formula the baking is usually done at a higher temperature and sometimes for a longer time. If the flour is malted or treated with amylose enzyme you can easily delete the sugar if you wish but if it is not malted or treated with amylose you will need sugar to help develop crust color unless you are baking at 750F or higher. Sugar is also needed to support fermentation if you plan to ferment for much more than overnight with an unmalted flour.

If you opt not to use sugar in the dough formulation no changes need to be made to mixing but not comments above regarding fermentation and baking.

Tom Lehmann/The Dough Doctor

[Re: Sugar in the dough?](#)

2092

Try doing this;

Form your dough balls and lightly oil them.

Place into individual plastic Food Bags (like bread bags) Don't use Zip-Lock Bags.

Twist the open end to form a ponytail and tuck it under the dough ball as you place the ball into the fridge.

To use the dough after 24 to 48-hours cold fermentation remove from fridge, allow the dough ball to warm to 50 to 60F.

Roll the bag down around the dough ball and invert allowing the dough ball to fall onto a floured surface.

Flour the dough ball and open into a skin by your preferred manner.

We have had some recent discussion on this procedure here in other posts.

Tom Lehmann/The Dough Doctor

[Re: Dry dough tough to stretch](#)

2093

It's impossible to answer your question without first knowing your dough formulation, type of flour being used, and how it's being mixed (type of mixer, mixing speed, mixing time and finished dough temperature) as well as any treatment on the flour such as bleached, enriched, bromated, amylase added, malted, etc. the bag will provide this information. With this information we can make a more educated assessment as to what might be happening.

Tom Lehmann/The Dough Doctor

[Re: Dough Hydration](#)

2094

That's roughly equivalent to 7, 12" pizzas. Or put another way, eating one 12-inch pizza every 6.5-minutes for 45-minutes.....BURP!

Tom Lehmann/The Dough Doctor

[Re: Think you can finish a 32" pie in under 45 minutes?](#)

2095

Sounds like it might be over fermented. I usually just turn the fermented dough ball out of the bag after allowing it to set at room temperature for about an hour, but when making pan pizzas it is usually easier to just place it directly into the pan and immediately fit the dough to the pan, then lightly cover the pan and set aside to proof for 60 to 120-minutes, depending upon formulation, room temperature and how thick you want the crust to be.

Tom Lehmann/The Dough Doctor

[Re: dough question](#)

2096

John;

How many smaller containers do you have on the top of your prep table? Usually we will only have a few of the lesser used ingredients or larger refill containers of the most often used ingredients stored in the reach-in under the prep table. If you have at least 20 ingredients/toppings stored under the table you might be trying to do too much topping wise. just a thought.

Tom Lehmann/The Dough Doctor

[Re: How to organise ingredients](#)

2097

For dough storage in a limited space it's hard to beat plastic bagging the dough balls. After forming the dough balls just wipe them with oil and place into individual plastic bags (I use to use recycled bread bags) but just about any reasonably sized bag will work. After placing the oiled dough ball into the bag, pull the bag snug but not tight to the dough ball, twist the open end to form a pony tail and tuck the pony tail under the dough ball as you place it onto a flat surface. This is important as it allows the bag to "burp" and to expand with the dough ball without ripping or splitting out the seams. To use the dough just pull the bag down around the dough ball and invert the bag allowing the dough ball to fall onto a floured surface, it's then ready for immediate opening into a skin by your preferred method. If you review some of the recent posts you will see some recent discussion on this topic along with a photo of the fermented dough in a bag ready for use.

Tom Lehmann/The Dough Doctor

[Re: Dough proofing box for home use](#)

2098

That looks about right. ^^^

Tom Lehmann/The Dough Doctor

[Re: dough question](#)

2099

First question out of the box, at what temperature are you going to bake your pizzas at?

Tom Lehmann/The Dough Doctor

[Re: Wrong flour](#)

2100

While I am not an advocate of cooked sauce this is one of those cases where a cooked sauce is going to be better than an uncooked sauce.

Tom Lehmann/The Dough Doctor

[Re: Freezing sauce](#)

2101

You might also go to my web site at www.doughdoctor.com and take a look at the video on making dough that I have posted, it shows the dough ball being opened into a skin which might help.

Tom Lehmann/The Dough Doctor

[Re: Large air bubbles in crust](#)

2102

As you're opening the skin keep your fingers closer to the edge of the skin.

Tom Lehmann/The Dough Doctor

[Re: Large air bubbles in crust](#)

2103

Nope, not at all, the crust is insoluble. I wouldn't through the dough out though, just go ahead and use it and take corrective measures the next time. All it's going to do is become the nucleus for some larger holes in the crumb.

In a way, that's how they get the dominant bubbles in a soda cracker.

Tom Lehmann/The Dough Doctor

[Re: dough question](#)

2104

That's how we used to test the dough to make sure yeast was added when I worked in a large wholesale bakery, I'm like Craig..... I sure wouldn't call it a "technique", but everybody's got their "THING" when it comes to pizza. :-D

Tom Lehmann/The Dough Doctor

[Re: Interesting prefermentation technique for short fermentations](#)

2105

Lookin' good! :chef:

Tom Lehmann/The Dough Doctor

[Re: Dough balls have rips in them??](#)

2106

Just fro the looks of it I'd say it is due to your opening technique.

Tom Lehmann/The Dough Doctor

[Re: Large air bubbles in crust](#)

2107

Without knowing just how you are handling the dough it's hard to say exactly what's happening but going on the premise that you didn't cover the dough in the fridge I'll make a "SWAG" that what you are seeing is just common drying or a slight crusting of the dough surface. What we typically do is to lightly oil the dough ball as you did but then after 2 to 3-hours cover the container to prevent the drying that you are observing. The oil on the dough ball only serves to keep it from crusting during the limited cross-stack/open time, after that it still needs to be covered for the duration of the time in the fridge. An alternative to this is to lightly oil the dough ball and place it into a plastic bag (like a bread bag), twist the open end into a pony tail to close and then tuck the pony tail under the dough ball as you place it into the fridge. By this method no further handling is needed until you're ready to use the dough.

The crust that has formed will no longer turn into anything resembling the un-crustured dough but if it is still pliable and not "hard crusty" you can go ahead and work it back into the rest of the dough.

Tom Lehmann/The Dough Doctor

[Re: dough question](#)

2108

Uncle914;

Unless you are baking at 750F or higher forget about the Caputo flour as it really isn't intended for home use. If you do get some you will want to get some diastatic (enzyme active) malt 20 degree L. value. Then include 0.25 to 0.5% of the malt in your dough formulation. Without the malt you will have poor crust color development and the yeast may run out of nutrient to feed upon during the fermentation period leading to other issues.

Here's the bitter truth about bulk fermenting the dough in small quantities as you are. First, when we think of the difference between mixing, scaling/balling and cold fermenting v/s mixing, bulk cold bulk fermenting, scaling/balling and cold fermenting again the differences most often cited are based on the differences which are due to the dough in significantly larger quantities, at least 5 Kg. (11-pounds) total dough weight. When you bulk ferment 1.5 to 2-pounds of total dough weight the dough is too small to retain much, if any, of the heat generated due to heat of metabolism so the dough performs/ferments just as a large dough ball would, hence.....not much, if any advantage. From research that we did many years ago we found that a 2-pound dough ball (call it a "bulk" dough in this case, will experience only about 1.5 to 2-hours more fermentation in any given period of time than a 12-ounce dough ball in the same period of time under the same dough management procedure.

To do some meaningful testing I would suggest getting a good scale capable of weighing in grams (I use a KD-8000 / about \$40.00) and a dial or electronic thermometer for measuring dough temperature (\$4.00 to \$12.00). With these tools you will be able to change your "recipe" into a "formula" based on weight measures rather than volumetric portions which will allow you to work in bakers percent which, in turn, will allow you to effectively make accurate changes to your dough formulation and manipulate your dough management procedure and accurately tracking your results to making better or different pizzas.

Tom Lehmann/The Dough Doctor

[Re: When to divide bulk cold fermented dough](#)

2109

Due to their acidity apples are pretty resistant to mold, at least much more than bread or pizza crust.

Tom Lehmann/The Dough Doctor

[Re: Anyone tried this for storage?](#)

2110

Samuelgross;

What type of yeast are you using? Malt/diastatic or non-diastatic? Degree L.? Whey, bakery grade or non-bakery grade? Lactic acid, dry or liquid? Concentration? Ditto for the acetic acid. What is the pH of the dough after mixing? Are you interchangeably hand tossing and sheeting? If not which forming method do you use to open the dough balls into skins?

Normally when you proof the dough/skins on a screen the dough tends to flow into the screen openings and then expand during baking to effectively lock the dough to the pan after baking, this can be compounded when you over wrap the skins on the screen which further pushes the dough into the screen openings. One effective solution to this is to simply turn the proofed skin off of the screen on which it was proofed and onto another screen so the screen marks are now oriented to the top of the pizza where they can be covered by sauce and cheese, plus, since they are on the top they will also tend to come out or lessen during the oven spring phase of baking.

I should also point out that Mondako flour is shown to be at 12% protein content and 475F with a 4-minute and 55-second baking time seems rather low temperature and short baking time for a highly acidified dough....usually I see a temperature of 500 to 510F with a baking time of 6.5 to 6.75-minutes, but then I don't know what your top finger configuration is or how many top fingers your oven has so I can easily be wrong on that for your specific oven. In any case a pH of the dough would give the necessary direction.

I'm sure with a little work we can work this out.

Tom Lehmann/The Dough Doctor

[Re: Obtaining a fluffy but crunchy crust with my lactic/acetic acid infused dough](#)

2111

We've never seen any affect upon the crust due to oil addition to the dough unless as otherwise previously stated.

Tom Lehmann/The Dough Doctor

[Re: Does oil affect crust color?](#)

2112

Was able to help out a large group of new operators at Pizza Expo too, one session (scheduled for 4-hours went to 6-hours) and the other session scheduled for 1-hour went to nearly 7-hours. It was time well spent. Even had a chance to meet a few of our followers from here too.

Tom Lehmann/The Dough Doctor

[Re: wet doughs](#)

2113

I'm temporarily back but not too much to add as the addition of oil to the dough at "normal" levels 5% and less just doesn't have a significant impact upon crust color characteristics. When you begin to get into the 8 to 10% and higher range it adds more luster to the color due to increased light reflection from the crust but that's about all that you get. Consider some of the pastry items where the total fat

content is closer to the 20 to 25% range, or look at pie crust where the fat is around 30 to 35%. Most of the color there is due to the application of egg wash to the item prior to baking or the use of corn sugar in a pie crust or milk on it as a wash where the lactose in the milk is providing the color. In all of these though the color is more lustrous due to the high fat content but not darker.

When oil is used in the pan for making pan type pizzas you will consistently see a fried effect and a darker crust color where the dough was in contact with the hot fat and fried but again this is a topical thing and based on the oil/fat being in the dough, think of a tortilla....on average 8% fat is used in that dough...think about the color, what color?

Tom Lehmann/The Dough Doctor

[Re: Does oil affect crust color?](#)

2114

It works pretty well to soften the hard lumps of brown sugar.

Tom Lehmann/The Dough Doctor

[Re: Anyone tried this for storage?](#)

2115

Additionally, if you're just changing from ADY to CY you would use twice as much CY as ADY.

Tom Lehmann/The Dough Doctor

[Re: Conversion from ADY to CY and Cold Fermenting](#)

2116

The bread is about 40% total moisture content and the apple peel is almost 90% moisture so moisture migrates to the driest of the two (the bread), thus increasing the moisture content, this makes it more moist but doesn't impact staling at all.

Tom Lehmann/The Dough Doctor

[Re: Anyone tried this for storage?](#)

2117

Edward05;

Good grief! Sugar and oil look to be all "outta whack", but can't be sure since all ingredients are shown in volumetric portions instead of weight measures. If you are going to be making dough for just one 12" pizza you will need to have about 10-ounces (285-grams) of dough for a thin crust or 14 to 16-ounces (398 to 454-grams) for a deep-dish type of crust so you will need to have a grams scale to weigh out your ingredients with doughs.

The first thing that needs to be done is to get some actual weight measurements on each of the ingredient portions which you have shown, once you have provided that we can then put the "recipe" into a dough "formula" and convert it, very accurately, into any dough size you want. But keep in mind that with such small dough sizes your ingredient amounts will be quite small and shown in grams weight so you will need to have a scale capable of at least weighing to the nearest gram for weighing the ingredients for making your dough.

Tom Lehmann/The Dough Doctor

[Re: Breaking down dough recipe for one pizza](#)

2118

Absolutely correct, couldn't have said it any better. If you put it ON the dough prior to baking it will impact the crust color more than putting it into the dough.

Tom Lehmann/The Dough Doctor

[Re: Does oil affect crust color?](#)

2119

75-years young!

I've seen a lot of water pass under my bridge.

Tom Lehmann/The Dough Doctor

[Re: wet doughs](#)

2120

I normally have a metal bench scraper in one hand too which I use to help lift the dough off of the bench, after a few stretch and folds the dough will begin to get sufficiently developed so as not to require the use of the bench scraper to help lift it. I learned this technique back in the late 50's when working for a small retail bakery and making Danish dough. Not a very high absorption dough but as it contains up to 20% sugar it's super soft and sticky and all but impossible to handle any other way until you get a little gluten development and get the dough chilled.

Tom Lehmann/The Dough Doctor

[Re: wet doughs](#)

2121

Hillbillypizza;

Weighing in on your questions;

1) Don't cook it. If you do the sauce will lose flavor after being baked on the pizza. Additionally you will run the chance of scorching it which would destroy the flavor and once it is cooked you will then need to cool it back down to 40F or less for holding.

2) You might want to consider using sheet pans and single bags to cover each sheet pan of dough balls. This is a widely used method for cold storage of the dough balls. Make sure the bags are at least 8-inches longer than the pan which will allow the bottom of the bag to be folded up over the end row of dough balls and the top of the bag to be folded down over the end of the pan and tucked under the pan. In this application the pans are usually stored in a rack in the cooler. The bags can be reused a number of times, my suggestion is to use the bags for a full week and change out weekly.

3) Opening the dough balls using a rolling pin is fine for a thick crust, just be sure to open the dough to a diameter slightly larger than the pan itself as the dough will exhibit some memory as you place it into the pan. With this said, you will need to allow the formed dough to proof in the pan prior to baking. We normally like to proof for 45 to 75-minutes (you will need to experiment to see what time gives you the finished crust you're looking for). If you want a raised edge on the crust the time to form it is just prior to baking, do this by pulling some of the dough up onto the sides of the pan using your fingers (this will typically result in something of a Chicago pan style of raised edge. If you want to have a more rounded raised edge prepare the pan using a shortening (plastic fat) like the U.S. product Crisco. Using this in the pan will allow you to place the dough ball into the pan and press it out to fit the pan without the dough pulling away from the pan, this will allow you to form an edge at this time which will create a rounded edge on the finished/baked crust.

4) A par-baked crust does not need to be refrigerated, it can be stored at room temperature without any issues at all. Some find it easier to par-bake their crusts with 1/2 of the sauce applied to the skin prior to par-baking (helps to avoid bubbles), the remainder of the sauce is then applied when the crust is used to make a pizza. These par-baked crusts can also be stored at room temperature. I do not recommend carrying par-baked crusts over from one day to the next.

As to your question on slices, yes it will impact the overall quality of the presentation BUT if you refreshen the slice by adding a LITTLE fresh cheese to the slice at the time of reheating it can make a big difference in perceived quality. A quick spritz of EVOO onto the top of the slice as it goes into the oven can also make a big difference too.

5) Pre-cooked bacon bits, in my opinion, is the only way to go. As for toppings/mushrooms just make sure they are thinly sliced and don't overload the pizza with them and you'll be fine, we do it all the time.

6) Have you explored the Internet for ideas? Lots of them out there. One of my favorites is to use a commercially prepared Ranch Dressing to which I add dried dill weed or basil pesto. Or make your own Ranch Dressing and doctor it up. A plain old vinegar and oil with mustard also works well. This is a good opportunity to let your imagination run wild.

By the way, when I did pizzas in Korea I found that substituting small pieces of dried squid for the bacon bits was a very popular topping too. You might give some thought to a seafood pizza using Alfredo sauce (no red sauce) then sprinkle with dried dill weed, add THIN SLICED seafood, garnish with fresh onion, and tomato slices. Top with a 1/2 application of a 50/50 shredded mozzarella and Parmesan cheese. Drizzle with EVOO as soon as it comes out of the oven.

Tom Lehmann/The Dough Doctor

[Re: Few questions before my shop opens](#)

2122

Yes, that certainly puts a different slant on it :-D

Tom Lehmann/The Dough Doctor

[Re: Few questions before my shop opens](#)

2123

Lots of things to cover there, please call me at 785-537-1037 as soon as possible and I'll be glad to answer your questions for you.

Tom Lehmann/The Dough Doctor

[Re: Few questions before my shop opens](#)

2124

62 to 66% depending upon how skilled you are at opening the dough balls into skins.

Tom Lehmann/The Dough Doctor

[Re: WFO \(Ooni Pro\) temp and time for NY Style?](#)

2125

I've found that some of my dough formulas end up sticking to the plastic bag if I don't lightly oil the dough ball, just like the dough balls always end up sticking to the bottom of the commercial dough boxes, hence the need for a scraper to remove them from the box. I really like the idea of the plastic containers...that's a pretty cool idea! Just make sure the dough doesn't expand too much.

Tom Lehmann/The Dough Doctor

[Re: Making pizza at home, thin crust NY style](#)

2126

So it's not really a whole-wheat dough it's just a "wheat-dough". By regulation, whole-wheat cannot contain any whiter flour. Unless the label reads "whole-wheat" the amount of white flour can be anything from 1 to 99% of the total flour weight. As the label shows whole-wheat flour first the amount of whole-wheat flour in this

case should exceed the amount of white flour, but by how much?

Tom Lehmann/The Dough Doctor

[Re: Lamonica's Frozen Dough Ball](#)

2127

Agreed.

Tom Lehmann/The Dough Doctor

[Re: Does container size matter](#)

2128

Ditto.

All Trumps is the "go to" flour for New York style pizza, but in truth, any good bread flour will work well unless ya just gotta have all the chew possible, then go with All Trumps, for most though, they like to temper the "chew" factor down a bit and use lower protein content bread type flours to accomplish this.

Tom Lehmann/The Dough Doctor

[Re: Making pizza at home, thin crust NY style](#)

2129

With a poolish you are also adding acids in addition to fermenting yeasts and bacteria so, depending upon the pH of the poolish it could very well be acidifying the dough which would result in accelerated fermentation due to the acidified dough.

A poolish, can impart a different flavor from a regular yeast leavened dough just like a liquid ferment (brew) produces a different finished flavor than a yeast leavened straight dough process. As for like or dislike, it all depends upon where your taste preferences lie.

Tom Lehmann/The Dough Doctor

[Re: Low IDY = D.O.A.](#)

2130

With stout and bison who could ever resist it? :-D

And the pecans, well....that's just icing on the cake! :drool:

Tom Lehmann/The Dough Doctor

[Re: Faux sourdough?](#)

2131

Amen to that! ^^

Remember the discussions we recently had concerning insect fragment counts in flour.

An interesting point: Figs, the flower of the fig tree is pollinated only by mites (fig mites), they cannot be separated from the figs during processing so fig mite fragments are present in fig past at a high count. This is allowed so long as they are "fragments" meaning that they have been processed and not introduced post processing of the fig. I happen to have a fond liking for Fig Newtons and when our kids were small I used to tell my wife and kids this story embellished with: "Now you know why Fig Newtons are kinds crunchy inside". Those Fig Newtons were ALL MINE from that point on. OK, truth is it was the fig seeds (like sesame seeds) that make it crunchy), none of them will eat Fig Newtons to this day.

Tom Lehmann/The Dough Doctor

[Re: 25kg bag questions](#)

2132

That is absolutely correct. A number of years ago most white breads were made with 4 to 5% sugar added to the dough formulation which wasn't too bad since a good portion of the sugar was metabolized by the yeast but today we find that the sugar levels are increasing with some white breads containing up to 8% added sugar (sugar and fat sell) and if you think that's bad, think again, the popular whole-wheat breads quite often contain 10% or more added sugar to off-set the bitterness of the bran which is present from the whole-grain, and if you look at some of the specialty (soft and sweet) breads the sugar level jumps to close to 20%. Kinda makes the worst pizza crust formulation look pretty tame. If one was to use little (not more than 2%) sugar or no sugar, and ferment the dough out to 2-days or more, use a sauce with no added sugar, go easy on the cheese and select the toppings carefully (vegetables, skinless chicken breast, fish, etc.) pizza, in moderation, really isn't all that bad. We did a study on a pizza made in this manner a good number of years ago and we found that a lightly cheesed (no other toppings) pizza had a similar caloric density to white bread, meaning that a 2-ounce slice of white bread provided about the same calorie contribution as a 2-ounce slice of the cheese pizza. When it comes to pizza, I used to say that it suffers from the potato chip syndrome: You can't eat just one (chip or 2" X 2" slice).
Tom Lehmann/The Dough Doctor

[Re: Natural sugars in flour. Breaking down the Carbohydrates. How healthy is it?](#)
2133

As for baking results in a home baking environment you probably won't see too much difference BUT you might want to think about buying a cheap flour sifter as this will keep you informed of any unwanted infestation problem which potentially could crop up. Look for the little cigarette and confused flour beetles as well as Indian meal moth whose presence is identified by its web which results in what we see as clumping of the flour. Also look for any larvae that might be present. My advice to home bakers is to sift the flour after a month and turn the screenings (anything that didn't go through the sifting screen) onto a clean paper towel where you can inspect it for insect presence. If consuming a few bugs doesn't bother you disregard the above, they won't hurt you, just a little added protein in your diet.
Tom Lehmann/The Dough Doctor

[Re: 25kg bag questions](#)
2134

Frenchy2000;

This same question has been addressed a number of times so you might want to look through the archives here to get a bigger picture of what others do. My approach is to break the large bag down into smaller bags which I label and store in the freezer. When I'm ready to use the flour I remove a bag and allow it to warm back to ambient for at least 24-hours before opening the bag. Then you can use from the opened bag for a month or more. That which is stored in the freezer will remain good to use for a very long time, at least 10-years. I do not recommend storing flour for much more than a few weeks at room temperature unless you are fond of salt and pepper flour aka "buggy" flour. Additionally, once the flour has been frozen for a period of 30-days or more, not just in the freezer, but FROZEN, so consider 45-days in this case, it can be removed from the freezer and stored in an insect proof container for several months. This flour will not develop an insect infestation due to any intact insect eggs or larvae in the flour as the long term freezing will kill them but it is still prone to infestation from the outside, hence the insect proof containers. Now the only thing that will happen over the next few months will be natural oxidation of the flour. as close as we have been able to

determine, this natural oxidation, over a 12-month period, is about the same as adding 15 to 20-ppm potassium bromate to the flour. This means that the flour will exhibit greater strength characteristics over time which may manifest itself by increased dough memory/snap-back and possibly greater oven spring characteristics. If you want to prevent the oxidation issue the only option you have is to keep the flour frozen until you're ready to use it.

Tom Lehmann/The Dough Doctor

[Re: 25kg bag questions](#)

2135

With all things combined, cold dough temperature, low IDY and high salt I'm guessing that the yeast really wasn't able to do much so there would have been little to no biochemical gluten development. Maybe experiment with increased finished dough temps...shoot for 75F to see if that helps.

Tom Lehmann/The Dough Doctor

[Re: Low IDY = D.O.A.](#)

2136

With exception to the low salt level it looks like a pretty good no-time dough formula.

Tom Lehmann/The Dough Doctor

[Re: The dough recipe on a Fleischmann's yeast packet](#)

2137

The purpose for adding steam during the baking of crusty breads is to allow for greater oven spring during the first minutes of baking. We usually figure that the steam is most beneficial during the first 20% of the total baking time, after that the steam is vented from the oven and the bread is baked in a dry oven. In a way, pizzas are already baked with steam since the top of the pizza is cooled through evaporation of water from the sauce and toppings, this cools the air and this cooler air flows down around the pizza during baking (deck ovens and stone hearth ovens only). The addition of more steam might result in greater oven spring for an even larger raised edge, if that's what one is looking for but like I said, just for the first 20% of the baking cycle. Remember also that steam has a cooling effect upon the baking chamber so expect baking times to be a bit longer. Also, if the oven is not designed for steam application significant damage can result over time to the metal frame/superstructure of an oven if steam is used regularly. During baking the oven cavity is filled with acids released during baking (by products of fermentation/acetic, lactic and propionic acids), these acids are carried by the steam and when they contact something cooler condensation takes place, then the heat of the oven removes the water leaving behind concentrated acids which raise havoc on any carbon steel part of the oven, it's like a cancer, first you see the rust that wasn't there before then the rust does its work over time, and there is no acceptable way to really address the problem.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Steam in a pizza oven](#)

2138

Why would you want to sand a metal peel? If you have a lot of "gunk" on it and you want it to look pretty just soak it in hot water (no soap) and go at it with a scrubbing pad. A wood peel can be sanded with very fine (600-grit) sand paper to remove any roughness and improve release properties but a metal peel is best

relegated to removing the pizzas from the oven. In all of my 50+ years working with pizza I only found it necessary to sand my metal peels on the leading edge if they got beat up by slamming them into the back of the oven, I don't think I ever had to sand the entire peel, with that said, we did wash all of our oven peels at the end of each day so they stayed pretty clean.

Tom Lehmann/The Dough Doctor

[Re: Should I sand my metal peel?](#)

2139

Actually, vinegar isn't added to cakes to react with the baking powder, it is added to react with baking soda (big difference). Baking powder is a fully balanced leavening system, just add water and heat and it generates carbon dioxide as a leavening gas. Baking soda, on the other hand, will only make the cake more alkaline (too much will turn the fat in the cake into soap through a process called "saponification" resulting in a soapy flavor in the finished cake. When vinegar (dilute acetic acid) is added along with the soda the two quickly react to form carbon dioxide as a leavening gas. The only reason for adding vinegar or any acid to a cake batter with a fully balanced leavening system is to adjust the finished pH of the cake, making it more acid which is common in white cake and angel food cake as it produces a brighter, whiter crumb color. Soda, on the other hand is commonly added to chocolate cake as it makes the crumb darker and intensifies the chocolate flavor (dutch process cocoa is just cocoa treated with an alkali to make it darker and more flavorful).

Now to pizza dough. The reason for adding vinegar to pizza dough or any yeast leavened dough, is to acidify the dough slightly, thus helping to "jump-start" the yeast with fermentation. Since acetic acid is one of the acids formed during fermentation it will also help to lower the pH of the finished crust but not much below pH 4.2 (sourdough has a pH of 3.8 or a little lower), so its impact upon the finished flavor is marginal at best if the dough is already being properly fermented, where there is some benefit is in doughs that are fermented for only short times, in this case the lower dough pH will help to speed up the rate of fermentation and give a lower finished crust pH for a slight flavor improvement over a short time fermented dough without added vinegar. How much vinegar is added? Typically 2% of a 50-grain strength vinegar is used, be sure to remove 2% water when adding 2% vinegar.

Tom Lehmann/The Dough Doctor

[Re: vinegar in the dough](#)

2140

The dough absorption and the yeast levels are not fixed, they are to a great extent variable depending upon how the dough is being managed and to some extent the skill set for the pizza maker with lower absorption levels being easier for the beginner/novice to handle, then once mastered they can experiment with higher absorption levels. Point is, use whatever works best for you in your specific case. That said, 0.375% IDY and 62% absorption is usually a pretty good starting point unless there are mitigating circumstances such as an unusually high or low absorption flour or a very high oil level in the dough formulation, or a fridge that doesn't hold temperature very well, or failure to follow good dough management practices which usually dictates a very low yeast level.

Tom Lehmann/The Dough Doctor

[Re: Dough Recommendations - Two Scenarios](#)

2141

And don't forget to get them involved in the pizza making process, there's nothing better than knowing that you made the pizza and now you're about to enjoy eating it, and your kids will love you for the fact that you got them involved with making pizza and hopefully carry on the tradition. :)

Tom Lehmann/The Dough Doctor

[Re: yung dad looking for pizza connections](#)

2142

I think you're wasting your time by pre-heating a pizza tray/pan as the metal won't hold enough heat to make much of a difference. Next time try just putting the skin directly onto your lightly oiled tray, then dressing it and placing it in your oven about 1/3 of the way up from the bottom, after about 7-minutes move it to a high position being sure to spin it 180 degrees as you place it onto the higher rack position.

To address the light crust condition you might need to include some sugar in the dough formula, 2% would be a good place to start at. My home oven also has a top broiler coil so I turn it on when I get ready to move the pizza to the higher rack position.

Tom Lehmann/The Dough Doctor

[Re: Some newbie questions](#)

2143

Sauce is roughly 90% water, as the water evaporates from the sauce it cools the top of the pizza keeping it from baking/setting as fast as the remainder of the pizza this is what prevents the bubbling of the pizza and it also helps to form a thinner top crust. We try to make it a practice to put half of the sauce on a skin before we par-bake it for this very reason.

Tom Lehmann/The Dough Doctor

[Re: Problem making cheese first pizza](#)

2144

The sugar helps to keep the moisture in place and the fat helps to slow its rate of migration. This is one reason why you don't see cakes shrinking like breads and rolls.....high levels of fat and sugar.....two important food groups. :-D

Tom Lehmann/The Dough Doctor

[Re: Crust gets dense after frig leftover](#)

2145

The dough that you are using might be a commercially frozen dough which means that it has not received any fermentation what so ever. Try slacking the dough out in a lightly oiled bowl in the fridge for 12-hours, then bring out to room temperature for 1-hour and place back into the fridge for 24 to 48-hours. We developed this procedure for pizzerias using frozen dough balls and it works quite well.

Note: Dough that is insufficiently fermented has a propensity to bubble.

Tom Lehmann/The Dough Doctor

[Re: Problem making cheese first pizza](#)

2146

The biggest problem with pans in deck or stone ovens is that of the bottom getting too dark before the rest of the pizza is finished baking. This is easily addressed by placing a pizza screen under the pan.

Tom Lehmann/The Dough Doctor

[Re: Pizza Pans](#)

2147

As the crumb structure cools it shrinks (becomes tighter) and then as moisture migrates out of the more moist crumb section to the less moist crust portion it shrinks even more. You even see this with bread where you see the entire loaf shrinking. The shrinkage is so pronounced that when measuring the volume of a loaf of bread using the rape seed volume displacement method you have to measure the volume of all loaves being measured at precisely the same time, otherwise waiting an extra 5-minutes will produce a smaller loaf due to the shrinkage.

Tom Lehmann/The Dough Doctor

[Re: Crust gets dense after frig leftover](#)

2148

To me that looks like a lot of sauce.

Tom Lehmann/The Dough Doctor

[Re: Help keeping my toppings on](#)

2149

When putting the cheese right on top of the dough I never use shredded, instead I like to use sliced. Being from Chicago that's an old habit that's heard to break away from.

Tom Lehmann/The Dough Doctor

[Re: Problem making cheese first pizza](#)

2150

It's kinda hard to use the term "par-bake" incorrectly. Like you, I've heard these types of claims before but they were made many years ago back before most people really understood what hot pressing was all about. I launched a huge campaign to educate people on hot pressing of pizza crusts more than 30-years ago and to dispel the false belief that hot pressing actually par-baked the dough/crust at the same time as forming. I guess I missed a few people. Your beliefs are spot-on and if you ever find any validation to a hot pressed crust being par-baked as it is being formed please let me know. During the hot press forming of the dough into a skin only the outer surface area of the dough get hot, not the center section (which is still raw). In order for a dough/crust to be par-baked it must reach a minimum internal temperature of 180F but most will target 185 or even 190F to ensure the crust is thoroughly baked (par-baked means that the product is fully baked BUT without the development of crust color or minimal crust color).

Your instincts are good! :)

Tom Lehmann/The Dough Doctor

[Re: Anyone actually par bake with a dough presser?](#)

2151

That is correct, you can indeed adjust the crust color of your pizzas by adjusting the amount of sugar used in the dough formulation, sometimes when we have an uncooperative oven we can improve upon the bake a bit by adjusting the sugar level up or down a little. An infrared thermometer is an excellent idea for measuring the deck temperature and setting your oven up don't worry about what the thermostat or whatever says, go by the readout from the IR thermometer.

Tom Lehmann/The Dough Doctor

[Re: Crunchy Dough](#)

The DoiughXPress like the DooughPro press and all other hot presses, DOES NOT create a par-baked crust in any way, shape or form. Anyone who tries to tell you that it does doesn't know what they're talking about. The hot press heats the dough to both relax it for ease of forming under the press head and to help it retain its shape after press forming. If the heat is applied to both sides of the skin during forming like it is with the Little Toro hot press from AM-Manufacturing the heat creates a dry skin on the surface of the crust which allows it to be placed directly onto a belt/conveyor for further proofing prior to further processing such as dressing and or baking or even freezing.

Tom Lehmann/The Dough Doctor

[Re: Anyone actually par bake with a dough presser?](#)

2153

Is there not a heating element on the bottom of the oven too? If your oven only has a top element you might not have a "pizza" oven but instead a "baker's" oven which is significantly different. Also, 4 to 5-minutes baking time in a deck oven is pretty short as most deck oven bake a pizza in the 6 to 7-minute range for a single pizza and then when loaded the time jumps to around the 9 to 11-minute mark.

Tom Lehmann/The Dough Doctor

[Re: Crunchy Dough](#)

2154

Since you have a preference for the flavor imparted by CF (as I do also) why not just go straight to balling after mixing and dispense with the RT part? This will allow you to control the fermentation a bit better through manipulation of the finished dough temperature but more importantly it will allow the dough balls to cool down more efficiently allowing the refrigerated temperature to effectively slow the rate of fermentation. With the RT phase first you are balling a gassy dough which is a much better insulator than the dough right after mixing, combined with the heat of metabolism your dough most likely isn't cooling off sufficiently to provide you with the CF time you are targeting before becoming over fermented.

Tom Lehmann/The Dough Doctor

[Re: When the right fermentation turns wrong](#)

2155

Pretty much so. It's an old method of leavening the dough but it does have its limitations since yeast doesn't multiply/divide under normal dough conditions you are adding less and less yeast every time you do it so fermentation times need to be progressively longer with each use. This is different from a true starter which is based on bacteria (lactobacillus/lactic acid forming bacteria) propagation in addition to yeast cells which are present in the air.

Tom Lehmann/The Dough Doctor

[Re: Yesterday's dough as starter](#)

2156

I'm assuming you mean crust and not dough as crunchy dough is wwaayy different from a crunchy crust. You have my curiosity up when you mention differences in stone and oven temperature...this is not common for a commercial oven. As for the handling properties of the dough when you open it, are you allowing the cold dough balls to warm to 50 to 60F (50F is the most commonly used temperature for use in a pizzeria) before you begin opening them into skins?

Tom Lehmann/The Dough Doctor

[Re: Crunchy Dough](#)

2157

If you are converting from CY to ADY you use only half as much ADY as CY. But don't forget to hydrate/activate the ADY in 100F water before adding it to your dough.

Tom Lehmann/The Dough Doctor

[Re: Yeast Amounts & Fermentation Times - please help](#)

2158

If your crust isn't browning sufficiently with the reduced bake time try adding some or more sugar to the dough formulation to promote crust browning.

Ever have a Papa Murphy's pizza? 5% sugar. Can't say I like their sweet tasting crust but that's how they get their crusts to brown consistently in home ovens. If I was on their development team I would have used whey instead of sugar to promote crust color development, whey is roughly 70% lactose (milk sugar), it's a reducing sugar so it browns quite nicely, it is non-fermentable by baker's yeast so the amount doesn't change with the age of the dough and best of all, it's the least sweet of all the sugars so it doesn't impart sweetness to the finished crust flavor profile. Typical use levels are 8 to 12%.

Tom Lehmann/The Dough Doctor

[Re: Pizza toppings](#)

2159

The most common cause of this is due to using too much sauce. Try making a pizza with minimal sauce, if that works out better you know what the issue is, then you can begin to increase the amount of sauce until you find a happy compromise.

Tom Lehmann/The Dough Doctor

[Re: Help keeping my toppings on](#)

2160

If you're scaling up from 12-inch to 16-inch the surface area of a 12-inch circle is 113-square inches and the surface area of a 16-inch circle is 201-square inches (those numbers are rounded off). The difference being 88-square inches so if we divide 88 by 113 = 77.876 (78) we see that a 16-inch pizza is 78% larger than a 12-inch pizza so all things equal a good place to start is to scale your dough ball weights 78% heavier than you do for the 12-inch format. Ditto for cheese and sauce. While not 100% accurate this will get you very close to where you want to be.

Tom Lehmann/The Dough Doctor

[Re: Please recommend how much AT flour for 16" thin crust, small rim, NY pizza](#)

2161

When IDY made its first appearance here in the U.S. back in the 60's people would return the packages thinking that they were bad because they were so hard.

Actually, it's the soft packages that are bad as the vacuum seal has been compromised on those packages.

By the way, there is no such thing as a silly or ridiculous question, but there is such a thing as someone who is too silly to ask a question.

Tom Lehmann/The Dough Doctor

[Re: Saf-Instant Yeast](#)

2162

Actually, there is no such thing as "instant compressed yeast". There is instant dry yeast (IDY) and compressed yeast which goes by a bunch of other names too (see my post in the question on C.Y.). To reconfirm, yes, SAF, IDY is the same as "IDY" the SAF part just references the manufacturer of the IDY.

Tom Lehmann/The Dough Doctor

[Re: Saf-Instant Yeast](#)

2163

C.Y. = compressed yeast/cake yeast/fresh yeast/brick yeast/block yeast/baker's yeast/wet yeast and more recently crumbled yeast which is the same as all of the other except it is sold in crumbled form (only in 50# bags). C.Y. is the same as all of the above, they are just referenced by different names.

Tom Lehmann/The Dough Doctor

[Re: What does CY stand for?](#)

2164

Maybe too much cheese?

Tom Lehmann/The Dough Doctor

[Re: Pizza toppings](#)

2165

Yes it does, for every ounce of flour that is incorporated into the dough it's like reducing the amount of water in the dough by about 1/2-ounce BUT most of the flour you see being brandished about really isn't incorporated into the dough so the impact really isn't all that great.

Tom Lehmann/The Dough Doctor

[Re: Flour after initial mix and effect on hydration %](#)

2166

Philia36;

Ira is spot-on. Look for a temperature of around 800F or a bit more for a true N.Y. presentation.

Tom Lehmann/The Dough Doctor

[Re: WFO \(Ooni Pro\) temp and time for NY Style?](#)

2167

Change the bench kneading time to something closer to 20-minutes and the answer is yes. A planetary mixer can mix a dough as well as a spiral mixer in many cases (if the planetary mixer isn't too old and tired) but if can only do so with a specific amount of dough in the bowl too much or too little dough and it doesn't get mixed as well as it should as the dough either grabs onto the hook and receives little mixing action or it either climbs up the hook or gets forced to the top of the bowl where the dough doesn't get the contact needed with the hook for proper mixing action. The spiral mixers handle doughs of different sizes quite well with very consistent mixing results across all reasonable dough sizes.

Tom Lehmann/The Dough Doctor

[Re: Ok Tom... what gives??](#)

2168

Your question on the different forms of yeast;

The amount of water that you suspended the yeast in will have an impact upon what you see on the surface. A good amount of water would be about 5X the weight

of yeast , with more water you should still see a few bubbles but not a "foam" forming over the surface of the water.

IDY should be suspended/activated in 95F water while ADY 100 to 105F is better. For suspending CY 100F water is recommended. If you are experiencing an initial slow yeast fermentation rate it is probably not due to the mineral content of the water unless you have sulfur water but instead the pH (acidity) of the water can/will have a dramatic impact upon how the yeast ferments initially. High pH (above 7.5) water can slow yeast activity until acids are formed through fermentation at which point the fermentation rate will gradually increase. Slightly acid water (below pH 7.0) is good for the yeast as yeast performs well in a moderately acid environment. It's easy to measure the pH of your water using litmus strips available from a pharmacy or pool supply outlet.

On a personal note: We are also on our own private well (120-feet deep) with great water but we also have a lot of limestone here and that is reflected in our water pH of 7.8. In other wells I've seen it as high as 8.2. Not a big deal, I just replace 2% of my dough water with white vinegar and everything is good. If this were a pizzeria I'd opt to use 0.25% (based on flour weight) MCP (mono calcium phosphate) instead.

We have discussed this in posts about water previously and I wrote an article on the topic some time back.

Tom Lehmann/The Dough Doctor

[Re: Some Unanswered Questions](#)

2169

I wish I had an answer to that question, but I don't. There are many more different designs of home dough mixers than there are commercial mixers and as you have heard me say many times before about ovens, "Every oven is a law unto itself and only itself", the same might be said for home mixers too. When it comes to commercial size mixers it seems that the manufacturers are more interested in duplicating a design as opposed to improving upon a design, where as with home mixers there seems to be more emphasis on improving a design. With the increase in home baking over the past few years there seems to be a trend towards better (more powerful and better mixing action) home mixers and I'm really glad to see an increase in interest in spiral design mixers for home use.

Tom Lehmann/The Dough Doctor

[Re: Ok Tom... what gives??](#)

2170

While there is no standard of identity or specification for "hi gluten flour" most would generally consider any white flour in the 12 to 14% range as "hi gluten"

Tom Lehmann/The Dough Doctor

[Re: High Gluten Flour](#)

2171

I always enjoy hearing how others make their pizzas. :chef:

Tom Lehmann/The Dough Doctor

[Re: Why is my dough floppy](#)

2172

Actually, you're posing two different questions, the difference between the performance characteristics of a hard wheat flour and a soft wheat flour as well as the difference in performance due to protein content.

Hard wheat flour v/s soft wheat flour: I lot of the performance characteristics will

depend upon the varieties of wheat making up the grist that is being milled but in general, the gluten structure obtained with a hard wheat flour will be stronger than that from a soft wheat flour, think softer, more extensible doughs with soft wheat flour. Additionally, soft wheat flour typically do not have the fermentation tolerance exhibited by hard wheat flours to they tend to show more of the effects of fermentation, especially when longer fermentation times are employed. Some of the "00" flours reflect this difference by stating that specific "00" flour types are designed for long or short fermentation doughs, and they are correct, if you give a short fermentation designated flour a long fermentation time the dough can get pretty soft and extensible, probably more than what many people would care to work with.

As to the difference in protein content, in this case you have to compare the protein content only from hard wheat varieties, work that I did back in the 80's clearly showed that doughs were equally as strong when made using flours of the same protein content whether the flour was milled from a hard red spring wheat grist or a hard red winter wheat grist. We found this to be true over a wide range of protein levels. In our view at the time these results totally debunked the premiums paid on spring wheat over winter wheat at the time, kinda irritated the branch of the U.S. Government responsible for the export of U.S. wheat at the time.

Tom Lehmann/The Dough Doctor

[Re: Soft wheat vs. Hard wheat](#)

2173

Have you looked at Provolone cheese? Similar to mozzarella but with a higher fat content. When we did our pizza seminars one of the cheese blends that we used was a mozzarella - provolone blend (75/25).

Tom Lehmann/The Dough Doctor

[Re: Help finding good cheese retail](#)

2174

Oregon has at least three major pizza or pizza crust manufacturers that I can think of. That says quite a bit about both Oregon and pizza considering where/how the state is located in regards to major metropolitan areas. We only have one here in Kansas, Schwan's Foods but their distribution is a full 360 degrees. They even truck their pizzas all the way to Pennsylvania and back-haul with a load of pepperoni.

Tom Lehmann/The Dough Doctor

[Re: The most popular frozen food in every state](#)

2175

QJ;

Based on all of the things that you've mentioned, it appears that indeed there might be a common denominator. Finished dough temperature (now lower with your new spiral mixer) would prove to be a reasonable explanation. As for the difference in mixing action between a planetary mixer and a spiral mixer, the planetary mixer with a dough hook develops the gluten by driving the hook into the dough and pulling it slightly from the side of the bowl while the spiral mixer develops the gluten using a true stretching and pulling action, sound familiar? That's the same action exerted on a dough when it is kneaded. This action exposes a greater dough surface to the air for better oxidation of the gluten forming bonds resulting in a stronger and drier feeling dough, it also works to help align the gluten for a smoother dough feel (this is just like giving the dough a little kneading after it has been machine mixed). At the same time a spiral mixer tends to mix the

entire dough, regardless of size, all the same while a planetary mixer tends to mix different size doughs somewhat differently, especially where large size doughs are employed. The one exception to this appears to be the new HL-Series of Hobart planetary mixers, with these mixers we still see a difference with smaller size doughs but when you get into the larger size doughs for the bowl capacity there doesn't seem to be as much, if any difference between say a half size dough and a full capacity sized dough.

I'm glad to hear that you and your crew are seeing the benefits of your new spiral mixer, now if they could just figure out a way to make sauce in them? :)

Tom Lehmann/The Dough Doctor

[Re: Ok Tom... what gives??](#)

2176

I think a lot has to do with preference. To me, adding EVOO to the dough is a waste of a great product since many of the aromatics are lost during the baking process but by putting the oil on post bake (immediately after removing the pizza from the oven) allows the heat of the pizza to "pop" / release the aromatics from the EVOO giving the pizza a wonderful aroma as well as taste.

Tom Lehmann/The Dough Doctor

[Re: Olive Oil Pre-Bake or Post-Bake](#)

2177

Sure, here's a formula and procedure to work with.

Flour: 100% 500-grams.

Salt: 2% 10-grams.

Sugar: 2% (optional) 10-grams.

Oil: 2% 10-grams.

IDY: (instant dry yeast) 0.375% 1.875-grams

Water: (65F) 62% (variable) 310-grams.

Put water in mixing bowl.

Add salt and sugar (if used) no need to stir.

Add the flour, then add the IDY right on top of the flour.

Mix at low speed just until all of the ingredients are incorporated and no dry flour is seen in the bowl.

Add the oil.

Mix at low speed for 1-minutes.

Mix at the highest speed possible without stressing your mixer for 8 to 10-minutes or just until the dough is smooth. Check the finished dough temperature, you are looking for a targeted temperature of 75 to 80F.

Remove dough from mixer and place on floured surface, divide into 300-gram dough pieces.

Round each piece into a ball and lightly oil.

Place each ball into individual plastic bags (food bags or bread bags) NOT Zip-Lock Bags.

Twist the open end into a pony tail and tuck under the dough ball as you place it in the fridge.

Cold ferment the dough for at least 24-hours (48-is better) and you can go as long as 72 to 96-hours.

To use, remove dough from fridge, allow to temper AT room temperature for about 2-hours or until the dough ball reaches 50 to 60F.

Roll bag down around the dough ball and invert over a floured surface, flour the dough piece and open into a skin to 12-inches for immediate dressing and baking.

Bake preferably on a stone or steel at 550F or hotter. If you don't have either, a seasoned screen will do in a pinch until you can get one.

Note: Any unused dough balls can be placed in the freezer not more than 48-hours after the dough is made. The frozen dough will keep for about 10-days in the freezer. To use the frozen dough transfer the frozen dough ball from the bag to a suitably sized bowl that has been lightly oiled, cover with a lid or stretch wrap, place in the fridge for 24-hours to slack-out (thaw), turn out of the bowl directly from the fridge onto a floured surface and partially open the skin to about 8-inches, cover and allow to rest for 20-minutes, then finish opening to 12-inches for immediate use.

Tom Lehmann/The Dough Doctor

[Re: Making pizza at home, thin crust NY style](#)

2178

It's actually not the significance of hard v/s soft wheat it's just the fact that the "00" flour is not malted or treated with amylase enzymes.

Tom Lehmann/The Dough Doctor

[Re: Soft wheat vs. Hard wheat](#)

2179

The problem you're experiencing is due to insufficient gluten development. In your case I think it might be due to less than ideal biochemical gluten development caused by improper use of ADY complicated by a cooler than what might be desired finished dough temperature.

Doing the easy things first, try suspending the ADY in a SMALL portion of warm (100F/use a thermometer) and letting it stand for 10-minutes to activate, then add it to the cool (measure the temperature) water. I would start with 70 to 75F water temperature and target as finished dough temperature (after kneading) of 80 to 85F. Then proceed as you normally do.

Suggestion: After the dough has been in the fridge for 2 to 3-hours divide it to make your dough balls, lightly oil each dough ball and place back into the fridge for the remainder of the CF period. When ready to use remove from fridge, allow to warm AT room temperature until the dough reaches 50 to 60F, then turn the dough ball out of its container onto a flour dusted surface and open into a skin for immediate use.

Let us know how this works for you.

Tom Lehmann/The Dough Doctor

[Re: Dough balls have rips in them??](#)

2180

Any type of a dial AKA stem type thermometer will work. If it's electronic that's fine, if it isn't, try to get one with a hex nut under the head. This is the calibration nut, by holding the head firmly and turning the nut you can easily calibrate the thermometer. Best way to calibrate is to use an oral thermometer (designed to be most accurate at 98.6F) in a cup of water at a temperature that will read on the oral thermometer, place the stem of your thermometer next to the oral thermometer and allow time for the needle to stop moving, compare the temperatures and calibrate the stem thermometer if necessary.

Tom Lehmann/The Dough Doctor

[Re: Some Unanswered Questions](#)

2181

The thing to remember about water is that it's the temperature of the water that is

used to adjust the finished dough temperature. For many of us we are looking for a finished dough temperature someplace in the 70 to 85F range, for me I like to target 70 to 75F. A simple method for determining the water temperature is to use 145 minus the flour temperature with the difference being the water temperature.

Tom Lehmann/The Dough Doctor

[Re: Some Unanswered Questions](#)

2182

Dpp83;

I think the first place for you to start is is getting a scale that will weigh in grams. There are a lot of them available on the Internet priced very reasonably at around \$20.00. This will allow you to actually weigh each of your ingredients for much improved accuracy and consistency. If I'm reading your post correctly it appears that you are adding 100 ml. olive oil to 500-grams of flour weight which is 20% olive oil (much more than what is typically used in making thin crust pizzas, 0 to 4% might be considered to be a more "normal" range for oil in a thin crust pizza dough formula). The dough formula is only a part of the crispy crust equation, the other part is how you manage the dough and then how the pizza is baked.

To get you started, here is a well proven dough formula and procedure. Once you have master this one you can begin to make calculated changes or try other formulas and/or dough management procedures.

Flour (Pillsbury Bread Flour) 100%: 500-grams.

Salt: 2%: 10-grams.

Sugar: 2%: 10-grams.

IDY (instant dry yeast) 0.4%: 2-grams.

Water: 62% (65F): 310-grams.

Olive oil: 2%: 10-grams.

You don't say how you mix your dough so for now I'll ASSUME you are using a mechanical mixer.

Put the water in the bowl first, then add the salt and sugar followed by the flour and the IDY.

Mix at low speed just until the dough begins to come together then add the oil.

Mix again at low speed to incorporate the oil then mix at a higher speed to develop the dough, this should take 5 to 8-minutes. The time is not critical for now.

Check the finished dough temperature, ideally it should be 75 to 80F.

Take the dough directly to your counter top, remove it from the bowl, lightly flour it and begin scaling 300-gram pieces, this will make 12-inch diameter pizzas.

Form each piece into a ball and lightly oil each ball.

Place each ball into individual plastic bags (like bread bags) NOT ZIP-LOCK BAGS.

You can buy very economical food storage bags from the supermarket that will work very well for this.

To close the bag, pull the bag close to the dough ball, twist the open end of the bag into a pony tail and tuck the pony tail under the dough ball as you place it into the fridge.

Allow the dough balls to remain in the fridge for at least 24-hours before using. They can go as long as 72-hours. The dough will probably be at its prime after 48-hours.

To use the dough remove from the fridge and allow to set AT room temperature until the dough ball reaches 50 to 60F internal temperature. Depending upon room temperature this will take about 2-hours +/-.

Turn the dough out of the bag by rolling the bag down around the dough ball, and inverting the bag over a floured surface allowing the dough ball to invert the bag as it falls from the bag.

Flour the dough ball and open into a pizza skin for immediate use.

Bake your pizzas on a stone or steel or a screen in a hot 450 to 550F oven. In a rack position about 2/3 of the way up (you will most likely need to experiment to see where the pizzas bake best in your specific oven).

Tom Lehmann/The Dough Doctor

This is really easy to do and once you get the hang of it you will enjoy experimenting with different dough formulas, dough management procedures as well as pizza styles.

[Re: Why is my dough floppy](#)

2183

Here is what I've done in the past when an error such as this was made at a pizzeria.

Make another dough but do NOT put any salt in the dough. Mix the dough just until comes together and forms a nice cohesive ball in the mixer. Remove the dough from the mixer and divide it in half. Now divide the dough with with 5% salt in half. Combine a half from each dough and mix until a smooth surface is achieved. Do this for the other two halves too. You will now have two doughs with, in your case, 2.5% salt in each. Freeze the surplus dough balls for use next week.

Tom Lehmann/The Dough Doctor

[Re: Too much salt in dough](#)

2184

The interaction between the byproducts of fermentation and the gluten forming proteins in the flour is what's responsible for the rheological properties of the dough (the way it stretches and handles in general), not fermentation in itself. This is why a short time dough can have a lot of fermentation but still exhibit a lot of dough memory. The dough that came from the pizzeria was, in all probability, cold fermented for 2-days or more which, if managed properly, would give the dough pretty decent handling properties. It's not so much the dough formulation that makes the difference, it's how they are put together and managed that makes the biggest difference. Like I used to tell my students, brick castles and brick privies are all made using the exact same ingredients, it's how you put them together that determines the finished product.

Tom Lehmann/The Dough Doctor

[Re: Ok, what's different](#)

2185

Whoa! Correction!

I see you are using 50% of 2% liquid milk. At that level you will see some improvement in the gluten film (drier and stronger) as well as a stronger crust color.

Sorry about that!

Tom Lehmann/The Dough Doctor

[Re: Milk in dough](#)

2186

Jackitup is spot on, the good news is that the calcium in the milk helps to strengthen the gluten forming proteins in the flour and the lactose (milk sugar) content helps with the browning of the crust, like I said, that's the good news, the bad news is the amount of milk you're adding (liquid milk I assume) really doesn't contribute to either of these effects as the amount is much too low. To get any realized effect you need to have the liquid milk at about 40% of the total liquid (40% liquid milk + 60% water = 100% of the total liquid added). Or if you use dry milk solids you can use 5% but remember to increase the dough absorption by 1% for each 1% milk solids added. Also keep in mind that lactose sugar is not metabolized by bakers yeast so it is not a source of food for the yeast to feed upon. Additionally, if using liquid milk it is a good idea to scald the milk before using it as this will help to improve its baking properties. Due to the cost of milk we really don't see much milk being used anymore, instead we use soy flour to replace the protein content of the milk and calcium sulfate to provide the calcium and whey to provide the lactose (whey solids are about 33% lactose, and because lactose is the least sweet of all the sugars there is essentially no sweetness associated with whey or lactose).

Tom Lehmann/The Dough Doctor

[Re: Milk in dough](#)

2187

There is a very decided advantage to applying a very light application of oil as a moisture barrier between the sauce and the crust when using par-baked crusts. Your sauce, and vegetable toppings are all roughly 90% water and are just looking for an excuse to water out during the baking process. The sauce though is the worst contributor to moisture migration into the crust, if you want to see how bad it can be just place a portion of sauce on a china plate and let it stand for 15-minutes, if you see a water ring around the sauce that's the water that would potentially soak into the par-baked crust. The same can happen with raw dough but since raw dough has a higher moisture content than a par-baked crust the affinity isn't as great with the raw dough, but it can still happen. This is why it is usually recommended that the dough skin or par-baked crust be lightly brushed with oil prior to sauce application. Admittedly, the problem may not be as prevalent when making pizzas at home as it is when making pizzas in a commercial setting/pizzeria, this is because there is a greater potential for the pizzas to be pre-prepped at the pizzeria (which allows time for the moisture migration to take place) but even with home pizza making a lot of times we are pressed for time when making several pizzas so the pizzas might be pre-prepped thus setting the stage for moisture migration and the development of a "dreaded gum line" which also manifests itself as a limp pizza or a tough, chewy pizza, in any case, I've not seen anything good come to a pizza which has a gum line.

Tom Lehmann/The Dough Doctor

[Re: EVO Before Pizza Sauce](#)

2188

Kinda salty I would think, not to mention its impact upon fermentation.

Tom Lehmann/The Dough Doctor

[Re: Need help!!!! Bakers percentage](#)

2189

When we use the commercial dough boxes the dough balls are usually placed about 4-inches apart, in some cases maybe a little less depending upon the dough formulation and projected holding time.

Tom Lehmann/The Dough Doctor

[Re: White crust](#)

2190

Properly cold fermented dough balls will slowly become gassy and continue to grow in size maintaining something of a round shape but more flat than the ball it was when it went into the fridge. I can't speak for cold fermenting dough as to what it should look like because we typically don't use dough boxes like we do in commercial/pizzeria practice. In commercial practice the dough balls should not more than just "kiss" or at the very most come together about 1-inch by the last day of use. If they do more than that the dough either needs to be cross-stacked longer or the targeted finished dough temperature needs to be lowered. Cold fermented dough in the fridge will not feel soft and supple as warm fermented dough will because the temperature causes the dough to become firm, this is why it's easier to open the dough ball into a skin if you allow it to warm to 50 - 55F before opening.

If you go to my web site <www.doughdoctor.com> and click on the option to learn how to make dough one of the first photographs you will see is a properly cold fermented dough ball being removed from the dough box, it actually gives you a pretty good idea of what a properly cold fermented dough should look like even for the home pizza maker.

Tom Lehmann/The Dough Doctor

[Re: White crust](#)

2191

Fermentation flavor is a very complex thing, it is the result of the byproducts of fermentation at work on flour proteins as well as their residuals (mostly different acids/acetic, lactic and propionic) and a little alcohol too, but like the carbon dioxide most of it is long gone due to the baking process. Some people call it a "yeasty" flavor but this is incorrect as yeast actually has a musty taste (like old wet news papers), the taste/flavor they are actually referring to is the taste and flavor resulting from fermentation. Since acids are the main residual byproduct of fermentation this is why as fermentation progresses the flavor of the baked product may become slightly more acidic which has a good/bad influence on flavor. Like I said, it's a very complex thing, most people like it in moderation, some don't like it at all, and some can't get enough of it we used to call those people "sourdoughs" in reference to their affinity to well fermented and/or sourdough products which are characterized by their pronounced acidic taste. By the way, there is a difference in taste, aroma and flavor. Taste is based just on the taste buds (coffee for example has a pronounced bitter taste), aroma is sensed only by smell and flavor is the combination of aroma and taste....look what happens to coffee when you combine aroma and taste, you get what we all relate to as "coffee".

Tom Lehmann/The Dough Doctor

[Re: Refrigerate first or later?](#)

2192

So your dough is coming off of the mixer at 82F/28C.

If you were to ferment the dough for 24-hours at room temperature 77F/25C and then ball it for 24-hours fermentation in the fridge 2 - 3C/35.6 - 37.4F There would be little benefit from the cold fermentation as the dough would be so gassy as to insulate the core from much of a temperature change during the cold fermentation period. In my opinion, it sounds exotic but in reality it's an exercise in futility. In addition, with the RT fermentation coming first any change in finished dough temperature will create a significant change in the amount of fermentation the dough receives during that first 24-hours. Over the long haul you will experience quite a bit of variability in fermentation which can result in unexplained differences in the finished crust or the way it (the dough) handles.

Putting the dough in the fridge first for 24-hours CF and then giving it an additional 24-hours RT fermentation would provide greater overall consistency in the amount of fermentation the dough receives and since the dough wants to increase in temperature (dough increases in temperature due to heat of metabolism as the yeast ferments at the rate of about 1F per hour) it will take about 4 to 5-hours for the dough to fully warm to room temperature, depending upon dough size and the container, so you could figure on the dough ACTUALLY receiving close to 30-hours of CF with the remainder being RT fermentation. With the potential for inconsistencies in fermentation by the first procedure (RF followed by CF) and more overall fermentation I would think that the first process would give you a dough with potentially more extensibility and a finished crust with more of a fermentation flavor, ALL THINGS EQUAL, than dough made by the second procedure (CF then RF) which would exhibit much better overall dough consistency though less fermentation flavor due to the initial inhibition of fermentation by placing it in the fridge right after mixing and allowing it to slowly warm back to room temperature for the remainder of the fermentation period. While it is true that a different flavor profile is achieved under cold fermentation conditions than at room temperature fermentation I find it highly unlikely that one would find the difference significant in application (fully dressed and baked pizza) under the conditions you have prescribed.

Tom Lehmann/The Dough Doctor

[Re: Refrigerate first or later?](#)

2193

Josh;

In this vein the test where you pull one dough ball for baking after 24-hours and the other one after 48-hours would provide some direction.

Tom Lehmann/The Dough Doctor

[Re: White crust](#)

2194

Also need to know what the finished dough temperature is.

Tom Lehmann/The Dough Doctor

[Re: Refrigerate first or later?](#)

2195

You will use about 60% absorption for the white flour portion and whatever absorption that is indicated for the barley flour, that will be your total dough absorption.

The test that you need to do will be done only on the barley flour as we need to know what its absorption is before we can make a dough using it, especially at 50% of the total flour.

Tom Lehmann/The Dough Doctor

[Re: Need help!!!! Bakers percentage](#)

2196

This is happening because you are not accounting for the high absorption of the barley flour. If you will go back through previous discussions on whole wheat flour you will find where I've written about how to determine the absorption of non-wheat as well as whole-wheat flours which as slow to absorb water so the dough looks normal at first but with time the "other" flour hydrates thus exhibiting a severe drying effect upon the dough making it hard/firm and difficult to work with and if you were to make a pizza from it disappointment would reign supreme.

Tom Lehmann/The Dough Doctor

[Re: Need help!!!! Bakers percentage](#)

2197

I always use pitted olives and slice. As for onions I mostly use raw onions.

Tom Lehmann/The Dough Doctor

[Re: Good Results with Biga - Question about Olive toppings](#)

2198

Yes it is, after stretching and fitting the dough for the last time you will need to experiment with how long to proof the pizza to get the desired finished crust characteristics. Some will go as long as 90-minutes while others as short as 30-minutes. In this case you will need to proof in 20-minute increments and take to the cooler (uncovered) for 45-minutes, then wrap or bag for storage. On the following day pull all of the pizzas for baking. Be sure to allow them to warm to 55-60F before dressing. So...you will be baking pizzas that were proofed for 20, 40, 60, and 80-minutes prior to being placed in the cooler. After baking pick the one that you like best and note the length of time it was proofed prior to being placed in the cooler. Problem solved. :)

Tom Lehmann/The Dough Doctor

[Re: Sheet pizzas](#)

2199

Stretching dough from a ball to fit a sheet pan can be really troublesome, instead, ask the bakery to make the dough into 24-inch long loaves when they provide them to you. For a thin crust start out with 45-ounces of dough, for a thick crust try using 60-ounces of dough weight. You will find it easier to fit the dough to the sheet pan if you use shortening, like Crisco as opposed to oil.

Place dough onto greased pan (down the middle), cover and allow dough to warm for about 2-hours then use a pastry pin or rolling pin to roughly fit the dough to the pan, cover and allow to rest for an hour, using your hands begin fitting the dough to the pan (into the corners and up the sides) cover and set aside again for 30 to 45-minutes, give the dough one final fitting to the pan and it should be ready to dress and bake.

Tom Lehmann/The Dough Doctor

[Re: Sheet pizzas](#)

2200

I've used it successfully to replace up to 25% of the regular white flour used in the

dough formulation. Watch your dough formulation too as you will need to increase it a bit when using spelt flour.

Tom Lehmann/The Dough Doctor

[Re: Spelt](#)

2201

Over fermentation can turn an otherwise great dough into slime or anything in between depending upon how much the dough is over fermented. This is why the dough handles so well after a fermentation period (it exhibits less memory characteristics/snap back). For home pizza making 75F is a good finished dough temperature to always shoot for however with so many different methods of dough management used in home pizza making this might easily be higher or lower for any specific application, but in general, 75F is a good number. For use in a commercial application/pizzeria we commonly see finished dough temperature of 80 to 85F with an occasional 70 or 75F tossed in for good measure. Those lower temps are usually used where we have high shop temperatures or where long cold fermentation times (4 to 7-days) are being targeted.

Tom Lehmann/The Dough Doctor

[Re: Dough Doctor New York Pizza Recipe Issue](#)

2202

Q.J.

Has it "nailed" spot on! ^^^

If you cover the dough right away it will sweat which results in an overly soft and usually sticky dough. The dough is also very slow to cool which further compounds the issue by leading to more fermentation than planned for within any specific period of time. In some cases the dough will actually continue to heat up in a covered container while in the fridge due to heat of metabolism (the heat generated by the yeast as a result of metabolizing nutrient during the fermentation process).

Tom Lehmann/The Dough Doctor

[Re: Dough Doctor New York Pizza Recipe Issue](#)

2203

That's a lot like the dessert pizza that I've written about here a number of time. The difference is that I use a regular dough skin, brush it with melted butter and sprinkle with cinnamon-sugar mixture, then apply a cheese base made with ricotta, sour cream, and cream cheese which is blended with whole egg, sugar and salt, the viscosity is adjusted to that of mayonnaise so it can easily be spread on the skin about 3/16-inch thick, apple slices, peach slices, kiwi, sliced grapes, strawberries, blue berries, black berries, mango, banana or just about any kind of fruit you might have on hand can be added as a topping. These pizzas are baked right along with your regular thin crust pizzas, after baking they are cooled and sliced for sale by the slice. They are usually finished with the addition of a drizzle of string icing (powder sugar-water icing) after reheating for a few seconds for sale. Some even add a pre-bake topping of streusel which I personally think takes it to a higher level. These can be served cold, hot (reheated) or ala mode. There's a lot to be said for this type of dessert pizza, no matter how it's made. It sure beats dumping a can of pie filling on a crust and calling it a dessert pizza as many do!

Tom Lehmann/The Dough Doctor

[Re: Berry tart pizza](#)

2204

Well, let's see if we can pick this apart a bit. You buy your dough from a local bakery, I'm assuming this is a retail bakery as opposed to a large wholesale bakery. I really can't think of many retail bakeries making "pizza" dough as a regular item unless it's by request or under contract so there is an excellent probability that what you are getting for dough is some type of bread dough rather than a formulated pizza dough, if this is the case, do you know what type of bread dough you're getting? Many bread doughs are formulated quite differently from pizza dough. Additionally, bread dough is fermented MUCH LESS than what we would typically ferment a pizza dough....hours as compared to days. It is this fermentation that is responsible for essentially all of the flavor we taste in a baked pizza crust, it is also responsible in a large part for the crispiness of the finished crust too. While you don't provide any information on baking your pizzas all I can say right now is that if indeed you are using some type of a bread formulated dough it might have more sugar than desired for the way you are baking your pizzas which would cause you to short bake the pizzas (we bake pizzas to bottom color) which in turn give the crust a very thin layer of crispy dough on the bottom, if the dough is formulated as a pizza dough using little or no sugar one would need to bake the pizza longer to establish a desirable crust color which develops a thicker crispy layer on the bottom of the crust which in turn retains its crispiness for a longer time after being removed from the oven, this is assuming you are placing the pizzas on a screen or rack as opposed to placing them onto a metal pan immediately after removal from the oven. Baking develops flavor in the crust too, the longer the crust/pizza can be baked the more flavor it will develop due to the denaturing of proteins during the baking process. Without more information this might all be construed as just speculation...we all know what happens when we "assume". :-D

Tom Lehmann/The Dough Doctor

[Re: I want pizza dough, not play-doh](#)

2205

What kind of flour were you using? What was your finished dough temperature? How did you manage the dough? These are all questions that play an important part in answering the question you posed.

The flour should be a high protein flour such as All Trumps (14+% protein content). The finished dough temperature should be targeted for 75F.

Dough management should look something like this: Mix, scale, ball, place in lightly oiled container (DO NOT COVER), after 3-hours cover the dough, cold ferment 24-hours, remove from fridge and allow to warm to 50 - 55F, (3-hours seems a bit long) open dough ball into a pizza skin for dressing and baking.

Let me know how it works for you.

Tom Lehmann/The Dough Doctor

[Re: Dough Doctor New York Pizza Recipe Issue](#)

2206

Have you tried any of the Stanislaus products? Their 7/11 Ground Tomatoes with a little fresh or roasted garlic and fresh basil added to the sauced skin is one of my favorites after nothing but thin sliced vine ripened tomatoes (brush the skin with olive oil add the garlic and fresh basil then lay the slices of fresh tomato over the skin in place of a conventional sauce...excellent flavor, my all time favorite, but that's just me. Sometimes simple is the best.

Tom Lehmann/The Dough Doctor

[Re: Looking for thin crust sauce recipes](#)

2207

What, if any, experience you you have in the pizza/restaurant or food industry?

Tom Lehmann/The Dough Doctor

[Re: At ground zero - thinking of doing a thing - might need sense talked into me.](#)

2208

Can you provide any pictures?

Tom Lehmann/The Dough Doctor

[Re: Tripoli's or Cristy's style dough](#)

2209

Here is a pretty typical deep-dish dough formula:

Flour: 100% (bread type flour with 11.2 to 12.5% protein content)

Salt: 1.75%

Sugar: 2%

Shortening: 4% (Butter flavored Crisco works well)

IDY: 0.4%

Water: 62%

Target finished dough temperature: 75F.

add water to bowl first then flour and all remaining ingredients.

Mix to a smooth dough consistency (about 8 to 10-minutes).

Scale, ball and box the dough, wipe the top of the dough balls with oil.

Cross-stack in the cooler for 3-hours assuming 14 to 16-ounce dough balls for 12-inch pizzas.

Down-stack and allow to ferment for 36 to 48-hours.

Remove dough from cooler and allow to warm AT room temperature until internal dough ball temperature reaches 50F.

Using a rolling or pastry pin, roll out to a size just a little larger than the pan.

Fit the opened skin into an oiled pan and set aside to proof for 60 to 75-minutes.

After 45-minutes check the dough in the pan and stretch to fit the pan if necessary.

After dough has proofed you can use your fingers to form an edge by pulling dough up on the side of the pan or leave it as it is. Then add sauce and dress to the order.

If using a deck oven bake the pizzas with a screen under the pan to prevent burning the bottom.

You will need to experiment with the amount of dough used in the pan to determine the thickness of finished pizza you want to have.

Cut finished pizzas using a rocker knife.

Tom Lehmann/The Dough Doctor

[Re: NY Style vs Spongy Pan Pizza](#)

2210

208F is about as hot as you can get the internals and still call it bread. After that the temp rises due to loss of evaporative cooling (crumb drying out) and things begin to appear more like melba than bread....DoouBall nailed it!

Tom Lehmann/the Dough Doctor

[Re: Optimal temperature of cooked pizza crust?](#)

2211

Try this:

Immediately after mixing scale and ball the dough, box, lightly oil the top of the dough balls, cross-stack (leave container open) and place in the fridge. After 3-hours down-stack (cover) and allow to cold ferment for 24 to 48-hours. Remove

from fridge/cooler and allow to temper AT room temperature until 50F then do your magic and open the ball into a skin. Let me know how this works for you.

Tom Lehmann/The Dough Doctor

[Re: dough too soft, need advice](#)

2212

Godfather's uses a "cutter" pan having 40 degree angles sides designed for cutting the dough into the pan. In Chicago they bake the thin crust pizzas directly on the deck using bakery type reel ovens.

Tom Lehmann/The Dough Doctor

[Re: High protein flour.](#)

2213

I usually just make my own. Put a couple bulbs of garlic in the oven and roast until soft, cut the top off of each bulb and squeeze out the roasted garlic. I like to mix this into my home brewed basil pesto when I'm getting ready to dress a pizza.

Tom Lehmann/The Dough Doctor

[Re: Tessemae's Slow Roasted Garlic](#)

2214

The KA flour should work just fine for you. Chicago style crusts are best made using a dough sheeter/dough roller, whatever you like to call it.

Tom Lehmann/The Dough Doctor

[Re: High protein flour.](#)

2215

Deer heart pate anyone? ;D

Tom Lehmann/The Dough Doctor

[Re: Ruger American Rifle Vortex Scope Package](#)

2216

Chicago thin is typically made using Ceresota flour (about 11.7% protein content) while N.Y. style is typically made using All Trumps flour (about 14.2% protein content). Chicago style is edge to edge while New York style has an exposed raised edge. Also, Chicago style is party cut while New York style in pie cut.

Tom Lehmann/The Dough Doctor

[Re: High protein flour.](#)

2217

Actually, I've done it before. I used a (8-inch) pizza screen under the pizza and a 2" deep aluminum pizza pan (with a few nail holes in the bottom) inverted over the pizza for top heat. I put a small wood drawer pull on top of the pan for ease of removal. Not the best pizza but no one refuse to eat it! We also had a stove top oven made from a large popcorn tin. I used a .22 to shoot two holes across the diameter of the can about 2/3 of the way up from the bottom, ran wire through the holes to create a shelf for holding an 8" cake pan. I flared the edges of the lid with a rock so the lid would just lay over the top. We used both for many years making camp pizzas and cakes for dessert....earned me the nick name "Camp Momma".

Tom Lehmann/The Dough Doctor

[Re: Ruger American Rifle Vortex Scope Package](#)

2218

When applying mineral oil to my peels I've always put the oil onto a cloth towel and

rubbed it in. You don't want to oil soak the wood as that would affect the way the wood releases the dough but you just want to seal the surface so go light and rub it in well, then burnish it by rubbing again with a clean, dry towel as if you are trying to rub off the oil that you just applied.

Tom Lehmann/The Dough Doctor

[Re: Looking after a wooden peel](#)

2219

One thing that comes to mind is have you considered baking on a pizza screen rather than directly on the steel hearth? The screen will allow you to bake the pizza longer without getting excessive bottom crust color. You might want to use a higher rack position to control the top bake as the top of the oven will be hotter than the bottom. If in doing this you find that you want more bottom crust color then add a percent or more sugar to the dough formula to enhance bottom crust color development.

Tom Lehmann/The Dough Doctor

[Re: Making pizza in bottom heating oven](#)

2220

2% for the trained person.

Tom Lehmann/The Dough Doctor

[Re: Testing for absorption](#)

2221

Never, ever wash a wood peel unless you are fond of a warped peel. If it needs cleaning just wipe it down with a damp towel. To maintain your peel periodically wipe it down with a light coating of mineral oil to help keep the surface sealed. If it gets rough sand it lightly with 200-grit sand paper and re-treat with mineral oil. Use your wood peel only as a prep-peel, prep the pizzas on the peel and peel them into the oven, then use a metal blade peel to remove the pizzas from the oven. I've had wood peels last me over 20-years with a little care.

Tom Lehmann/The Dough Doctor

[Re: Looking after a wooden peel](#)

2222

It's not the quality of the flour where the issue is at, while it indeed does vary, and depending upon the year and circumstances sometimes considerably, at most all we ever see is a 1 or 2% variation and that's well within our level of tolerance for a pizza dough. Where things begin to go off in a different direction is when we begin seeing on-site (farm) stored wheat getting introduced into the grist over which the mill has no control. This grain can be up to 2-years in storage and in many cases has been stored under warm conditions both of which contribute to oxidized grain. What does this mean? It means that the flour performs as it has been given an overdose of oxidation. When I was working at AIB I used to get calls from bakers all the time just a couple of weeks prior to the new wheat crop coming in. It seems that farmers were selling of their stored grain to make room for the new crop (part of which they would store on-site waiting for a better price as the price is always lowest right at harvest time). Additionally, bagged flour is prone to drying out too. When flour leaves the mill it is around 13 to just under 14% moisture but under certain storage conditions it can dry down to about 10.5%, when combined with normal flour absorption variations, if the planets are aligned correctly, you could see a variation in dough absorption of as much as 5% which you would see even in

a pizza dough. I've dealt with a lot of calls from operators complaining that while they have done nothing different, the dough is difficult to open or exhibits excessive memory characteristics since they got their last flour delivery. In almost every case I tell them to increase the dough absorption by 3% to see if that helps. It does help when the issue is due to drying of the flour but when it's due to oxidation of the wheat prior to milling we usually have to give the dough more fermentation or include a little reducing agent (dead yeast or PZ-44) in the dough formulation but then watch the dough VERY carefully because as soon as the mill works through the on-site stored grain (almost always within 3 to 4-weeks) the situation will immediately reverse itself. This is so bad in the wholesale baking industry (which includes commissary pizza) that companies have developed strategies for coping with what is called new crop transition which usually include a contracted blending of new crop with old crop or some just go "cold turkey" by cancelling all leave for senior supervisors and getting all new crop flour in their next delivery. With a little luck they normally sort things out in a day or two and life returns to normal for the better part of a year, then the cycle repeats itself.

Tom Lehmann/The Dough Doctor

[Re: Testing for absorption](#)

2223

Rats!!! Don't you just hate it when that happens? :-D

Tom Lehmann/The Dough Doctor

[Re: Testing for absorption](#)

2224

It would be nice if there was some way to do it but in order to even be remotely accurate you would need some way to accurately measure dough viscosity, which reminds me, there is another way...the Mixograph. This instrument incorporates a pin type mixer mounted on a spring loaded platform, during mixing the resistance from the pins on the mixer head forces the dough over the fixed pins in the bowl and this resistance causes the bowl to want to rotate, this force is recorded by means of a pen and chart allowing one to see maximum resistance (force). By this method water is added so maximum force is achieved within a specific period of time, then the absorption calculated, a factor between Mixograph and actual bowl absorption still needs to be developed just like the Farinograph. Haven't priced a Mixograph in many years but considerably cheaper than a Farinograph. Still figure on several thousand dollars.

OK, I'm really going out on a pretty thin limb here but here's an idea if you're really that bored and need something to do.

Get 5 or more plastic glasses (between 3 and 4-inches across the top), put varying amounts of water in each glass, add an accurately measured 100-grams of flour to each glass and using a stirring stick stir each glass the same (as close as possible), lightly cover each glass with a piece of foil to prevent drying, allow to set for at least an hour (time to be determined) as you want the flour to fully hydrate on its own. Glue a large marble onto a piece of strong thread, carefully lower the marble onto the surface of the dough and measure the length of time it takes for the marble to fully sink into the dough (set a 2-minute time limit for this to happen). Increase absorption until you get this effect. Calculate the flour absorption (water weight divided by flour weight X 100). So now you can say that you need to add sufficient water to the dough so the marble Fully sinks (until JUST submerged) this is important as it is a constant. and then you need to make a pizza dough using that same flour to find your "dough absorption", now just divide the dough absorption by the flour absorption to get the desired absorption factor for your SPECIFIC

pizza dough formula and procedure.

Example:

100-grams of flour.

80-grams of water (80F MUST BE A CONSTANT TEMPERATURE) added to sink the marble.

80 divided by 100 X 100 = 80% flour absorption.

Your pizza dough was best when made with 60% absorption.

Divide 60% by 80% and you get an absorption factor of 0.75

Using the ABSORPTION FACTOR:

Find the new flour absorption %.

Multiply that by 0.75 to find the dough absorption needed to make your dough using that flour, in this case $0.75 \times \text{flour absorption} = \text{the percent dough absorption needed for your specific dough}$.

Be aware that, even when using the best instrumentation, the absorption factor is only accurate to +/- 2%. That's the best you can hope for.

Tom Lehmann/The Dough Doctor

[Re: Testing for absorption](#)

2225

How is the spiral mixer a problem? ??? If you replace ADY with IDY be sure to use the correct conversion or you will be using too much IDY.

I'm on the program twice this year at Pizza Expo. One of my sessions should be very informative as it will be a 4-hour session allowing time for a lot of personal attention to problem solving and answering questions.

Tom Lehmann/The Dough Doctor

[Re: ADY to prove or not](#)

2226

Yes there is, the instrument is called a Farinograph and for a mere \$40,000.00 you can have one too. :D

Aside from that, I'm afraid the answer is no, I'm not aware of any other real method for measuring the absorption properties of flour out side of an analytical lab using NIR (near infrared). This is what I was doing when I retired from AIB, working with Dr. Rick Dempster using NIR to measure flour absorption.

In truth, the optimum dough absorption is that which provides you with the best compromise in dough handling properties while giving the best (desired) finished product characteristics, and since there are so many different ways of making pizza and so many finished product expectations, even if you knew what the flour absorption was you would still need to develop an absorption factor to convert the flour absorption into a dough absorption that you could use in your dough formulation.

By the way, the big users of flour (bulk, like in tank car loads direct from the flour mill) receive an analytical report on each flour delivery which also includes complete Farinograph data on that specific flour. This data is important as it allows them to make changes to their process or dough absorption to accommodate shifts in flour quality or more commonly flour absorption properties. As I've said so many times before, flour is probably the single most variable ingredient we work with.

Tom Lehmann/The Dough Doctor

[Re: Testing for absorption](#)

2227

As many of you are aware much of the U.S. is in the grip of a Polar Vortex with frigid temperatures and high winds, while here in Manhattan Kansas we don't have the really frigid temps YET (they're still coming) I decided to make a large pot of venison chili. The house is smelling great! :drool: It'll be ready by dinner time. Nothing beats free range, organic, no hormones added venison, especially when I hunted it, harvested it, field dressed it, brought it out of the field and home, cut it into steaks, roasts, stew meat, fajita meat, hamburger (ground venison) and jerky strips, then enjoy all the fruits of your labor with a great meal while recalling another successful hunt.....it's as good as pizza! :)

Tom Lehmann/The Dough Doctor

[Re: Ruger American Rifle Vortex Scope Package](#)

2228

In one word....yes.

When not placed into a small amount of warm (95 to 100F) water to hydrate/activate some of the plasma material is leached out of the ADY which poses two problems, one the yeast cells, while still alive do not participate in the fermentation process and two, the material leached out of the yeast cells is glutathione, the exact same material that the reducing agent "dead yeast" is comprised of. This means that the glutathione exerts a softening effect or weakening effect upon the dough much like dead yeast or a similar product based on L-cysteine (PZ-44). In any case there is no way to tell how severe this might be so the end result is an inconsistent dough at best. IDY, on the other hand is designed to hydrate very quickly (hence the word INSTANT in its name) which allows the IDY to quickly absorb water and seal the fissures in the cell walls thus preventing loss of glutathione from the individual yeast cells. This can be an issue for IDY at the same time, if IDY is placed into water that is just 5F too cold (90F) if it is suspended for hand mixing, the cooler water will exert a flushing action (enter into the cells and back out again before the cell walls can seal so you get what we call a flushing action where the water leaving the cells brings the glutathione out with it.

Tom Lehmann/The Dough Doctor

[Re: ADY to prove or not](#)

2229

We make the dough and sauce as well as prep the cheese if necessary at the main store which we use as a commissary. The dough is mixed, scaled, balled and boxed or bagged, cross-stacked in the cooler for 3-hours then down stacked. Once down-stacked the dough is held for 18 to 24-hours before being transported to the other store either in the early morning or in the evening/night time hours, it is placed directly into the store's cooler for use as soon as needed. If you do your part the dough is good for 2 to 3-days. A van is the easiest way to transport the dough to the second store. This method gives you MUCH better control over the dough and saves money as you don't need to buy more equipment making the dough or inventory ingredients at the second store, the big bonus is that you always have the same people making the dough so you are reducing the risk of something going wrong....like that never happens :-D

The concept is very simple, this is how most kiosk stores operate as well as every one of the big box chain stores.

Tom Lehmann/The Dough Doctor

[Re: Growth Challenges from 1 to 2 shops](#)

2230

I see that it's a whole white wheat flour. If the flour appeared to be fine (almost like

a regular white flour) you may not see a whole lot of difference in the crust if you use it at about 25 to 30% of the total flour blend. The typical absorption for that type of flour is usually around 70%. Both dough performance as well as flavor suffer greatly if the absorption is too low.

Tom Lehmann/The Dough Doctor

[Re: High protein flour.](#)

2231

Can you send a picture of the label on the flour bag/package? There are different types of whole-wheat flour so it would help to get a better idea of which one you have. There can be problems with dough absorption when using some types of whole-wheat flour so if you find that after the fermentation period the dough has become very tight/stiff you know that it's due to insufficient absorption for the flour you're using. When referencing the protein content of the flour we are always referring to the gluten forming proteins (whole-wheat flour is about 1% higher in protein content but that additional 1% protein is not a gluten forming protein). If you make a pizza crust from your whole-wheat flour you will be making a whole-wheat crust, not bad, just different. If you blend it with white flour (2/3 white flour and 1/3 whole-wheat flour or dough), you will be making a wheat crust, again, different but not bad. There has been a lot of discussion here on using whole-wheat flours if you want to look back in the archives.

Tom Lehmann/The Dough Doctor

[Re: High protein flour.](#)

2232

Sounds about right to me. After you remove the dough from the mixer it is no longer under tension from being worked by the dough agitator (hook/arm) so it quickly relaxes. It even does this to a great extent when still in the mixing bowl after the mixer has stopped. This is perfectly normal.

Tom Lehmann/The Dough Doctor

[Re: how fast?](#)

2233

The KA mixers are just not up to the abuse of constant everyday use in mixing rather tough pizza doughs. I would highly encourage you to look into at least a planetary 20-quart mixer or better yet, one of the 20-quart spiral mixers. Eurodib makes a 20-quart spiral mixer that sells for \$1,100.00 or about half of what a planetary mixer of the same size sells for and it should last you for a very long time. The main thing when mixing the dough is to mix it faster than slow speed just until you achieve a smooth appearing dough.

Tom Lehmann/The Dough Doctor

[Re: Developing Midwest Thin for commercial use](#)

2234

With exception to *Bacillus Mesentericus* (Rope) spores, bread is essentially sterile when it comes out of the oven. Rope is not a dangerous organism it just gives the bread a funky nail polish remover or over ripe cantaloupe aroma.

Tom Lehmann/The Dough Doctor

[Re: Room Temperature Fermentation Safety?](#)

2235

Aside from a few recent recalls (Mark IV and American Pistol) I can't think of any issues with Ruger products over the past 40-years. My favorite deer rifles are a #1

in 45/70 and a Hawkeye in .338 Federal. I've probably got half a dozen or more Rugers in the safe and they all get a lot of range time and none have ever given me any issues what so ever, I'm sure a few bad ones have gotten out but nothing any worse than from any other manufacturer.

Tom Lehmann/The Dough Doctor

[Re: Ruger American Rifle Vortex Scope Package](#)

2236

From a commercial standpoint the dough is going to be really tough to roll out using a rolling or pastry pin. Since this is for a commercial operation my advice is to spring for a dough sheeter/roller, otherwise you will be wasting a lot of time in opening the skins.

Here's a good formula to start with:

Flour: 12.2 to 12.8% protein content 100%

Salt: 2%

Oil: 4%

IDY: 0.7%

Water: 50 to 54%

Targeted finished dough temperature: 80F

Mix to a "just" smooth consistency (about 8-minutes) at medium speed.

Scale and ball immediately after mixing.

Place in dough boxes, wipe with oil.

Cross-stack in the cooler for 2-hours then down-stack.

Cold Ferment for 18 to 24-hours.

For a trailer or truck:

Allow dough to warm at ambient for 1-hour prior to opening the balls into skins.

Place skins on pizza screens and hold in a wire tree rack for up to 20-minutes.

To use the dough from the tree rack invert the skin onto a peel or pan with a light dusting of corn meal.

Dock the skin.

Sauce and dress to the order and bake.

Tom Lehmann/The Dough Doctor

[Re: Developing Midwest Thin for commercial use](#)

2237

I just find that it is easier to answer a question if I know specifically what pizza is being discussed. When I was at AIB we did some work baking this style of pizza in the Lincoln air impingement oven with moderate success as compared to a deck oven. I don't remember all of the specific details anymore but I do remember that we had to play quite a bit with both the top and bottom finger profiles since a "regular" pizza profile did not work well, that's about par for the course and it's why they have so many custom fingers for those ovens as it allows one to set-up the oven for very specific baking applications. The down side is that you now have a pretty dedicated oven which may or may not work well with other products which need to be baked in a pizzeria setting. Most typical "pizza" finger configurations are sufficiently versatile so they have a broad application in baking other menu items such as garlic knots, bread sticks, calzones, wings, etc. If you are interested in further exploring this option find an air impingement oven manufacturer close to you or one that you have a preference for and discuss the possibility of doing a few test bakes at their facility to assess the feasibility.

Tom Lehmann/The Dough Doctor

[Re: ROMAN style dough and the Impinger oven](#)

2238

Go with Nosler Partition bullets or commercially loaded rounds using them or any of the monolithic bullets like those made by Barnes or Hornady for the tougher stuff and regular cup and core bullets (150-grain weight) for anything else, if your shots will be out at 200+ yards any of the lower cost 130-grain cup and core bullets will work fine. If you must use the 130-grain loads and your range will be less than 150 to 200-yards just remember to pick out the end you want to eat then shoot the other end. Those 130-grain cup and core bullets are just plain too explosive when driven at 3,000+ fps and the range is close. By hand loading though you can load them down to 2,600 to 2700 fps and they perform well out to 250-yards on deer size game.

Tom Lehmann/The Dough Doctor

[Re: Ruger American Rifle Vortex Scope Package](#)

2239

I have one in 30/06 and I can't slight it in the least. Trigger is great for a production rifle (most are these days) and it's adjustable so you can set the trigger pull to where you like it. I also have a Ruger Ranch rifle in 7.62 X 39 which I'm quite fond of too. The Vortex scope presently sells for between \$150.00 to \$167.00 U.S. and add another \$20.00 for rings. The rifle comes with a rail so bases are not needed. The rifle retails here for about \$475.00 U.S. but we can pick them up for about \$100.00 less. I was just looking at what was essentially a new Ruger American Ranch Rifle in .223/5.56 with a scope, sling, extra magazine for \$450.00. The .270 Winchester is a fine caliber for deer size game and maybe a bit bigger with some of today's premium bullets out to about 400-yards if you can hold up your end of the bargain. I have a friend who uses a .270 for deer here in Kansas (bucks go 100 to 140 kgs. in weight). He used to use 130 grain bullets but at ranges we shoot here in Kansas (100 to 150-yards) they were overly destructive so he now uses only 150-grain bullets and eats more of his harvest.

Tom Lehmann/The Dough Doctor

[Re: Ruger American Rifle Vortex Scope Package](#)

2240

To the contrary, commercial bakers yeast will acidify a dough quite nicely in just a few hours....not to sourdough levels of 4.0 and less but easily into the 4.5 to 5.0 range from a starting point of 6.8 to 7.0 pH. Mom would have poisoned all of us kinds with her home made bread if it were not for this.

Tom Lehmann/The Dough Doctor

[Re: Room Temperature Fermentation Safety?](#)

2241

Squash such as crooked neck or zucchini are great choices as for any watery vegetables you might have a concern about drain well and place in a clean towel to absorb excess moisture....don't over do it with the amount you add, ditto for the green and black olives, onions.

Tom Lehmann/The Dough Doctor

[Re: Toppings suggestions needed \(vegetarian\)](#)

2242

- 1) Decide what dough weight you want to make.
- 2) Divide the dough weight by the sum of the bakers percent in your dough formula

divided by 100.

3) This will give you the flour weight to make your dough of desired weight.

4) Then flour weight X ingredient percent you want the weight for, then press the "%" key and read the ingredient weight.

Remember that the ingredient weight will ALWAYS be in the same weight units that the flour weight is shown in.

Tom Lehmann/The Dough Doctor

[Re: recipe conversion from % to weight \(oz\).](#)

2243

As long as you have yeast or some other desirable bacteria strain in the dough to accomplish acidification of the dough it is perfectly safe to ferment the dough at any temperature that will support fermentation

Tom Lehmann/The Dough Doctor

[Re: Room Temperature Fermentation Safety?](#)

2244

When using the parchment paper you have two options, one is to just slide the pizza into the oven with the parchment paper under the skin and bake the pizza, removing the parchment paper when you remove the pizza from the oven, the other approach is to allow the pizza to bake on the parchment paper until you can slide easily your peel under the skin and remove the parchment paper allowing the pizza to finish baking right on the oven deck. Either way is OK.

Tom Lehmann/The Dough Doctor

[Re: Pizza Crust](#)

2245

How much of a difference in diameter are we talking about? Up to about 1/2-inch is normal.

Tom Lehmann/The Dough Doctor

[Re: Shrinking Dough](#)

2246

I'm from Chicago also, probably just a matter of taste.

Tom Lehmann/The Dough Doctor

[Re: Corn meal](#)

2247

I'm not sure if I'm understanding your question correctly, but to the very best of my knowledge most, if not all of the New York style pizzas are made with white flour, with General Mills All Trumps (14+% protein content) being the most popular brand used. Possibly you heard "wheat flour" which would be correct in a general sense as opposed to whole-wheat flour which is an entirely different type of wheat flour as it contains approximately 20% bran.

Tom Lehmann/The Dough Doctor

[Re: Bread flour / whole wheat flour mix](#)

2248

Sure, not a problem in dividing the water into two parts and dissolving the salt in one and suspending the yeast in the other. This is remotely similar to the way you would have to do it if you were using ADY (active dry yeast or IDY (instant dry yeast) and mixing the dough by hand.

Tom Lehmann/The Dough Doctor

[Re: Questions for a better understanding of the dough](#)

2249

My first impression was that it was going to be an emergency type dough, we understand though. :)

Tom Lehmann/The Dough Doctor

[Re: This is my basic quick pizza dough](#)

2250

To use the bags of flour you have in the freezer its best if you can remove what you will need to use the day before and just set it out on the counter to allow it to warm up. Extremely cold flour doesn't absorb water as quickly as warmer (room temperature) flour does. Not a big deal if you forget to take it out of the freezer just remember that the dough might feel a little different at first BUT also remember that the extremely cold (frozen) flour will also impact the finished dough temperature resulting in a colder than anticipated finished dough temperature unless you correct for this by using slightly warmer dough water. Probably easier to just remember to take it out of the freezer the day prior to use. :)

Tom Lehmann/The Dough Doctor

[Re: Flour Storage Products](#)

2251

For a dough that'll be fermented that long you only need to mix the dough until it takes on a smooth appearance, biochemical gluten development will take care of the gluten development for you with a lot less wear and tear on your mixer, and it will shorten your process too while giving you a more open finished crumb structure in the crust. The "window pane" test really has little application in pizza making as pizza doughs are typically under mixed to help achieve the desired finished crust characteristics, where the window pane test is used to good advantage is in bread making (as in sandwich/loaf bread), in this case the dough is mixed to full gluten development and then even a little more to achieve the desired dough extensibility the result is a dough that produces a finished loaf with good volume and a close, tight knit crumb structure.

Tom Lehmann/The Dough Doctor

[Re: This is my basic quick pizza dough](#)

2252

To answer your question #3, just use less dough...problem solved. If you were to proof it less the crumb structure would change as would the eating/mastication properties of the crust. By using a bit less dough and proofing it to the same time as you are proofing the full weight dough you will get a similar crumb structure but with less height/thickness. When we were making the PH type deep-dish pizzas we used a final proofing time of 70-minutes but that will change with your actual dough formulation as well as dough and room temperature.

As for your question #1, look at the thickness of the metal the pans are made from and buy the thicker/heavier pan as it will be more durable and provide for an overall better, more uniform bake. You might need to go to the respective web sites to get this information and remember that many times pans are offered in different thicknesses/weights so make sure you are comparing apples to apples. If the pans are bright metal, anodized or not, you will need to season them well prior to use.

Tom Lehmann/The Dough Doctor

[Re: PIZZA PANS](#)

2253

If you are planning to store your flour for up to a year it will be better to store the flour, regardless of what it's stored in, in the coolest place possible. Ideally, under refrigerated temperature but if that's not possible for you revert back to "as cool as possible". In my experience, anything over 70F is too warm for long term flour storage.

Tom Lehmann/The Dough Doctor

[Re: Flour Storage Products](#)

2254

Those are some mighty fine looking pizzas!!!

Tom Lehmann/The Dough Doctor

[Re: Help with recipe for long cold ferments](#)

2255

The main reason for dissolving the salt in the water is for improved dispersion throughout the dough when the dough is NOT going to be mixed by machine. When using a dough mixer, unless a coarse granulation salt is being used, it is not necessary to dissolve the salt in the water so it can be added directly to the flour. The same is true for the yeast (compressed yeast) as it should be suspended in the dough water to ensure thorough dispersion throughout the dough when hand mixing is employed. When a dough mixer is used the compressed yeast can be crumbled right on top of the flour and the mixing agitator will do the rest for you. As for mixing the salt and yeast together, this is generally not a good idea as it can potentially harm the ability of the yeast to ferment. The salt can exert a greater osmotic pressure than the yeast so the salt can potentially pull the plasma material out of the yeast cells, not necessarily killing the yeast cells but definitely impairing their ability to participate in the fermentation process not to mention the fact that the plasma material will be glutathione, a dough reducing agent which can make doughs softer and more extensible. Dead yeast AKA glutathione is sold commercially as a consumer friendly dough reducing agent (dough softener). While incidental contact between salt and yeast in the water may not be harmful (direct contact between the two is) if you were to get distracted and allow some time between putting the two together in the water and adding the flour and mixing the dough you could get some inconsistencies in your dough that might cause you to add more or less water or thing that your mixing is off when all that happened was that you got distracted at a bad time.

Tom Lehmann/The Dough Doctor

[Re: Questions for a better understanding of the dough](#)

2256

Jason;

Keep in mind that RT bulk fermentation will yield far different results than cold bulk fermentation within the same time frames. A lot will depend upon at what temperature your starter performs best at which is a function of the micro-flora present.

As for scaling and balling a bulk fermented dough, I like to scale and ball immediately after the bulk fermentation period. I do not recommend allowing a bulk dough to warm-up prior to balling as this will introduce a ball park of variables into the dough. The main one will be due to the outside of the dough warming while the inside remains cool (if you have it FULLY refrigerated with a core temperature of 40F or less). If you do the bulk fermentation at room

temperature (not really recommended unless the RT is CONSTANT) you will need to experiment to determine when the dough has been sufficiently fermented to provide the flavor and performance characteristics desired. There is no real way to predict this so it will have to be determined through experimentation or trial and error. Keep good and complete notes as doughs made with SD starters tend to be much more responsive to times and temperatures. Consistency is the name of the game so don't be afraid to "A-Retentive" when doing your experimentation as it will help you stay on track in the long run.

Tom Lehmann/The Dough Doctor

[Re: WHEN TO BALL DURING BULK FERMENT](#)

2257

Well put! Additionally, remember that hunger is triggered by a drop in blood sugar, so you pop a sugar cube, your blood sugar spikes and you're no longer hungry BUT soon that sugar is metabolized and your blood sugar once again drops, the process keeps repeating itself over and over again. This is actually pretty easy to demonstrate to yourself using sugar cubes or candy which is high in sugar (I don't recommend doing this if you are diabetic). I once had a lady tell me that she always got light headed when working out at the gym after work, I suggested that she eat two slices of bread before she left work, the starches/carbs in the bread were slowly converted to sugars which could be metabolized thus maintaining her blood sugar at a reasonable level, end result.....she no longer complained of getting light headed during her work out and she also indicated that she was no longer hungry enough to "eat a horse" when she got home. It's called blood sugar management, something more of us should pay closer attention to.

Tom Lehmann/The Dough Doctor

[Re: Natural sugars in flour. Breaking down the Carbohydrates. How healthy is it?](#)

2258

It's not for the weight, it's for the evaporative cooling it provides which reduces the temperature at the top of the skin (crust) thus reducing bubbling. Also be sure to dock the crust with a good (blunt) dough docker to further control any bubbling which might occur.

Tom Lehmann/The Dough Doctor

[Re: Freeze cooked vs uncooked](#)

2259

The suggestion from Hanglow is the best one, the wood is much easier to cut the pizzas on and it will help to retain the heat in the pizzas. Aluminum is possibly the worst material to use as it conducts heat away from the pizza and it also results in condensation forming between the crust and the aluminum surface. A common solution is to buy a box of corrugated cardboard pizza circles, place the pizza circle on/in a pizza pan (a screen works well too and they're cheap) to provide rigidity to the pizza circle. Used in this manner the circle insulates the bottom of the pizza from the surface upon which it is placed so it stays hot a little better and doesn't contribute to condensation forming on the bottom of the pizza, the cardboard is also a good cutting surface.

Tom Lehmann/The Dough Doctor

[Re: Pizza Serving Plates](#)

2260

I forgot to add, to par-bake your crusts use a temperature of 400F to 425F. and bake on a seasoned pizza screen, if you will be baking on some type of a deck

surface (stone or baking steel) you can par-bake at up to 500F. Remember, the object is to bake the skins JUST long enough to fully set the structure...no longer. The par-baked crusts will have a very light/slight browning, no more than that. If you see what appear to be oil spots developing on the cooled crusts these are NOT oil spots, they are areas of dough collapse due to insufficient baking. To correct the condition you will need to bake the par-baked crusts a little longer (by little I mean maybe only 15 to 30-seconds). To do this without getting too much color or bubbles you might need to lower the baking temperature by 15 to 25F to allow for a longer bake time. In any case, if you encounter any problems let us know and we can guide you out of it.

Tom Lehmann/The Dough Doctor

[Re: Freeze cooked vs uncooked](#)

2261

Folkipicker;

The SOP (standard operating procedure) for making frozen pizzas is to make them on a par-baked crust. Par-bake your skins using about 1/2 of the sauce on the skin to prevent bubbling, then place on a rack or screen to cool thoroughly, then apply the remainder of the sauce along with the cheese and other desired toppings, place on a pizza screen to allow for air circulation around the entire pizza and freeze for at least 3-hours, remove from the freezer, place onto a cardboard pizza circle and IMMEDIATELY wrap in stretch wrap. Wrap in at least two layers of stretch wrap and place back into the freezer. I can't say how long the pizzas will keep in your freezers but I'm guessing you should be able to pull a pizza once a week for at least two months. To bake the pizzas always bake from frozen, place on a pizza pan or cookie sheet for baking at 400 to 425F until the cheese is hot and bubbly. You may need to experiment with the baking time and temperature a little but this should get you in the ball park. Remember to adjust the baking time and temperature to get the top side of the pizza baked properly if you find that the bottom needs more or less color adjust the bottom color by adding more or less sugar to the dough formula (more sugar for greater color and less sugar for a lighter or less color). If you like to have the edges (rim) with more color and everything else is OK just brush the edge of the pizza with olive oil just before you place it into the oven. For something a little different, try sprinkling on a little EVOO as soon as the pizza comes out of the oven (the temperature of the pizza will "pop" the flavor of the EVOO. Another trick is to sprinkle the top of the pizza with grated Parmesan cheese or a blend of Parmesan and Romano as soon as the pizza comes out of the oven. Lastly, brush the edge with EVOO before baking, then apply some shredded Parmesan cheese to rim (it won't hurt if you get it in the center too), in this presentation the cheese will melt and be toasted on the edge imparting a great toasted cheese flavor to the edge crust. This is just like they do when making the Bobloli Pizza Crusts that you can buy at the supermarket.

Have fun and experiment. By the way, my personal favorite is to brush the edge of the pizza with water and sprinkle with raw sesame seeds (not too heavy or they'll just fall off after baking), the seeds will be toasted during baking giving a great flavor to the edge crust.

Tom Lehmann/The Dough Doctor

[Re: Freeze cooked vs uncooked](#)

2262

Here's my personal take on this;

There are just so many factors involved and capable of affecting the conversion from one type of yeast to another under real life dough conditions that all you need

is to be close to a reasonable conversion, then adjust accordingly as previously mentioned. Remember, even the properties of your water can/will impact yeast performance properties. Be thankful we're making dough, not nitroglycerine. :-D
Tom Lehmann/The Dough Doctor
[Re: IDY, ADY, Cake Yeast Conversion Chart](#)
2263

Peter;

You are absolutely correct about the issues when making a thin cracker type crust where you have to trim scrap dough away from the skin to achieve the desired finished diameter. At the time when we were working with cracker style thin crust pizzas we were looking at pizzeria applications only. The method that we developed was based only on the use of a mechanical dough sheeter/roller. We would use dough balls of increasing weight and open them (using the dough sheeter/roller) to a diameter about 2-inches greater than the desired finished diameter, dock the entire skin and place it onto a pizza screen of the desired finished diameter, using a bench scraper, trim off the excess dough, transfer the skin onto a dusted prep-peel and dress for baking, bake and ascertain the quality characteristics of the finished crust. This was done for each dough ball weight and the most desirable dough ball weight was selected. The roller settings were recorded as was the technique for passing the dough through the sheeter, with this done all the operators had to do was to scale the dough to the specified weight, set-up the sheeter correctly, pass the dough through the sheeting rolls in the prescribed manner, dock the skin, place the skin on a pizza screen of correct diameter and trim off the excess using a metal bench scraper, transfer the trimmed and docked skin to a dusted prep-peel, dress to the order and bake on the deck. In applications where an air impingement oven was used the sheeter and docked skin was placed directly onto the baking platform, trimmed, dressed and baked. The exception to this was when a cutter type pan was used (40-degree sides on the pan), in this case the dough was draped over the pan and fitted into the pan, a rolling pin or pastry pin was then rolled over the top of the pan to crimp-cut the surplus dough from the pan after which it was dressed and baked. As for the scrap dough which was being generated, this method was developed to minimize the amount of scrap generation, the scrap was collected and used for "other" products like bread sticks, garlic knots, and cinnamon crisps (thin rolled dough, cut into 3-inch squares, brushed with water and sprinkled with a cinnamon-sugar mixture and baked until lightly browned, then drizzle with powdered sugar-water icing and serve as a dessert). We would also cut the skins into very thin strips and bake on a pan or screen as Grissini style bread sticks. Any scrap dough that was remaining at the end of the day would be re-incorporated into new dough at a rate not to exceed 15% of the total dough weight (about 12-pounds for a dough based on 50# of flour weight).

One of the later projects that we worked on was that of trying to develop a method where we would open a dough ball of fixed weight to a pre-determined diameter with no scrap generation at all (this was done at popular request by pizzerias as they didn't want to deal with the scrap dough being generated). My partner, Jeff Zeak demonstrated the procedure a couple of times at Pizza Expo (XLT Ovens booth) but for some reason it never really caught on, we attributed this to the growing popularity of the Neapolitan style pizzas. All part of the evolution of PIZZA.

Tom Lehmann/The Dough Doctor
[Re: Correctly gauging TF](#)
2264

I should also add that in the literature provided by the yeast manufacturers they do indicate a 3 to 1 ratio for CY to IDY but this is just a little on the conservative side, maybe they just rounded things to the nearest point where it would be easy to remember the conversion, or maybe it sweetens the pot a little for making a change to IDY from CY, whatever the reason, the 3 to 1 ratio works OK in home applications and probably most pizzeria applications but not so well in applications where we need to be A-Retentive in proof times and total gassing power and don't have a lot of flexibility in changing the dough parameters.

When it comes to yeast (regardless of the type), I think it's best to start with a specific recommended amount but then because of differences in dough formulation and dough management procedures, and expectations/personal preference, adjust the yeast level to give you the best product possible.

Tom Lehmann/The Dough Doctor

[Re: IDY, ADY, Cake Yeast Conversion Chart](#)

2265

Michael;

When you say "Roman" dough are you referring to Neapolitan pizza dough?

Tom Lehmann/The Dough Doctor

[Re: ROMAN style dough and the Impinger oven](#)

2266

As Peter correctly mentioned, there is no hard and fast conversion in the "real" world but if you contact Lesaffre Yeast Corporation <www.lesaffreyeastcorp.com> you can get a copy of their "Directions for Use Guide for Instant Yeast" which also covers Active Dry Yeast on the reverse side. The guide references recommended amounts of IDY/ADY against CY.

In work that we did at AIB using instrumentation to measure the gassing power of the different types of yeast (ADY/IDY/CY) we found the following: To replace one part (1%) CY we actually needed to use 0.375% IDY or 0.5% ADY. The water addition mentioned was not necessary in the "real world" until the amount of dry yeast got up to a total weight of 4-ounces or more if you are using IDY or ADY exclusively you will "auto-correct" the dough absorption in the end so it's really not something to be concerned about. It's only a concern the first time you make a change in yeast types and large size doughs are involved.

Also as stated, the dough formulation can play a big role in the yeast conversion too with salt and sugar levels impacting the end conversion rate to some extent. The biggest "fly in the ointment" is the age of the CY as it continues to deteriorate with age and is highly impacted by storage conditions....in other words, it's highly perishable. In commercial bakery applications CY deliveries are received at least twice a week and typically used within 48 to 72-hours of receipt. It is temperature checked at the time of receipt and maintained under refrigeration right up until the time it's added to the mixer. All of this is required because the yeast sets the stage for the final proofing time for baked bread or the shelf-life of frozen dough both of which are CRITICAL in these applications. In pizzeria applications proofing is not the norm and when it is incorporated into the pizza making process (such as when making pan/deep-dish pizza) the time is not critical as automated proofing/baking systems (such as a serpentine proof and bake system) is not used as is common in the baking industry. The same can be said for home pizza making and even home bread making where if the dough feels or performs a little different it's easy to compensate for and if the dough requires a few minutes additional proofing time it's not a big deal.....try convincing a commercial bakery or frozen dough manufacturer of that! :-D

Tom Lehmann/The Dough Doctor
[Re: IDY, ADY, Cake Yeast Conversion Chart](#)
2267

I'd say you will want to practice your dough opening technique to get a more round shape to your pizzas. You might try this for starters, use a rolling pin or pastry pin to PARTIALLY open the dough ball (about 50mm) from the desired diameter, then finish opening the dough by hand to full diameter. The color of the crust with 2% sugar actually looks quite good, what does the bottom of the crust look like? When baking pizzas on the deck we bake the pizzas until the bottom of the pizza is done (this is called baking to the bottom crust color) so if you want to get a darker overall color you can either lower the baking temperature to around 274C or bake the pizzas on a seasoned pizza screen, then "deck" the pizzas for the last 30-seconds prior to removing from the oven. Either of these should give a stronger top color.

Tom Lehmann/The Dough Doctor
[Re: Help with recipe for long cold ferments](#)
2268

The 7/11 Ground Tomatoes is my "go to" base for most of my sauces, just add a little fresh basil and garlic to the sauce after applying it to the skin, then the cheese and dress to the order. For my upscale pizzas I like to use the 74/40 Tomato Filets (drained for 20-minutes), lightly oil the skin with EVOO, add fresh basil and garlic and apply the tomato filets instead of a spreading sauce. Flavor and texture are great, second only to fresh, vine ripened tomato slices.

Tom Lehmann/The Dough Doctor
[Re: Full Red with Basil \(Unprepared\)](#)
2269

There ya go!
What was the concern over black pepper again? :-D
Tom Lehmann/The Dough Doctor
[Re: Adding black pepper to dough - any issues?](#)
2270

Define "way over risen". Did the dough rise and then collapse all on its own? That's a pretty good definition of over risen since in that case the dough has become so weak that it can no longer support its own weight (re-balling may or may not salvage a dough that has over risen aka over fermented). If your dough just kept gradually rising without collapsing (you didn't mention anything about the dough collapsing) fermentation is most likely the issue. If you have a true SD based on a lactic acid forming bacteria it can easily take 18 to 24-hours for the dough to become properly fermented. We used to allow our SD rolls to final proof for 18-hours between forming and baking.

Tom Lehmann/The Dough Doctor
[Re: When is the dough ready to bake?](#)
2271

It sounds like your dough isn't getting enough fermentation for your specific taste. Try increasing the amount of SD culture but continue using your regular procedure.
Tom Lehmann/The Dough Doctor
[Re: When is the dough ready to bake?](#)

2272

Spot-on! :).

Tom Lehmann/The Dough Doctor

[Re: NY style dough help](#)

2273

For me, I find a wood surface is the best for opening skins. I've got a laminated 2-inch thick maple cutting block that I use, it's heavy enough to stay put and I just stand it up at the end of the counter when not in use.

Tom Lehmann/The Dough Doctor

[Re: Cheapest way to obtain a stainless steel stretching surface?](#)

2274

Malt, at VERY low levels, such as normally malted flour is not a problem with pita due to the short fermentation time employed. Adding sugar or greater amounts of malt will result in the center (silver dollar size brown spot) of the pita getting too dark or burnt, which results in it cracking upon cooling or rolling in use. When correctly baked you can cut the pita in half and see a n equal amount of crumb structure on both the top and bottom of the pita. You can make something that pockets like a pita at a much lower temperature (we see this happening with pizza occasionally) but all of the crumb will be located on only one side with the other side being very thin which quickly leads to a brittle or dry pita.

By the way, one trick that I developed a number of years ago for making a better pita is to spray the pitas with water IMMEDIATELY after they come out of the oven (this will collapse the pocket and limit moisture loss making for a softer pita) as soon as the pocket is collapsed flip it over and repeat on the other side, cool on a rack for about 15-minutes, package at 110F. DO NOT REFRIGERATE OR FREEZE. If you absolutely must refrigerate or freeze do not do so until after the pitas have thoroughly cooler in the package (about 3-hours). Neither refrigeration nor freezing does anything good for a pita except to accelerate the staling process. So why are commercial pitas frozen? For marketing/distribution....nothing more.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Low Carb Pita bread, can it be done??](#)

2275

TMB;

Make sure you use/specify "whole" white wheat flour as it can also be had as a patent or straight grade flour which means it is then just like any other white flour but it is milled from varieties of hard white wheat. All of the flour milled in Australia is made from hard white wheat varieties. This is done since when using hard white wheat as opposed to hard red wheat they can get a longer extraction (more pounds of white flour per 100-pounds of wheat). If I remember correctly in Australia their extraction rate is around 83% while here in the U.S. using hard red wheat the extraction rate is about 78 to 80%. That's a HUGE difference when you consider the amount of wheat a typical flour mill processes in a single day.

Also, did you ever see that the word "bread" is not always placed after "pita"? The reason for this is because in the CFR (code of Federal Regulations) there is a definition for "bread", if I remember correctly the product must have a weight of 12-ounces or more to be called bread. This is why the correct term is "pita" or a package of "pitas". So why do you still see "bread" tacked on to "pita"? While it's still not correct or even legal it is in such wide spread use I think they just turn a

blind eye to the issue or they will until someone begins complaining, that's when enforcement kicks in. Be glad you're not a wholesale food manufacturer where you have to know and abide by each and every one of the local, state and Federal laws regarding how you make something, what you put into it, how you label it, what you call it and where you place the information on the package and the print size too, oh yes, they even tell you how to run your business!

Ain't the food industry great? :)

Tom Lehmann/The Dough Doctor

[Re: Low Carb Pita bread, can it be done??](#)

2276

You're right about the regs for the maximum number of insect parts (not whole insects) allowable per pound of product. I used to run the entomology lab during my early years at AIB back when we were located in Chicago, Illinois.

Tom Lehmann/The Dough Doctor

[Re: Adding black pepper to dough - any issues?](#)

2277

Great advice from all! I'll try to add a little if I can. I'd suggest blooming/activating /hydrating the ADY in water at 100 to 105F rather than 80F which is still a bit too cold. Are you leaving the dough ball containers open or are you closing them right away when you place them in the fridge? As for getting ready to open the dough balls, allow the dough balls to come to at least 50F at room temperature before you try to open them into skins. You will want to experiment a bit in this regard and try 50F, 55F, and 60F to see what works best for you. Mind you, these are all internal dough ball temperatures we're talking about here, not surface temperatures so you'll need to poke them with a stem type thermometer. Also, do an absorption series on your dough where you incrementally increase the dough absorption in 2% increments. 62% dough absorption might be a bit on the low side to achieve the open crumb structure you're looking for. Additionally, you say you want to have a softer crust, the addition of oil as suggested will help as will the higher dough absorption as it will provide for better bake-out of the crust which will make the crust eat more tender, some might equate this to being softer, and lastly, you might even want to look at increasing the dough ball weight as a slightly thicker crust will naturally tend to be softer than a thinner crust with all things equal.

Tom Lehmann/The Dough Doctor

[Re: Help with recipe for long cold ferments](#)

2278

Interesting thing, back when I had that CCC contract the Government did cut back on their subsidies of dairy products BUT the new plan was based on the number of cows being milked. Yup, beef prices dropped at the supermarket as the dairy farmers thinned their herds, what happened next was to be expected. Dairy farmers got rid of their poorer milk producers and kept the highest volume producers, and so it went.....now all of their milk cows were producing more milk than the larger herd was previously.....back to square one, whoda seen that one coming?

Tom Lehmann/The Dough Doctor

[Re: 1.4 BILLION Pound Cheese Surplus!!!!](#)

2279

If you have a Habitat For Humanity Restore near you be sure to check them out too. We have one by us and I'm regularly there looking for a solution to a challenge.

They regularly have stainless steel sinks with stainless drain boards in their collection of sinks, faucet sets, and toilets. If the piece isn't too big for the price of a SS sink (\$15 to \$40.00) you could cut the drain board out with an angle grinder and glue it to a backer board. Just a thought.

Tom Lehmann/The Dough Doctor

[Re: Cheapest way to obtain a stainless steel stretching surface?](#)

2280

We once had a director in our Food Safety Group at AIB who stated "If it wasn't for the oven bakers would have poisoned mankind many thousands of years ago". He might have had a point there. For the most part though, aside from the optics, eating confused flour beetles, cigarette beetles or Indian meal moth larvae isn't going to make you sick, and once they've been processed through the oven they're pretty sterile (204 to 208F). Many years ago WHO (World Health Organization) did a study on an African village where the locals were losing a lot of their grain to insect infestation as it was stored in clay (sorta like adobe) grain storage silos....more like a hut. WHO replaced all of the clay silos with new, modern metal grain storage silos (10-feet high, like you regularly see today on farms for on-site grain storage) and within months of getting their new silos the children in that village were beginning to show signs of protein deficiency....Why you ask? Because their diet was already deficient in protein but the insects that they were eating with the grain kept them above the threshold for deficiency and when those insects were deleted from their diet they began to show signs of protein deficiency, so yes, there is a lot to be said about the protein contribution of the insects.

One other thing about the pepper bread, if you don't want the black specks from the pepper just use white pepper...problem solved.

Tom Lehmann/The Dough Doctor

[Re: Adding black pepper to dough - any issues?](#)

2281

No, they are not. Get some food saver bags from your local supermarket or in a pinch I've actually used the plastic Walmart bags (you didn't hear that from me). Twist the open end into a pony tail to close and tuck the pony tail under the dough ball as you place it in the fridge. This method allows the bag to give a little to accommodate expansion of the dough ball without tearing or popping open. Be sure to check those Walmart bags first for and tears or open seams.

Tom Lehmann/The Dough Doctor

[Re: NY style dough help](#)

2282

We used to do it all the time with our potato bread, black pepper and potato go together like a hand in a glove. I can't say how much to use since the flavor of black pepper is literally all over the board potency wise. A good starting point would be 0.25%.

Tom Lehmann/The Dough Doctor

[Re: Adding black pepper to dough - any issues?](#)

2283

To me, those dough balls look like they're ready to be used, like now. I'd say to go ahead and re-ball them. As for your fridge, try using plastic bags (bread bags) the next time, the plastic bag procedure is great for use in a small fridge since there is no cross-stacking required.

Tom Lehmann/The Dough Doctor

[Re: NY style dough help](#)

2284

A good number of years ago I had a contract with the CCC/USDA (Commodity Credit Assn.) which required me to travel across the U.S. for several months showing schools and prisons how to utilize more cheese in the products which they were making. Most of the cheese going into Government storage is a cheddar cheese but there is also a fair amount of dry milk going into storage too. This is all in the form of whole milk solids which has not been heat treated aka high heat dry milk solids, the milk is not high heat treated so it can be further processed into cheese at a later date. If the milk is high heat treated it cannot be processed into cheese. The sticker though is that the manufacturers do not always mark the bags to identify them as being high heat treated (bakery grade) or not.....go figure! For this reason most of the dry milk solids in storage end up going into drinks and cake production but not yeast raised products as the non high heat treated milk solids will have a softening/weakening effect upon the dough. I mention this because the Government will probably be trying to reduce its dairy commodity inventory once again and some visitors to this site may find it available to them for use. When I had my contract with the CCC I was also working with pizzerias that made pizzas for schools and I was showing them how to include cheddar cheese into the school pizzas. In this case the schools would provide the cheddar cheese to the pizzeria in 5# bricks and they would grind/shred the cheese for use on the pizzas they were making for the school to help keep the costs down. More recently I've been working with university dining services helping them do the same thing but in-house.

The politics behind this stuff is mind boggling too.

Tom Lehmann/The Dough Doctor

[Re: 1.4 BILLION Pound Cheese Surplus!!!!](#)

2285

When machine mixing I just add the water and then the flour on top of that followed by the dry ingredients and begin mixing. I always add the oil late (delayed oil addition mixing method). One variation to this when hand mixing is to put the salt and sugar (if used) into the water, then add the yeast in suspension immediately followed by the flour, the oil is added after a couple minutes of mixing.

Tom Lehmann/The Dough Doctor

[Re: Gradual addition of flour?](#)

2286

How big of a piece are you thinking about?

Tom Lehmann/The Dough Doctor

[Re: Cheapest way to obtain a stainless steel stretching surface?](#)

2287

Here is a very traditional pita formula:

Flour: 100% (any bread flour will work fine)

Salt: 1%

Oil: 1%

Yeast: (CY: 1%) or (ADY: 0.5%) or (IDY: 0.375%)

Water: 50%

Mix to a smooth dough (80F)

Bulk ferment 1-hour.

Scale and ball.
Allow dough balls to rest for 20-minutes.
Sheet to size.
Bake.

Remember; A good pita is baked at 800F+ with a baking time of not more than 28-seconds.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Pita bread](#)

2288

Just my opinion, but that seems like a lot of fermentation for Caputo.

Try cutting it back to 18-hours to see if the dough performs any better.

Tom Lehmann/The Dough Doctor

[Re: Help with Dough Issues](#)

2289

Josh;

When balling the dough the tightness of the ball will, to some extent, control how much the dough ball will spread out during the fermentation period. To some, who like to have a very round dough ball for opening, a tighter ball is better while if you're proficient at opening the dough you don't need to round the dough as tightly. The mantra when rounding the dough should be CONSISTENCY, CONSISTENCY, CONSISTENCY. By placing the dough ball with the seam side down helps to ensure that the dough seam holds and remains intact. This is the same reason why we place moulded bread dough in the pan with the seam side down. When rounding the dough all you need to have is a smooth skin formed on the dough ball. Pizzerias tend to round their dough balls very tight to help control their spread while being fermented in the dough boxes but home pizza makers tend to use individual containers for this so rounding the dough balls tight or loose in my opinion is a moot issue for the home pizza maker.

Note: I personally use a plastic bag to hold my dough balls so when I round the dough into balls if the dough meets three out of five descriptors of a "ball" it goes into the bag. Rounding is not critical when bagging the dough balls.

Tom Lehmann/The Dough Doctor

[Re: Stretch and fold versus reballing](#)

2290

Thank you. I heard that they're doubling my salary for the new year! :-D

Tom Lehmann/The Dough Doctor

[Re: Stretch and fold versus reballing](#)

2291

If you're making a thin cracker crust with 45 to not more than 50% absorption that's the way to do it (modeled after the way we make a flaky pie crust or a flaky biscuit dough), for many though a better handling dough is wanted so it's mixed JUST until it comes smooth. I'm on record as saying, "Unless you've got something going with your mixer repair man there is no good reason to mix your pizza dough beyond the JUST smooth point of development. When mixing the dough by hand any kneading beyond the point where there are no longer any lumps in the dough is purely for ones own amusement if the dough is going to receive 24-hours or more fermentation.

Tom Lehmann/The Dough Doctor
[Re: Stretch and fold versus reballing](#)
2292

While I've not had her's it looks like a great pizza! My reference to Domino's was in reference to the crust...did that ease the ouch any? :D

Tom Lehmann/The Dough Doctor
[Re: Grotto Pizza - Newark Delaware](#)
2293

Actually....that "marshmallowy" dough is about as far from what I'd describe any dough off of a commercial mixer as being. If it is full of "air" something is very wrong with the dough or mixer. Machine mixed doughs are smooth, but dense and moderately extensible. If you are mixing your dough to a point where it begins to take on a different appearance in the bowl (looks lighter in color) and has a smooth skin on the surface, rest easy, it has been sufficiently mixed. As for dough absorption, one of the reasons why it seems like it's all over the board is because in a way it is. Flour is quite variable, no two lots of the same flour are made from the same grist (blend of wheats used to make the flour), added to that it can absorb water or give up water from the time it's milled and if that's not enough, as flour ages it oxidizes which strengthens the gluten matrix much like the addition of potassium bromate would. Our tests have shown that flour, when stored at room temperature (70 to 80F) for a period of 1-year had oxidized to the equivalent of approximately 10-ppm (parts per million) added potassium bromate. For a bromated flour that means that the flour would perform as if it had twice the amount of bromate added by the flour miller. Like I said, flour is really pretty inconsistent.

Tom Lehmann/The Dough Doctor
[Re: Stretch and fold versus reballing](#)
2294

Grotto Pizza from the Boardwalk is my daughter in law's favorite pizza. They live in Christiana but have a beach house just a short walk from Grotto Pizza. Good bad or indifferent, I liken it to a Domino's pizza quality wise, but then I wasn't raised on it either so my assessment of quality is HIGHLY subjective.

Tom Lehmann/The Dough Doctor
[Re: Grotto Pizza - Newark Delaware](#)
2295

Machine mixing is WWAAYY different from hand kneading. Hand kneading is a very gentle way of developing some of the gluten while machine mixing is a very efficient way of developing all of the gluten but the difference is with machine mixing that with machine mixing the dough tends to be tighter than with hand kneading and with machine mixing you have the capability of over mixing the dough while with hand kneading this is a virtual impossibility. This is why I always say when machine mixing always mix the dough JUST until it begins to smooth out as this comes close to replicating the best gluten development possible with hand kneading and it also promotes a larger cell structure in the finished/baked crust. Mixing to a greater level of gluten development will promote a smaller, finer cell structure which is more bread like, this is one of the reasons why we mix bread doughs longer than pizza doughs (assuming loaf/sandwich type bread). Biochemical gluten development will provide the added gluten development necessary for gas retention during baking without adversely impacting dough handling properties or

cell structure characteristics.

Tom Lehmann/The Dough Doctor

[Re: Stretch and fold versus reballing](#)

2296

In a commercial (pizzeria) setting they mostly use dough boxes, the boxes are cross-stacked for a period of time determined by the length of time needed to cool the dough balls down to 50-55F, they are then down-stacked (top box placed at the bottom of a new stack and the stack rebuilt in reverse order with the boxes nesting for about 1/4-inch inside of each other so the box on top becomes the lid for the box beneath it, top box is then lidded. This is a very common practice. Another popular method is to use aluminum sheet pans, the dough balls are placed onto the sheet pans and the entire pan of dough balls is covered with a single plastic bag, this is placed into a rolling rack, when the rack is filled with covered pans of dough it is wheeled into the cooler for storage. This method doesn't require any kind of cross-stacking as the plastic bag offers little insulating value allowing the dough balls to cool pretty quickly and consistently. When this method is used it is common to lower the finished dough temperature into the 70 to 75F range (favoring the 70F side) while when using the stackable dough boxes 75 to 80F finished dough temperature is commonly used. If you go to my web site at [<www.doughdoctor.com>](http://www.doughdoctor.com) you can see the dough boxes in use in Part-2 of my video series on making dough.

Another way that I like to use when making pizza at home is to place the dough balls into individual plastic bags (bread bags). After forming the dough ball, oil it and drop into a plastic bag (not a ZIPLOCK bag), twist the open end into a pony tail, and tuck it under the dough ball as you place it in the fridge. This is about as easy as it gets since you don't need to do anything more to the dough ball until you're ready to remove it from the fridge for use.

Tom Lehmann/The Dough Doctor

[Re: Recipe for high humidity conditions.....](#)

2297

You are correct, when it is stated that total dough absorption is (in this case 65%) it means that the sum of all of the water added to the dough (either as water or contained in an ingredient such as milk, eggs, or in this case a starter), when divided by the weight of the flour and multiplied by 100 = 65% (in this case). It's actually a little more complex than just that, but in this case it works just fine.

Tom Lehmann/The Dough Doctor

[Re: Gemignani dough failure...?](#)

2298

Try to use lard that is not steam distilled (deodorized) for best flavor. The silly stuff that we have here in the States is almost all deodorized ranking it, flavor wise, right up there with Crisco. What the label shown indicates is a prepared mix....just add water and make tortillas. Included in the list of ingredients were the components for chemical leavening, and then there was our old friend L-cysteine to provide extensibility to the dough as well as emulsifiers as an anti-staling agent (did I miss something? Aren't tortillas supposed to be consumed fresh and still warm?) Oh well that the commercial market for you. The suggestion to make a tortilla mix (everything but the water) was a good one, use that to provide the amount of tortilla mix needed for your dough. By the way, most really good tortillas are formulated with about 8% fat and about 3% chemical leavening (Calumet brand would be a good recommendation as the individual components are hard to come

by outside of the commercial market) and if you do find then you will need to balance them for complete reaction using their neutralizing power to calculate the amount of soda needed) Calumet brand is a fully balanced single acting chemical leavening system as opposed to some of the others which are double acting leavening systems better suited for use in cakes and cookies.

Tom Lehmann/The Dough Doctor

[Re: Quaker Harina Preparada Tortilla flour](#)

2299

While flour can have an impact I think dough absorption might have more to do with it. Doughs that are made with high absorption (above 65 to 68%) or let's just say in the 70%+ range usually perform better with more kneading done over a period of time while doughs made with a more typical absorption, say in the 50 to 65% absorption range seem to fare best when made using minimal mixing/kneading.

Tom Lehmann/The Dough Doctor

[Re: Stretch and fold versus reballing](#)

2300

When I hand knead the dough (stretch and folds) I am trying to develop gluten (primarily for bread making) but when I'm making pizza I typically don't do much if any kneading as pizza doughs are typically best when under mixed with the gluten being developed biochemically during the fermentation process, when I round the dough into balls it quickly becomes so tight as to be nearly impossible to work without ripping the dough apart, so in my humble opinion, if you are trying to develop gluten it is better to do the old stretch and fold process rather than rounding the dough as it allows you to put more work into the dough without it becoming excessively tight and bucky which makes it difficult or impossible to further develop the gluten without waiting a significant time for the dough ball to once again relax so it can again be rounded. We see this happen a lot when we re-round the dough (for whatever reason) just prior to opening it into a skin, if we don't wait long enough for the dough to fully relax it's a lot like trying to open a tennis ball into a pizza skin.

Tom Lehmann/The Dough Doctor

[Re: Stretch and fold versus reballing](#)

2301

Essen1;

In the dough formulation it shows water at 64% and starter at 20%, there must be more than 1% of the total flour weight as water in that 20% starter?

Tom Lehmann/The Dough Doctor

[Re: Gemignani dough failure...?](#)

2302

Lem865;

At step #5 are you placing the dough balls in a covered container or are you placing the dough balls into the fridge uncovered for at least 2-hours prior to covering/lidding? If you are doing the first, that's most likely where the problem is at, the dough balls are sweating in the containers and it's the condensation that's causing your problems, leaving the containers uncovered for at least 2-hours will allow the dough balls to cool sufficiently to prevent or minimize condensation. I would also suggest lightly wiping the top of the dough balls with a little oil after placing them into the containers as this will help to prevent any skin formation on

the dough during the (cross-stacked)/ uncovered period.

Tom Lehmann/The Dough Doctor

[Re: Recipe for high humidity conditions.....](#)

2303

That calculates out to roughly 65% total dough absorption. Your ice water might be slowing the rate of absorption into the flour. Have you tries letting the dough rest for 20 to 30-minutes before kneading it?

Tom Lehmann/The Dough Doctor

[Re: Gemignani dough failure...?](#)

2304

Thank you and a Happy New Year to all!

Tom Lehmann/The Dough Doctor

[Re: Merry Christmas Tom!](#)

2305

Even increasing the sugar by an additional 1 or 2% can help by giving more crust color which typically translates to a shorter baking time and a softer finished crust texture.

Tom Lehmann/The Dough Doctor

[Re: dough too crispy](#)

2306

Getting your oven temperature up around 850 to 900F (or more) will help in that respect.

Tom Lehmann/The Dough Doctor

[Re: Wood fired pizza blisters](#)

2307

It will help us to determine what the problem might be if you can share with us something about the dough prior to freezing, how you froze it and what you did with the dough after freezing.

Tom Lehmann/The Dough Doctor

[Re: Gummy dough](#)

2308

Most non-gluten forming flours are going to max out at 25 to 30%. Be sure to follow the procedure for finding the absorption of any non-gluten flour you might add following the procedure used for finding the absorption of any whole-wheat flour or multi-grain blend. This procedure has been discussed in these pages previously in great detail.

Tom Lehmann/The Dough Doctor

[Re: Mystery ingredient to obtain a yellowish dough](#)

2309

Your over deck is WWAAYY too cool. It might take some time for the deck to fully reach baking temperature.

Tom Lehmann/The Dough Doctor

[Re: Wood fired oven pizza burning on top](#)

2310

For many of us 77F is about room temperature and in most cases an hour isn't long

enough, more typical is at least 2-hours, some go even longer.

Tom Lehmann/The Dough Doctor

[Re: Wood fired pizza blisters](#)

2311

Cold dough? What was the temperature of the dough ball(s) when opened into skins?

Tom Lehmann/The Dough Doctor

[Re: Wood fired pizza blisters](#)

2312

Agreed....where is the long fermentation period?

Tom Lehmann/The Dough Doctor

[Re: Bianco Dough Question](#)

2313

Add all of the water, then all of the flour with salt, sugar (if used) and yeast all right on top of the flour. Mix at low speed for 2-minutes if multi-speed, add the oil and mix one more minute in low speed followed by 8 to 10-minutes in second speed. If your mixer only has one speed you will be doing all of the mixing in that single speed, so just follow the same procedure, you won't be changing speeds, that's the only difference. Your mixer will mix dough sizes as small as 25% of maximum dough capacity and as large as 125% of maximum dough capacity, though I don't recommend exceeding bowl capacity as a regular practice. As soon as the dough is mixed to a smooth, satiny appearance it's done, which typically takes 8 to 10-minutes after adding the oil with the delayed oil addition mixing procedure. Remember to adjust the water temperature to achieve your targeted finished dough temperature. I have never had to use ice water except when making frozen doughs, more typically the water temperature will be about 70F to give a finished dough temperature in the 75 to 80F range.

Tom Lehmann/The Dough Doctor

[Re: Basic instructions for spiral mixer?](#)

2314

Cold dough and pizza ovens of any kind generally do not play well together unless the dough management procedure has been designed specifically to allow for baking a cold dough. Even refrigerated dough, if allowed to temper properly after being removed from the fridge/cooler will be in the 50 to 60F range. Doughs that are formulated for high temperature WFO baking may be too slack for many people to handle if allowed to warm much above 60F. Overall, I think it would be safe to say that there is not any direct relationship between dough temperature and baking temperature as long as the dough is within the parameters shown above.

Tom Lehmann/The Dough Doctor

[Re: Dough Temperature - Wood Burning Oven](#)

2315

Why are you basing the amount of yeast on the water? Typically it's based on the flour weight? That being the case you're using only a little over half of the amount of yeast as you would if it were based on the flour weight. Just an observation.

Tom Lehmann/The Dough Doctor

[Re: Direct Dough - is it supposed to look flat?](#)

2316

You should be able to buy Egg shade on line, it's not expensive at all. What's it equivalent too? I have no idea as I've never done a comparison. All I can say is that it's used in Chicago and extensively used in the baking industry.

Tom Lehmann/The Dough Doctor

[Re: Mystery ingredient to obtain a yellowish dough](#)

2317

Absolutely! It's been in common use as far back as the 50's, and in Chicago pizzas at least to the late 1950's in not earlier. It has not effect upon taste or texture of the finished crust. If I remember correctly in Chicago they were using about 6-ounces liquid to a dough based on 50-pounds of flour weight however you will want to adjust the amount to give you the specific color you're targeting.

Tom Lehmann/The Dough Doctor

[Re: Mystery ingredient to obtain a yellowish dough](#)

2318

Believe it or not, egg (whole or yolk) really doesn't give much yellow color to the dough or finished crust. I'm betting on Egg Shade (this is a food coloring/ Google for availability) this is the same coloring used in many Chicago pizzas which gives the crust that rich yellow color.

Tom Lehmann/The Dough Doctor

[Re: Mystery ingredient to obtain a yellowish dough](#)

2319

Well, I am cheap as consultants go. :-D

Tom Lehmann/The Dough "DOCTOR"

[Re: Cheap dough docker](#)

2320

I've used that comb on the opposite end of a hair pick with good success but never a hair brush, but if it works....why not?

Tom Lehmann/The Dough Doctor

[Re: Cheap dough docker](#)

2321

It's a natural for that. She uses a coupe style pan that she got at WM (black on the inside and silver on the outside...go figure!) but after being seasoned and all the pizzas that she has baked in that pan it now looks more like a good cast iron skillet). She opens the dough ball as much as she can on the bench then places the dough into the greased pan and continues to work it out until it fits the pan, she lets it rest about 10-minutes and then touches it up before dressing it. She needs to use more dough than others might use so the pizzas come out about 1/4 to 3/8-inch thick but her family loves them and she is mighty proud to be able to make them.....in the end that's all that counts.

Tom Lehmann/The Dough Doctor

[Re: Intro & a question](#)

2322

One thing you might try is to use your favorite pizza pan (a dark colored one preferably) and use shortening, as in Crisco to lightly grease the pan, this will help you greatly to open the dough ball into a skin as the dough will act as if its glued to the pan when using shortening, just the opposite is true if you use oil, but don't worry about getting the dough to release from the pan, it'll come off just fine. I

have a friend whose mother has extremely arthritic hands and this method works quite well for her.

Tom Lehmann/The Dough Doctor

[Re: Intro & a question](#)

2323

That's a good point about Bob's Red Mill, I think they do stone grind all of their flours. I agree about those meetings, but they did keep us informed and on top of things but after 50-years, it is time for me to do MY thing and attending endless meetings is not one of them, neither is International travel, nor getting up at 6:00 a.m. and coming home at 6:00 p.m. (when I was able to come home).

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2324

Oops, yep, shoulda been 1-1/2-cups not 1/2-cup.

At high elevations we typically bake hotter than normal which means if you're using your home oven, pedal to the metal, give her all you can Scotty! Yeast is not normally reduced BUT you will see the dough getting larger than normal during fermentation due to the reduced atmospheric pressure.

Tom Lehmann/The Dough Doctor

[Re: Intro & a question](#)

2325

I can't think of any stone grinding mills producing commercial flour although there might be a few local ones doing specialty flours. When you see "stone ground" on a bag it is only in reference to particle size being like that of stone ground flour. To the best of my knowledge most of the flour produced in the U.S. is made using roller mills. There are also hammer and pin mills used to make flour but these are pretty well limited to small and home type operations. I don't recall ever seeing any scientific data on how flours of different average particle size react in the human gut, that's not to say it's not out there, I just haven't seen it, and remember too that I've been retired for five years now and this is a pastime for me, no longer my occupation so I don't spend an average of three hours a day keeping up with scientific journals and attending scientific meetings.

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2326

In commercially milled flour you are correct in that the germ is removed but only because the oil is so unstable, it will turn rancid very fast, this is one of the reasons why white flour has a long shelf life while whole-wheat flour has a relatively short (2 to 3-weeks) shelf life. In home milling/grinding of wheat into flour sifting only removes the larger bran particles so there is still some bran remaining in the "white" flour and as you correctly state, most of the germ is still in the flour too. So there is a difference, I stand corrected. ^^^

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2327

The method that I mentioned is designed specifically to give the most consistent dough possible for use in a pizzeria where the dough will be held in the cooler for three days or more. When the dough is allowed to rest at room temperature prior

to scaling and balling it has had a chance to begin fermenting, to that 30-minutes add the time required to process the dough and you have the better part of an hour for the dough to ferment before it goes into the cooler. The more fermentation the dough has the less dense it becomes, things that are less dense are better insulators so it becomes more difficult to achieve consistent cooling of the dough which is a critical aspect of holding the dough for up to several days and getting consistent dough performance/pizza quality. The method used by Tony is fine for dough that will only be held for 25-hours or so, but it doesn't work well when we're looking to have consistent dough performance 3 to 4-days out. This is why all of the big box chains employ a dough management procedure very similar to that which I described.

Rom Lehmann/The Dough Doctor

[Re: Dough Cutting and Balling and Wrapping](#)

2328

When whole-wheat flour is made the bran is separated out just as it is when making white flour, it is then reintroduced back into the flour so it constitutes 20% of the total flour weight. When you separate out the bran from whole-wheat flour you have what is affectionately known aswhite flour. Whole-wheat flour made from varieties of hard white wheat, aka whole-white wheat flour, don't have the pronounced bitterness in the bran portion due to the lack of tannins in the white wheat bran, this is also why whole white wheat flour is said to be "sweeter" than conventional whole-wheat flour made from hard red wheat varieties.

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2329

If you are going to be vacuum sealing the bags that'll be fine for the yeast (should be refrigerated though if not vacuum sealing). It does make a huge difference in the type of yeast used in this mix application....use ONLY instant dry yeast (IDY). As there are no other ingredients which might need refrigeration in the mix it should last at least 6-months or more when vacuum sealed but ONLY if the flour is totally free of any insect infestation. Even fresh flour can be infested but there is a way that you can ensure you won't have any insect issues for at least a year of storage at room temperature (assuming 50 to 75F) and that is to put the flour into 5# bags and freeze it for at least 30-days, this will kill both insects as well as any larvae and their eggs, once this is done the flour will remain free of insect infestation for a very long time, without doing this is's a "roll of the dice" as to whether the mix will remain free of insects over an extended storage period. While the flour millers will tell you that their flour is free of insect infestation and has a 1-year shelf life the infestation normally comes post milling during distribution or warehouse storage, we have most frequently found the source of infestation to be at the point of sale, so again, to quote Harry Calahan "Do ya feel lucky?" :)

Tom Lehmann/The Dough Doctor

[Re: Intro & a question](#)

2330

The sifting by itself doesn't help but anything you can do to mill the bran particles into smaller pieces will help significantly. With smaller bran particles you reduce the deleterious effect upon the gluten film as well as improving the absorption rate of the bran (smaller particles = greater surface area = faster hydration).

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2331

What you are seeing is about par for the course. Remember, most frozen doughs are formulated with a pretty hefty dose of yeast which is why you see all the rise over the time the dough is in the fridge. Fact is, you are seeing more rise in the dough than the store does over the same period of time owing to the fact that the dough is allowed to warm more during the time it takes for you to get the dough home while the dough at the store most likely went straight from freezer to refrigerated case where it's sold from so it was never exposed to a warming period.

Tom Lehmann/The Dough Doctor

[Re: could you help me reverse engineer the dough recipe from nutritional contents?](#)

2332

Due to its adverse affect upon frozen shelf life I don't know of any commercial frozen dough manufacturers that makes dough with more than 30-minutes maximum time between the mixer and the freezer. PJ's doesn't freeze their dough out of their commissaries, it's just refrigerated. There are some companies making what is referred to as pre-proofed frozen, in this case they are making pre-made skins which are just slacked out and ready to use. This seems to work pretty well as opposed to freezing a dough ball since the pre-made skin is so much easier and faster to freeze than a dough ball which limits the damage of the freezing process on the dough.

Tom Lehmann/The Dough Doctor

[Re: could you help me reverse engineer the dough recipe from nutritional contents?](#)

2333

But do remember, after the flour has had a chance to hydrate fully, you must check the viscosity and add more water if deemed necessary, then, once you don't see any appreciable change over time from the last water addition, subtract 5% from the total bakers percent of water you added and this will get you very close to where you want to be absorption wise, you may still want to make some adjustments depending upon how you're managing your dough. Also, remember that any kind of whole-wheat flour doesn't tolerate long fermentation times nearly as well as a white flour will, this is due to the cutting effect of the bran particles on the gluten structure.

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2334

It's really pretty easy to determine if a dough has been fermented prior to freezing, just cut the frozen dough piece in half and look at the cell structure, if the dough has a very small and uniform cell structure it has not been fermented prior to freezing. If it had a much more open, coarse/porous cell structure with a number of large holes this is good indication of at least some fermentation prior to freezing. Also, keep in mind that the order of predominance in the ingredient declaration is true only to the 2% mark, at and under 2% the ingredients no longer need to be shown in their order of predominance....so, salt, sugar and yeast could easily all fall under this rule. Many frozen dough formulas maximize the use of both salt and sugar as these are the solubles in the dough which help to control ice crystal size which contributes to the frozen shelf life of the dough.

Tom Lehmann/The Dough Doctor

[Re: could you help me reverse engineer the dough recipe from nutritional contents?](#)

2335

Since you're talking RT fermentation the finished dough temperature is also critical when assessing how much fermentation the dough might be receiving. Assuming a 12" skin, the one that will be opened 1-hour prior to dressing and baking should be quite a bit thicker, some might say more "bread like" than the one opened immediately prior to dressing and baking. Be sure to watch the bottom bake as with that much honey you may get excessive bottom color before the pizza is fully baked at 550F on a stone.

Tom Lehmann/The Dough Doctor

[Re: Based on this madness.....Should I just go out for pizza?](#)

2336

Whole white wheat flour (Ultragrain) is definitely the way to go. It is also available in different "grinds" so you can have a coarseness that you typically see in whole-wheat flour while still getting the flavor advantages of the white wheat. The greatest challenge to making good whole-wheat products is in getting the dough absorption correct. I've discussed this topic and procedure a number of time in the past here if you want to research it. I've also included the topic in one of my published articles. The problem is that the bran is very slow to absorb water so if you add enough water to make a good dough by the time it's ready to use the dough is too stiff as the bran has now hydrated, to a great extent, this is where whole-wheat products have gotten a bad rap. Someone here once said whole-wheat products taste like they were made with leaves and twigs, probably a pretty apt description of products made from an under absorbed whole-wheat dough.

Ultragrain isn't as bad in this respect due to the much smaller particle size for the bran so it hydrates faster and more consistently. For the most part you will be looking at dough absorption percentages around 75% when using 100% whole-wheat flour. Products made with any amount of white flour in combination with whole-wheat flour are correctly termed as being "wheat (bread, pizza crust, etc.)" as opposed to "whole-wheat" which does not contain any white flour at all.

We used to get all of our whole white wheat flour from Farmer Direct Foods, Atchison, Kansas/800-372-4422.

Tom Lehmann/The Dough Doctor

[Re: Whole Wheat Flour crust](#)

2337

What you are looking for is a pizza dough mix.

We can do that for you.

Do you have access to a scale or do you just work in volumetric portions (cups, teaspoons, tablespoons, coffee cans, etc.)?

I can set one up for you that will require that you portion out 3-cups of the mix and to that you will add just over 1/2-cup of cool water. I used to make this when we were deer hunting and there were four of us in deer camp, pizza was a real treat for the guys.

Here's the formula in weight measures;

Pillsbury Bread/Bread Machine Flour: 5-pound bag.

Salt: 45-grams/1.6-ounces

Sugar: 45-grams/1.6-ounces

Instant Dry Yeast (IDY): 12-grams/0.45-ounce

Place in a large bowl or bag and mix together very well. Store in a covered container in the fridge or in the freezer.

To use:

Remove 3-cups of mix and place into a bowl with a little over 1/2-cup of cool water (75F).

Using a wooden spoon, stir well to make a thick paste. Remove spoon, cover with a piece of plastic and allow to ferment for 1-hour. Oil your hands and using a plastic bowl scraper scrape the dough mass out of the bowl onto a floured surface, then knead for a few minutes, lightly oil the bowl that the dough was fermenting in, form the dough into a ball and place it into the oiled bowl, wipe the top of the dough ball with oil, cover with a piece of plastic (drape no not seal tightly). Allow the dough to ferment at room temperature for at least 4-hours, the time can be greater if desired.

Turn the dough out of the bowl onto a floured surface and begin opening the ball into a pizza skin (12 to 14-inch diameter).

Add sauce, sprinkle with herbs (garlic powder, onion powder, basil (fresh or dried) are the basics, then add the cheese and toppings, and bake on a dark colored pan in a 450 to 500F oven. Start baking on a lower rack and after about 8-minutes move it to a higher rack position to finish baking. As all ovens are different you will need to experiment with baking.

As you get better you can experiment with placing the dough into the fridge to cold ferment for 24 to 48-hours and then see if you can find a baking steel or stone to bake on (unglazed floor tile works in a pinch) to get a crispier bake. Get ready to enjoy some great pizza and have some fun along the way.

Tom Lehmann/The Dough Doctor

[Re: Intro & a question](#)

2338

I typically use 11-ounces (312-grams) for a 12" skin which gives me a dough loading of 2.76-grams of dough per square inch since a 10-inch circle has 78.5-square inches multiply 78.5 X 2.76 to get the dough weight for the 10" skin (216.66-grams).

This would be a good place to start at and then begin coming down in weight as you master the technique of opening the dough until you get the crust you're looking for.

Be aware though that fast baked pizzas are always going to have a somewhat softer, more limp crust than slower baked pizzas. They may be crispy when they first come out of the oven but just wait a minute.

Tom Lehmann/The Dough Doctor

[Re: Dough ball size?](#)

2339

Please provide as much information on your dry sourdough starter as possible since some of the dry products are not active, but instead are used only to provide a sourdough flavor to the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Cold Fermentation](#)

2340

I second the words of "Jackitup". Around here the trip can be as much or more fun than the destination! :-D

Tom Lehmann/The Dough Doctor

[Re: 1984 Godfathers discontinued crust](#)

2341

Pizzaone;

It is BUT for the most part it is fermented much differently. Whereas bread doughs are given shorter total fermentation times pizza doughs are more commonly given much longer fermentation times, almost universally the fermentation time for a pizza dough is expressed in days as opposed to hours. It is this long, controlled fermentation that accounts for the flavor and much of the textural properties of the baked pizza crust. While some like the flavor imparted by room temperature (RT) fermentation others (myself included) like the flavor imparted by cold fermentation (CF). There are good guidelines for each method that have been discussed here many times so what you might need to do is to make dough using each method and see where your specific tastes take you. NOTE: As many pizzerias work with dough made by CF this might be where you want to begin your search.

Tom Lehmann/The Dough Doctor

[Re: Bread flavor](#)

2342

We have two people cutting, balling, boxing 85-pounds of dough (50# flour weight) in approximately 17-minutes with a 12-ounce scaling weight. The accepted rule is to get the entire dough cut, balled, and into the cooler within 20-minutes after mixing. After that your dough is beginning to proof and inconsistent cooling of the dough will be the end result.

Tom Lehmann/The Dough Doctor

[Re: Dough Cutting and Balling and Wrapping](#)

2343

Bob;

You say you have searched for a "recipe" but can't find anything even close. Can you share with us what information you have on the formula you're searching for? Pizza doughs are pretty well all formulated within a close range of ingredients so filling in the blank spaces shouldn't be too difficult.

Tom Lehmann/The Dough Doctor

[Re: 1984 Godfathers discontinued crust](#)

2344

I can't say too much for the flavor of the dough as I seldom ever eat it, but it can sure be full of aroma. I assumed (we know how that works out) that he was referring to the finished crust when he referenced flavor (identified subjectively by taste). Is there a possibility that we are side tracked and the original question was simply "how to get more flavor in my finished crust?" and the term "bread flavor" is simply being used to describe the flavor resulting from fermentation?

Pizzaone, what say you?

Tom Lehmann/The Dough Doctor

[Re: Bread flavor](#)

2345

Chris;

A couple of things come to mind when reading your post, I see that you are using "00" flour and more than 24-hours of total fermentation time. My personal experience has been that "00" flours typically do not have great tolerance to fermentation and anything in excess of 24-hours results in an unusually weak

dough condition (Note: You have accurately described a weak dough in your post), so that might be something to look at. Second, your dough absorption might be a bit high so you might also want to incrementally reduce dough absorption in 2% increments to see if that helps. The acidity of your starter can have a significant impact upon dough rheology, making softer and more extensible and a reduction in dough absorption might help in that case. Lastly there is that little thing that we refer to as "technique". I open my doughs in a similar manner to what you have described, I can toss it but nothing to write home about, if you know what I mean, point is, when it comes to slapping and spinning the dough to open it I leave a lot of room for improvement so even the best dough might not work well for me if I was to open it by any other manner than what I am used to doing.

Tom Lehmann/The Dough Doctor

[Re: Slap/stretch dough?](#)

2346

Just a reminder too that there is the Ohio Pizza Show put on by the Ohio Restaurant Assn. It's coming up in early January if I remember correctly. It is not nearly as big as Pizza Expo but it's still a good show to attend with a lot of low cost seminars too, and if you're on the east coast it's closer and much cheaper. Contact the Ohio Restaurant Assn for details.

Tom Lehmann/The Dough Doctor

[Re: Pizza Expo 2019 Registration](#)

2347

Actually, none of them. The "bread like" aroma that you're referencing is a result of the type of fermentation the dough is given. If you want to have a bread like fermentation aroma try using 3-hours at room temperature with a finished dough temperature of 80F.

Tom Lehmann/The Dough Doctor

[Re: Bread flavor](#)

2348

What you are looking to produce is a pizza similar to the bake to rise concept offered by Schwan's Foods/Tony's Pizza Service, their Freschetta Pizza is what you have basically described. I'm guessing that your concept might be a bit thinner than the Freschetta pizza. The challenges still remain the same though as the freezing process destroys the cell structure in a pre-proofed, frozen skin UNLESS the pre-proofed skin is blast frozen or better yet, cryogenically frozen. Blast freezing entails freezing at -20 to -35F in conjunction with 600 to 800 linear feet of airflow while cryogenic freezing entails freezing using a liquid cryogen (liquid nitrogen or carbon dioxide) employing a temperature of -45 to -55F in the product zone. In addition to giving you a viable skin this type of freezing is also needed to preserve the integrity of the vegetable toppings. Similar products which you have seen on the supermarket shelves have taken this one step further by using moisture controlled vegetable toppings (this is why you seldom ever see a frozen pizza weeping water from the vegetable toppings thus turning it into a "swamp" pizza.

This is how it's done if you expect to get any realistic (21+ days) shelf life from the frozen pizza. Since I don't know what your shelf life expectations are, the best I can offer is to say "try it" but be aware that the vegetable toppings are going to suffer BADLY. This is why we harvest our gardens before they get hit by the first frost of the season, failure to do so results in everything turning into mush.

Tom Lehmann/The Dough Doctor

[Re: Frozen Pizza dough](#)

2349

I'm on the program again this year. Looks like I'm doing two sessions with one of them a 4-hour session.

Tom Lehmann/The Dough Doctor

[Re: Pizza Expo 2019 Registration](#)

2350

Flour: (12.8 to 14% protein content)100%

Salt: 2%

IDY: 0.25%

Water: 64%

Oil: (optional) 2%

Cold ferment for at least 48-hours before use.

Tom Lehmann/The Dough Doctor

[Re: Dough Recommendations - Two Scenarios](#)

2351

One of the advantages of using "dough loading factor"that is often overlooked is in costing/pricing of a pizza. For example, a 12-inch pizza has roughly 113-square inches of surface area before baking. Now, ask yourself "why would anyone ever want to buy a 14-inch pizza?" The answer is because they want more pizza. How much more are they getting with a 14-inch format? They're getting about 36% more pizza. $(153.86 - 113 = 40.86 / 40.86 \text{ divided by } 113 \times 100 = 36.15\%)$. Since we can use the loading factor for dough, cheese and sauce weights we know that our cost for the same topped 14-inch pizza should be at least 36% more than that of a 12-inch pizza. If we don't use a loading factor for these critical components one may find that they are selling more 14-inch pizzas because it has more toppings or dough than the 12-inch but the pricing structure is based only on the difference in diameter...in essence, charging 36% more but using 40% more of the critical components. Do the math on \$250,000.00 in pizza sales a year and you will appreciate loading factor at the commercial/pizzeria level. At home the only value to loading factor is in determining how much of any one of the critical components we will need to use when going from one size pizza to another without changing the identity of the pizza.

Tom Lehmann/The Dough Doctor

[Re: Correctly gauging TF](#)

2352

Assuming yeast raised donuts?

Tom Lehmann/The Dough Doctor

[Re: Doughnut dough](#)

2353

Flour and room temperature: I wish I had a dime for each time I've heard that my dough used to perform great but not that it's winter my dough doesn't perform nearly as well....I'm not doing anything different!

During the cold winter months pizzerias get in cold flour and begin using it within 24-hours thinking it has warmed up, false...we found that it typically takes a pallet of flour several days to equillibrate in temperature and a single bag can take 48 to 72-hours. The actual room temperature can/will have a significant impact on the

finished dough temperature too (while not a function of friction, it is included as a part of the friction factor correction value).

Tom Lehmann/The Dough Doctor

[Re: Question on GM method to adjust final dough temp](#)

2354

Most pizzerias will bring out about 2-hours of dough balls and pull additional boxes during the day to maintain a usable inventory of ready to use dough balls, as things wind down a bit after the lunch trade they won't pull as many dough boxes, and if the dough balls begin getting long in the tooth they just pre-open the dough and store it on screens in a wire tree rack in the cooler, cover with a plastic bag to prevent drying then they use the pre-opened skind when they get slammed during the dinner/evening trade. Others will convert the older dough balls into bread sticks, garlic knots or something else for use later in the day.

Tom Lehmann/The Dough Doctor

[Re: Dough ball storage for commercial use](#)

2355

Peter;

In one word: Yes, if the dough is coming out of a commissary.

Tom Lehmann/The Dough Doctor

[Re: Oil in 00 dough](#)

2356

After the baking temperature gets much above 550F the presence of added sugar in the dough formula might begin to become problematic and if baking at 750F or above sugar can be a major issue with getting the pizza properly baked before excessive crust color development is a problem. Since ALL ovens are different my advice is to see if you like what your sugar level provides in terms of a finished pizza, if you feel the pizza needs more baking but you're limited by crust color development you most likely have too much sugar for the baking temperature being used, if the pizzas are getting well baked but you want more crust color try incrementally increasing the sugar to improve the crust color. You won't begin to detect a sweeter taste in the finished crust until you get into the 4 to 5% sugar (sucrose) level. Papa Murphy's pizza has a sweet taste in the crust and we were able to match that sweetness at 5% added sucrose.

Tom Lehmann/The Dough Doctor

[Re: Oven Temperatures with Sugar in Dough](#)

2357

The problem with friction factor is that it is so highly variable, for example, as Tim indicated, any change in the room or flour temperature will change the FF, additionally, when mixing by machine, every mixer will have a specific FF due to differences in the way the agitator interacts with the dough, textural properties of the bowl, speed of the agitator, type/design of the mixer, as well as the amount of dough actually in the mixer. We can get away using a FF of about 30 in commercial practice since the number of variables in mixers is significantly less than it is with the home pizza maker where there is a plethora of different ways to mix the dough, from hand to machine as well as some hybrid methods too. Then add to that the fact that many home pizza makers don't even know how long they are actually mixing the dough (mixer might be running but the dough isn't being mixed as is the case a lot of times when flour is added to the bowl before the water, and then if one adds flour or water during the mixing of the dough all bets are off when it comes to

mixing time. So, what to do , what to do? I thing #1 has to be to focus on being CONSISTENT with the way one mixes the dough, then realize that each mixer as well as each mixing process/procedure will have its own FF for a specific dough size and formulation, with that out of the way, how to come up with a meaningful FF? I think the method developed by SAY Yeast Corporation might hold the answer for the home pizza maker, in their procedure they just use the number "145" from which the flour temperature is subtracted to give you the correct water temperature to give a finished dough temperature in the 82 to 88F range.

Personally, I think this temperature might be a bit on the high side for home use (I'd rather see 75 to 80F being targeted) so I think you will want to play with the "145", and even then I can't see one size fitting all. What I teach in my home pizza making sessions is to begin with the number 145, subtract the flour temperature and measure the finished dough temperature, if the dough is too warm use a lower number or if it is too cold use a higher number. I normally recommend adjusting the base number in increments of 5 or 10. Once you have it just write that number on the formula page for future reference, subtract the flour temperature and you should be in the ball park with regards to hitting your targeted finished dough temperature IF YOU ARE CONSISTENT IN THE WAY YOU MIX THE DOUGH.

The formula for desired water temperature that Tim was alluding to is:

$3X \text{ desired dough temperature minus the sum of (flour temperature), (room temperature) and (friction factor/FF).}$

Friction Factor: $3X \text{ actual dough temperature minus the sum of (room temperature), (flour temperature) and (water temperature used to make the dough).}$ Remember, in my opening comments about FF, this number will be HIGHLY SPECIFIC, and changes what so ever to the dough formula or mixing procedure can/will skew the FF number. In a commercial operation every single dough formula and dough size has its own FF.

Tom Lehmann/the Dough Doctor

[Re: Question on GM method to adjust final dough temp](#)

2358

Oil can be used in just about any pizza crust dough formulation, however, do keep in mind that doughs made with very low protein flours may not tolerate as much oil as those made using a higher protein/stronger flour. Your flour blend does not appear to be excessively weak. Also, when working with high absorption doughs (68% and more) you may want to reduce the absorption by an amount equal to the amount of oil being added, this is because oil is a liquid as water is so the addition of oil to a high absorption dough can produce a softer/slacker dough than what you might want to work with. There is one more thing to consider too, that is how the oil is being added, if you are using the delayed oil addition mixing method the oil will not present a problem but if you are not it can coat some of the flour thus rendering a portion of the flour incapable of producing gluten which can have a weakening effect upon the dough as well as impact the overall dough absorption properties as the oil soaking into the flour will inhibit water absorption.

Tom Lehmann/The Dough Doctor

[Re: Oil in 00 dough](#)

2359

QJ;

I don't have anything specific against single speed mixers, it's just that if I had a choice I'd always opt for the two speed. With exception to only one mixer a number of years ago I could easily live with a single speed spiral mixer, so what was the issue with the only one I didn't like? It was too fast and ejected ingredients all over

the place when loaded to 50% or more of its capacity. Yes, I'd take a single speed spiral over a multi speed planetary any day of the week, unless I had a "thing" for my mixer repair man or woman, that might cause me to re-think my decision, otherwise, it's a spiral mixer for me.

Tom Lehmann/The Dough Doctor

[Re: Spiral mixer question](#)

2360

QJ;

By far the easiest way to get a dough out of any mixing bowl is to put a small amount of oil (about 1-oz.) in the bowl (pour it between the dough and bowl as the mixer is running on low speed, you only want to mix like this for 10 or 15-seconds....no longer. The dough will then just about slide out on its own, makes removing the dough really easy.

Tom Lehmann/The Dough Doctor

[Re: Spiral mixer question](#)

2361

Nope, has nothing to do with mitigating the tar-taric acid if you don't soak the raisins they will hydrate during and after baking creating a dry area around each raisin and if you soak them too much they will be too fragile and be damaged during incorporation plus they will allow moisture to migrate from the overly plump raisin to the surrounding crumb where it forms a "halo" around each raisin, and worse yet, as the raisin shrinks due to loss of moisture it will fall free from the crumb when slices rather than adhering in the crumb as it should.

Tom Lehmann/The Dough Doctor

[Re: A bread question for Tom](#)

2362

Wood peels without question aka prep peels (short handle wood peels) and use the metal peel for peeling the pizzas out of the oven. There is also a wood peel with a circle or circles laser etched into the peel to reference the size/diameter of the skin. These are available from <www.portionpeels.com>.

Tom Lehmann/The Dough Doctor

[Re: Should you use a metal peel or can you use wood to launch pizzas in woodfired ov](#)

2363

Hey Norma! Got your ears on? Canadianpie might want to start a discussion with you, can't think of a better person. :)

Tom Lehmann/The Dough Doctor

[Re: side pizza business](#)

2364

The SAF Gold is indeed designed for high sugar doughs (20%+) BUT, this is a BIG BUT too, it has very little tolerance to sodium (salt). In Europe it is common to make high sugar products with not more than 1% salt, with normal U.S. salt levels of 1.5% and above the stuff stops, dead in the water.

As for soaking the raisins, excellent idea! The best way to soak your raisins (fool proof method) is to rinse the raisins in water and then drain off all the excess water, place into a container to absorb the remaining water and you're good to go. Raisins are ALWAYS added as late in the mixing process as possible so they JUST get mixed in and not crushed or smeared. Tip: Try flavor infused raisins, add a little

orange juice or even vanilla to the raisins after they have been rinsed.

Tom Lehmann/The Dough Doctor

[Re: A bread question for Tom](#)

2365

You mention the need for a small refrigerator, why not get a 3-door prep-table?

That should provide all the refrigeration you will need at hand.

Can you be more specific on your product mix as well as the type of pizzas you plant to make? Keep in mind that you will need to have a minimum of 1.5 times the depth of the oven as free space in front of the oven for the oven tender to safely work in. I mention this because I was involved with an operation wanting to do something very similar to what you have proposed this past summer but they didn't take into account the free space issue and that ended up nixing the deal.

Tom Lehmann/The Dough Doctor

[Re: Need some help, advise about a pizza kitchen](#)

2366

QJ;

There are a couple of forces working against you here.

First, have you ever noticed that raisin bread (+50% raisins based on DOUGH WEIGHT) will not mold for a terribly long time? This is due to the tar-taric acid content of the raisins, in fact, raisin juice concentrate (RJC) is occasionally used as a "natural" mold inhibitor. The raisins are inhibiting the yeast (a member of the mold family), hence SSLLOOWW fermentation.

Secondly, with all that molasses (hopefully un-sulfured) the high sugar content GREATLY inhibits yeast activity, adding insult to injury.

So, what to do, what to do?

Answer:

You must use a yeast spike which means changing your dough making process to that of a remixed straight dough process. After the dough has fermented in the fridge over night place it back into the mixing bowl and add 5% compressed yeast or 1.5% IDY and remix the dough just until it becomes smooth and pliable, form into balls, place on a baking surface and final proof for about 75-minutes (time will be variable), cut docking slits in the balls, spray with water and bake at 400F to 425F for about 25-minutes or until the loaf sounds hollow when tapped. Brush with melted butter immediately upon removal from the oven and drape with a towel until cool.

I also taught bread baking when I was at AIB, and for many years I was a consultant to the baking industry.

Tom Lehmann/The Dough Doctor

[Re: A bread question for Tom](#)

2367

It all depends upon the type of wheat its made from. If it is made from a soft wheat the outcome probably won't be all that great but if it is milled from a hard wheat variety you might pull it off. The absorption will be lower than what you might be used to seeing or using and fermentation will need to be kept on the short side, I'd guess something in the 18 to 24-hour (CF) range at best, and maybe bump up the dough weight slightly too. If you're in a bind for flour ask around to see if you can find out if anyone is using one of those low protein flours to make any bread type products. The worst thing that could happen is that the miller is milling the low protein flour to a high level of starch damage, if this is the case the flour will immediately exhibit a very high (unusually high) dough absorption and it will not

tolerate more than about 60 to 90-minutes of total fermentation time, after that the dough rapidly turns to soup as the enzymes in the yeast hydrolyze the damaged starch (which is responsible for carrying all that extra water) and when that happens the water is freed up and that's when the dough starts getting wet and sticky (soupy), when that happens you just toss it out and make a not to "self" not to do that again.

Tom Lehmann/The Dough Doctor

[Re: Is there a relation between the W and Protein %?](#)

2368

Just fire out your questions and we'll do the best we can.

Tom Lehmann/The Dough Doctor

[Re: Roman style pizza](#)

2369

Until the dough balls reach an INTERNAL temperature in the 50 to 60F range. You will need to experiment a little to determine what temperature works best for YOU (the temperature will vary with amount of cold fermentation the dough has received, your abilities at opening the dough, the dough formulation as well as ambient temperature. In a commercial pizzeria where these variables are pretty well controlled they will typically use 50F for their target temperature as to when to begin opening the dough balls, this will usually give them a period of 2 or more hours to use the dough balls, but at home where you are only making a couple/few dough balls you potentially could go above the recommended 60F upper limit but be advised that a long fermented dough or a high absorption dough might begin to get problematic in handling when opening at that temperature (like I said your ability to open the dough comes into play too, especially if you are trying to open the dough at the warmer temperatures). Yes, the dough is easier to open at the lower temperatures but if you begin opening it at too low of a temperature bubbling of the dough then becomes a problem.

Tom Lehmann/The Dough Doctor

[Re: How long to let dough sit at room temperature?](#)

2370

Joaohess;

There is a relationship but it isn't a very good one for assessing the gluten strength characteristics of a spring or winter wheat flour. The "W" number is an indicator of the extensibility of the gluten rather than the strength of the gluten which is better measured using a Farinograph where you would be looking at such things as peak time, MTI (mixing tolerance index) and point of departure on the graph which will give a pretty good idea of the ability of the protein to make gluten as well as the strength characteristics of the gluten when formed by the mixing process. In my opinion, you are better off looking for a flour with a protein content in the 12 to 13% range.

Yes, a 15% protein content flour can demonstrate weak gluten characteristics, or it may demonstrate extremely strong, elastic/bucky characteristics which can make a pizza dough extremely difficult to deal with. When dealing with an unknown flour I always say to look at your local bakers and see what they are using, most of the time if the flour makes good bread it will also serve you well in making pizza dough.

Tom Lehmann/The Dough Doctor

[Re: Is there a relation between the W and Protein %?](#)

2371

Peter;

When looking at the impact of salt on sweetness we found that our taste/sensory panel detected salt at lower levels than sugar and they also detected salt before they could detect the sugar/sweetness which confirms your findings. When salt is detected we tend to focus on the salt and don't perceive the presence or magnitude of sugar present, hence we don't taste or perceive the sugar as we would without the salt. We used to use the expression that it has the ability to "wipe-out" the taste buds of our sensory panel. This was important information for us to know as it would influence how we presented products to our sensory panel for evaluation since we didn't want to fall into the old adage of statisticians of "tell me what you want to show and I'll prove it statically" or in our case, tell me what outcome you want to see and I'll develop a sensory test protocol to prove it. Like Sargent Joe Friday used to say "Just the facts, nothing but the facts".

Tom Lehmann/The Dough Doctor

[Re: Faux sourdough?](#)

2372

Wheat bran also works well too.

Tom Lehmann/The Dough Doctor

[Re: Best thing to use for releasing a pizza from the peel?](#)

2373

Peter;

That's it. Looks like they changed their web site since I picked up their last card at Pizza Expo.

Tom Lehmann/The Dough Doctor

[Re: Scale recommendation?](#)

2374

For a softer, more "bread like" crust try using shortening or maybe butter/margarine/lard in the dough formula. The amount I would suggest starting at would be 5% and work up to 8% in 1% increments. As for baking, I see that you are baking your pizzas on a screen, this allows for a longer bake time but in your case you actually want to have a faster bake so I suggest baking the pizza directly on the stone/steel as JerseyPieBoy suggested, then place the baked pizza on a flat surface as soon as it comes out of the oven and I'm betting you will need to use a pie server to remove a slice. If you feel it's too soft just place it on the pizza screen to cool for a minute before slicing.

Tom Lehmann/The Dough Doctor

[Re: looking for soft /tender pizza bottom](#)

2375

If you are tasting salt either the salt level is wwaayy too high or you're on a salt free diet. What you are actually seeing is the development of alcohol, carbon dioxide and acids (acetic, lactic and propionic) which provide what we like to call the flavor of fermentation. This flavor increases in intensity increased fermentation. Most people like it but then there are a few who don't. Salt, while not a flavor by itself, is what many refer to as a flavor potentiator, meaning that it improves the flavor that's present while not adding a flavor of its own, much like vanilla in a chocolate cake. Formulators for convenience foods know that there are three "food groups" aka ingredients that will cause people to gravitate to a food item, these ingredients are: salt, fat and sugar. Just look at the ingredient label and nutrition

fact panel on any run of the mill convenience food and you will see one or more of these ingredients standing proudly above all the rest, which is probably as good a reason to avoid these foods whenever possible. Point is, a little more salt will help to improve the flavor of your crust, regardless of how long the dough is fermented. As a product formulator for many years we found that 1.5% salt is about the minimum that can be used without impacting the flavor of the finished product and 2.5% is about the maximum that can be used before the product begins to take on certain "salty" flavor notes. I might add that in some areas where people tend to consume high levels of salt the entire salty flavor profile can be grossly distorted. If you ever sat in a restaurant and watched someone empty a salt shaker on their steak you know what I mean. We used to jokingly say that salt is addictive because when you begin using it you need more and more (actually, your taste buds just become accustomed/desensitized to it).

Tom Lehmann/The Dough Doctor

[Re: Faux sourdough?](#)

2376

Probably the last thing you will want to add is tomato paste....just taste it and you'll know why.

If you are looking for a manufacturer of a product that might be used to thicken your sauce but yet is pure tomato (maybe some citric acid added) take a look at the Stanislaus products on their web site. Saporito Super Heavy Tomato Puree looks like it might be a good option.

Tom Lehmann/The Dough Doctor

[Re: Sauce from fresh tomatoes](#)

2377

When using Caputo "00" flour I find that I get the best results be far using not more than 24-hours cold fermentation so there is a good possibility that your dough might be over fermented.

For a test, try this, make another dough with a finished dough temperature of 70 to 75F, test bake one dough ball after 24-hours CF and another one in 24-hour intervals to see if there is any improvement with any of the dough balls.

I have a question though "soupy" in my world this also meant wet. Are you talking about the crust being "soupy" or the center of the pizza? Excessive amount of sauce, overly thinned sauce, excessive vegetable toppings, or an excessively topped pizza baked at high temperature can all result in what I refer to as a "swamp" pizza. This is a finished pizza that is wet and "soupy" and as the water migrates into the crust it leaves a crust with little to no integrity. Can you please elaborate?

Can you provide some pictures?

Tom Lehmann/The Dough Doctor

[Re: soupy center](#)

2378

Spot-on! :)

Tom Lehmann/The Dough Doctor

[Re: in search of cornicone browning with GF flour](#)

2379

I've never worked with that specific oven but I see that it is lined for significantly better top heat than what one typically gets in a home oven, and the oven is designed for better/faster heat recovery than most home ovens which are "5-star energy rated", with all of that said, in the words of Big Dave Ostrander, that oven is

a "stocking stuffer" when it comes to commercial pizza ovens. For the occasional home pizza baker your home oven should serve you just fine, when occasional becomes more occasional is when you might be inclined to look for something different, like a wood fired oven or bigger like a great deal on a used commercial pizza oven that you can install out in the garage.

Tom Lehmann/The Dough Doctor

[Re: Baker's Pride oven?](#)

2380

That's 2% (bakers percent) i.e. 2% of the flour weight.

Decking a pizza is starting it out on a screen or pan and then removing it from said screen or pan and placing the pizza onto the deck to finish baking. It is also used to re-freshen pizza slices that have been held in a holding cabinet until time of sale.

Tom Lehmann/The Dough Doctor

[Re: in search of cornicone browning with GF flour](#)

2381

2% sugar will not change the taste at all. If you use a screen it would be used just as you are presently baking. Placing the skin on a screen will allow for a slightly longer baking time (maybe sufficient to get some top color) then when you remove it from the screen and "deck" the pizza you will get the bottom crust color development. You just need to figure out how long to bake the pizza on the screen before decking it. I also suggest trying a higher rack position to get a compromise of top and bottom crust color. The addition of some sugar to the dough formulation will certainly help in achieving a better crust color as you move the bake to a higher rack position.

Tom Lehmann/The Dough Doctor

[Re: in search of cornicone browning with GF flour](#)

2382

Try putting 2% sugar in the dough formula. Bake one on the deck as you have been and the other one start out baking on a screen for about 1/2 of the bake time then remove from the screen and finish baking on the deck.

Assuming you're baking in an upper rack position to provide the most top heat?

Tom Lehmann/The Dough Doctor

[Re: in search of cornicone browning with GF flour](#)

2383

I don't remember the exact percentages anymore but brewers yeast will ferment up to about 13% alcohol content and bakers yeast will ferment up to about 1% less than that, still well under the alcohol content of beer as we know it, and don't forget that it will also be further diluted by the water that you're adding to the dough so there is really nothing to worry about. Beer is also slightly acidic, yeast likes an acidic environment (within reason) so the two play quite well together....don't believe everything you read on the internet. :).

Tom Lehmann/The Dough Doctor

[Re: Faux sourdough?](#)

2384

With a flour protein content that low (10.3% +/-) I suggest targeting a finished dough temperature of 70 to 75F (not more than 75F), and then following as closely as possible the Dough Management Procedure which I provided to you. The dough should be ready to use after 24-hours cold fermentation with a maximum life of 48-

hours. After the cold fermentation process, remove the desired number of dough boxes from the cooler, leaving then covered, allow the dough to temper AT room temperature until the internal temperature of the dough balls is in the 50 to 55F range, at that point you can begin opening the dough into skins for your pizzas, the dough balls will remain good to use at room temperature (just be sure to keep the boxes covered) for another 2 to 2.5-hours. Cold dough at the time of opening doesn't cause the dough or finished crust to absorb moisture but it can have a dramatic impact upon how well the pizza gets baked and I think this is what you are seeing as when the dough doesn't get properly baked in the center the finished crust quickly turns soft and soggy which could be mistaken for absorbing moisture. Since so much of your business is DELCO I would advise using a longer, slower bake, something around 6-minutes at about 525 to 550F as this will provide for a drier pizza with a crispier bottom crust which will hold up to the abuse of DELCO better than a fast baked pizza.

Tom Lehmann/The Dough Doctor

[Re: New to Pizzeria business questions](#)

2385

Total fermentation is typically calculated at 2% which includes loss due to fermentation as well as moisture loss, so 0.98 X actual dough weight (after mixing) is what is used to calculate the dough weight after fermentation.

Tom Lehmann/The Dough Doctor

[Re: Bread starter scaling up wierdness?](#)

2386

I tens to agree with you. Beer is really nothing more than a preferment, much like a starter. One question I have is why did you go to the effort to separate the beer from the other ingredients by adding it late as you did? When I've used beer I just add it right into the water, also we found that a darker/stronger beer provided a better flavor than lighter colored beers.

Tom Lehmann/The Dough Doctor

[Re: Faux sourdough?](#)

2387

That's a really tough question to answer as it boils down to taste and that's such a subjective assessment. From a text book assessment a product made from a dough with less fermentation will have a more bland, less complex flavor while a product made from a dough made with more fermentation will have a stronger, more complex flavor generally accompanied by a slight to moderate tartness on the tongue. From a mastication stand point the product made with less fermentation will typically have a tougher, more chewy eating characteristic than one made with more fermentation. To some extent I also use crust color, or lack of to assess fermentation, as the dough ferments sugars are converted to carbon dioxide, alcohol and acids (which inhibit crust color development) so a product with a lighter crust color MIGHT have been made from a dough with more fermentation. If I am trying to ascertain the amount of fermentation that might have been used to develop a specific product I begin putting all of these markers together (visual, textural/mastication, flavor and overall appearance) to gain some perspective of how much fermentation might have been used to develop a specific product. In bread items I would include aroma which by itself can be a pretty good indicator but in pizza crusts it is all but impossible to make an effective aroma determination.

Tom Lehmann/The Dough Doctor

[Re: VPN recipe - baker's yeast](#)

2388

They work quite well, and with a good one you can expect to see a baking time of around 7-minutes. For the money, the Marsal deck oven is a good one.

Tom Lehmann/The Dough Doctor

[Re: pizza oven for new york style pizza](#)

2389

There is a sweet spot in fermentation beginning where the dough can first be successfully used until it is over fermented to the extent that it no longer makes an acceptable pizza or handling of the dough becomes too problematic. At that low of a CY level and 3% salt the dough is fermenting very slowly and is still within the parameters of that sweet spot. This doesn't mean that the fermentation is the same, it just means that it hasn't yet progressed to the point where it becomes problematic. We even see this in doughs that are used in a commercial operation, take for example my typical dough formula with 0.375% IDY and 1.75% salt using my CF dough management procedure, with a finished dough temperature in the 70 to 75F range the dough is ready to use after 24-hours with a useful life of up to 72-hours or a little more. This simply means that the dough will make decent pizzas (within some range of quality standard) that the average consumer can't differentiate (consistency is the name of the game) over the life of the dough, yes, there is a difference in fermentation but not so great so as to negatively influence the handling properties of the dough or diminish from the expected quality standards of the finished crust/pizza.

Tom Lehmann/The Dough Doctor

[Re: VPN recipe - baker's yeast](#)

2390

I'm on the same boat, I use what is available to me locally and as many of you know, I use fresh whenever possible. Fresh basil right out of our garden, vine ripened tomatoes sliced and used instead of a sauce, toppings right out of the garden and occasionally I'll use some locally harvested organic venison. Our garden is finished for the year now so I'm really going to miss it until next spring :(One of the questions I used to ask my students was to define quality in one word. The answer was "perception". It ain't the ingredients that count, it's what you do with them that makes the difference.

Tom Lehmann/The Dough Doctor

[Re: Why Is It So Hard To Get Great Ingredients?](#)

2391

If the dough is too elastic from the "get-go" when opening the dough ball into a skin the problem is most likely due to insufficient fermentation for the strength of flour being used. The second reason, especially in pizza making where long fermentation times are typically employed is over fermentation of the dough. In this case the gluten is tight (aka bucky) and just doesn't want to stretch at all and all attempts to open the dough just result in tearing. In the case of an under fermented dough you will be able to open the dough without tearing but it will just keep pulling back to a smaller size/diameter.

Tom Lehmann/The Dough Doctor

[Re: What are the main causes \(probably\) when dough keeps shrinking when spreading ?](#)

2392

I'll give you an AMEN to that! :).

I'm now enjoying retirement more than I ever thought I would.

Tom Lehmann/The Dough Doctor

[Re: Dozens of New England Papa Gino's locations abruptly shut down!](#)

2393

That's how some of the "pocket sandwiches" (don't want to use the trade marked names) are made. They're then frozen and finished in the home oven from the frozen state. The frying process gives it a whole different flavor.

Tom Lehmann/The Dough Doctor

[Re: Deep-fried Calzones](#)

2394

Momba;

I can answer all of your questions but first I need more information.

What type of pizza are you making?

Tell me as much as you can about your flour.

What about your business concept? Dine-in with some DELCO or primarily DELCO?

If you will email me at <thedoughdoctor@hotmail.com> I will be glad to send you a copy of my Dough Management Procedure, this may come in handy for you as I'll be referencing it in my response.

Tom Lehmann/The Dough Doctor

[Re: New to Pizzeria business questions](#)

2395

Sure, not a problem if you have the overhead space for the hood and you will also need to have some steps built so the oven tender can reach the top deck. I will add this, having them stacked 3 high makes an even bigger pain out of a painful job.

Tom Lehmann/The Dough Doctor

[Re: Stacking deck ovens](#)

2396

Try putting all of the water in, then add the salt and sugar(if used) to the water, add the flour and the yeast on top of the flour, use the delayed oil mixing procedure, see if that works any better...it might help a bit but I think your problem might be with your dough hook being a common "J" hook rather than the much improved reverse spiral dough arm which was designed back in the early 1970's to address this very problem. That might be the good news, the bad news could be that there is no reverse spiral dough arm made for your mixer, do an internet search as well as contact the Hobart Corporation in Troy, Ohio (USA) to see if they have any or if there is any compatibility with another size Hobart Planetary mixer (this would be a very long shot).

If you can send us a picture of your dough hook I'm sure we can identify it for you pretty easily.

One last thing, the problem with the dough climbing up on the hook is usually at its worst when mixing smaller dough sizes and very large dough sizes (based on bowl capacity). Mixing intermediate size doughs and using a higher mixing speed can help in many cases.

Tom Lehmann/The Dough Doctor

[Re: Hobart Tallboy Dough Riding Up](#)

2397

It all has to do with the finished volume/height.

Bread is expanded much more than pizza dough immediately prior to baking (proofing).

The oven spring is typically, but not always greater for bread doughs than for pizza doughs.

Due to the much greater expansion (16-ounces of dough can be expanded to nearly 2700 cc in volume (baked loaf volume), the dough needs to be significantly stronger than a pizza dough which will be expanded to a height of about 1-inch for pan style crusts or 0.25-inch or less for thin crust styles.

Some bread doughs receive very long fermentation times just like pizza doughs and some receive less than 5-hours fermentation time, like some pizza doughs so fermentation for both is all over the place, but one common characteristic to most pizza crusts is an open, porous crumb structure while indeed some breads also have this characteristic other bread types (sandwich breads for example) are targeted to have a very dense, tight knit crumb structure which few pizza types are targeted for. One of the ways these characteristics is achieved is through manipulation of the dough mixing time which is typically shorter for pizza dough and longer (more gluten development) for bread dough.

Why is it that bakers don't really know how to make good pizza? The answer is in the fact that most bakeries don't sell pizza and add to that their ovens are not really designed for baking pizzas either. It goes the other way too, I have dealt with many pizzerias wanting to make different types of breads, especially hoagie buns, these items just have not historically been on their radar screens.

I'm sure there are a bunch more but it's approaching "lights-out" time so I'm going to quit while I'm ahead.

Tom Lehmann/The Dough Doctor

[Re: "Pizza is not bread": I want to know why!](#)

2398

Absolutely! In addition to actually killing any insects and their eggs freezing the flour will ensure a more consistent performing flour over extended periods of time. Just remember to remove whatever amount of flour from the freezer the day prior to baking to allow it to completely warm-up. One thing that many of us do is to pre-portion the flour into individual plastic bags prior to freezing, this way all you need to do is to remove a single bag the day/evening before you want to use it and you're good to go on the following day or if your plans get interrupted it can sit out in the closed bag for 2 or 3-weeks.

Tom Lehmann/The Dough Doctor

[Re: Can I keep my pizza flour in the freezer?](#)

2399

Great information, thanks for sharing! :)

Tom Lehmann/The Dough Doctor

[Re: Lloyd Pans vs. Allied pans, and Bar Keepers Friend...](#)

2400

In a convection oven the use of a dark colored sheet pan would also help the bake. While they are available, I think it's easier to just season the OUTSIDE of the aluminum sheet pans which are going to be used for this specific application.

I also agree that the use of stones on the bottom of the oven would help as well.

Tom Lehmann/The Dough Doctor

[Re: Commercial convection oven](#)

2401

Well....that being the case, I hear they have a number of opening for airline pilots. All you need is a pilot's license and you can go thundering through the skies at 500 m.p.h. with 200 people sitting behind you cheering you on!

I wish you luck in the pizza business.

Tom Lehmann/The Dough Doctor

[Re: Opening a shop with zero experience](#)

2402

When I first started in the baking industry, back in the early 60's it was common for the sponge mixer to have a bucket of warm water next to his mixer, he used to take a small piece of each sponge just as it was finished mixing, roughly ball it (about the size of a hen's egg) and drop it into the warm water, it would initially sink as it was denser than water but in a few minutes, as the yeast began fermenting it would float, providing an indication that the yeast was indeed added to the sponge and that the sponge was active. That's all the test is good for, nothing more, nothing less, anybody who tries to read more into this simple test would also float in a bucket of warm water as they're full of hot air! Proving once again that everything you read on the Internet.....

Tom Lehmann/The Dough Doctor

[Re: Dough floating when done fermenting?](#)

2403

Any type of oil, not just olive oil helps with the doughs extensibility, shortening seems to help deep-dish pizzas rise better than oil which we confirmed in bread making tests back in the 1970's when the wholesale bread industry converted from shortening/lard to vegetable oil.

As for adding shortening.....go back and re-read my previous response beginning with "Here's a simple test", and the answer will be right there.

Give your brain a rest, you're over thinking this and maybe trying to absorb too many things at once, lean back, take a deep breath, and get back to making pizzas for fun again! :)

Don't be afraid to experiment, but remember to change just one thing at a time, always weigh your ingredients, and keep notes on what you did. Remember, when it comes to pizza, even our mistakes can taste pretty good. Did you know that the Schlotsky's bun is the result of a mistake? Ditto for the bagel and pretzel too.

Tom Lehmann/The Dough Doctor

[Re: Looking for a little more flavor in my dough?](#)

2404

This seems to be a common experience with the Lloyd pans and Detroit style pizzas. While the Lloyds Pans are great with other types of pizzas there seems to be an issue only with the Detroit style pizzas. This has been discussed here previously and there were recommendations to use the old, original type, blued steel pans which never showed this problem. If I remember correctly, there was a reference to a supplier of these pans in one or more of the posts. Maybe Peter can work his magic for us by locating those conversations.

Tom Lehmann/The Dough Doctor

[Re: Lloyd Pans vs. Allied pans, and Bar Keepers Friend...](#)

2405

I do an "either or" with oil and shortening but you could blend them if you had a specific purpose in mind. Since shortening is 100% fat oil and shortening are used

at the same levels unless you are using something which contributes a flavor and you want to accentuate that flavor in which case you would use more. Ditto for the oil too. Butter and margarine are not shortenings as they contain 20% water so if you were to use either of these at the same level as the oil you are presently using you would be decreasing the amount of oil being added by 1/5th (20%). Here's a simple test to determine if any fat can be added directly to the dough or if it should be added by the delayed fat addition method. Place a small amount of flour on a plate, add some of the fat in question to the flour (just put it right on top of it), if the fat begins soaking into the flour it should be added by the delayed fat addition mixing method but if it just sits there doing nothing more than looking pretty you can safely add it to the dough along with the rest of the ingredients. Note: Lard can be a toss-up as to how it is added depending upon the temperature of the lard at the time of addition. If it's warm you will be better off adding it by the delayed method but if it's cold you can add it just as you would add something like Crisco. To some extent the same might be said for butter too, there are significant differences in butter when it comes to slip point (melting point). Typical American butters have a very narrow plastic range while imported Danish butters have a much wider plastic range (butter with a wide plastic range can still be relatively soft right out of the fridge and doesn't melt at elevated room temperatures). This is the type of butter from which Danish pastries were originally made. Today, at least in the U.S. we use a specially formulated fat (roll-in shortening) for making Danish pastries which has the desired plasticity range necessary for the rolling/layering process (laminating) used in making this type of pastry.

Tom Lehmann/The Dough Doctor

[Re: Looking for a little more flavor in my dough?](#)

2406

AND/A&D Weighing makes some almost bullet proof scales. One year at Pizza Expo they were dropping one off of the table onto a carpeted cement floor without any damage to the scale. We had them for our students to use when I was at AIB too. Best part is that they operate off of inexpensive flashlight batteries, which by the way, seem to last forever. <www.andweighing.com>

Tom Lehmann/The Dough Doctor

[Re: Scale recommendation?](#)

2407

From a function standpoint lard is just like any other regular plastic fat, but it does have a flavor. Essentially all lard sold in the U.S. is steam distilled (deodorized) to remove this flavor component but if you can get some pure, non-steam distilled non-deodorized), lard it will contribute a unique flavor to the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Looking for a little more flavor in my dough?](#)

2408

I've stacked them in two high, more than that high and you get the sandwiched dough ball effect where you don't get consistent cooling of the center dough balls....otherwise, packem' in. Just remember to oil the dough balls when placing them into the bags and use bread bags if you can or a similar "food" bag like you get on a roll at the supermarket.

Tom Lehmann/The Dough Doctor

[Re: Storing lots of pizza doughs](#)

2409

In all my years I've never seen a case where the specific topping had any influence on the bottom crust color characteristics unless as previously stated too much was used or a "swamp" pizza was in the making. In cases where a VERY thin skin is dressed the heat from the deck will just pass right on through the crust, as it is not thick enough to create a thermal break, and go into the toppings, but that is not a function of the toppings, instead it is a fault of the skin being made too thin.

Every oven is a law unto itself and only itself.

Tom Lehmann/The Dough Doctor

[Re: sourdough - hydration and toppings](#)

2410

If you're not checking the stone temperature or allowing sufficient time for the stone to recover heat anything is possible.

Tom Lehmann/The Dough Doctor

[Re: sourdough - hydration and toppings](#)

2411

First off, the mechanics of oil v/s shortening; The shortening does a better job of coating the gas cells within the dough which allows them to better retain leavening gas, expanding air and water vapor which results in improved (greater) oven spring which in turn typically results in a crispier crust, oil, on the other hand, is just absorbed into the dough to act as a lubricant and while this can enhance oven spring the effect generally isn't as effective as the shortening due to its combined gas retention properties.

Now, if you are looking for some impact upon flavor, have you tried using a Pomace grade olive oil? It has a much more robust flavor and is my own personal "go to" oil to use in my pizza doughs. As for other types of fat such as butter, butter flavored margarine, butter flavored Crisco, butter oil, Butter Buds, etc. if that's the flavor profile you're looking for in the finished crust....go for it. Experiment with them at different levels to determine where your preference lies.

While some reduce water when adding oil the the dough formulation, I have never found it necessary to do so unless I'm already pushing the limits with my dough absorption. Just remember to use the delayed oil addition mixing method when using an oil, this is not necessary when using a plastic fat.

Tom Lehmann/The Dough Doctor

[Re: Looking for a little more flavor in my dough?](#)

2412

If the dough is showing sufficient oven spring it shouldn't make a lot of difference as to the kind or amount of toppings used, if too much is used it will weigh down the dough thus limiting oven spring which makes the dough more dense and better capable of conducting heat through it which will reduce the heat to the bottom of the pizza making for a lighter finished crust color. Lots of veggie toppings put off a lot of moisture during baking which shrouds the top of the pizza in cooler moist air resulting in a lighter overall top color, this is why a lot of times we see a meat only topped pizza having a darker top color as there isn't as much cooling moisture covering the top of the pizza during baking. Mind you, this applies to deck ovens only, the high velocity airflow of an air impingement oven pretty well eliminates this issue.

Tom Lehmann/The Dough Doctor

[Re: sourdough - hydration and toppings](#)

2413

Are you asking if the toppings (type /amount) would impact the bottom crust color?

Tom Lehmann/The Dough Doctor

[Re: sourdough - hydration and toppings](#)

2414

Your pan seasoning looks great. It'll continue to darken with continued use (that's a good thing), but do NOT wash your seasoned pans, just wipe them out with a clean, dry towel and they'll be good to go the next time pizza is on the menu.

Tom Lehmann/The Dough Doctor

[Re: UK: pizza pans and chopping board](#)

2415

The amount of malt added by the flour mill is variable and adjusted to provide a targeted Falling Number (recently discussed in another post) so I wouldn't recommend adding malt at a fixed amount, if you do want to go that route I'd suggest adding 0.25% of a 20-L malt powder. Instead, it might be easier for you to just include some sugar in your dough formulation. You should be able to bench mark the sugar at 1% and work up or down from there. Once you have the amount of sugar dialed in it can probably be considered a constant UNTIL you change your grist (wheat being ground into flour), then if you see a change in crust color you will need to adjust the sugar level accordingly.

Tom Lehmann/The Dough Doctor

[Re: how much malt to add to home ground flours](#)

2416

I would suggest experimenting with the total dough absorption as that is almost universally the number one variable in dough formulation. Adjust the absorption in 2% increments up and down until you find the absorption that works best for YOU under YOUR specific conditions and Your dough management procedure. As for the cream cheese, it's probably the high moisture content of the cream cheese (55%) and/or the acidity of the cheese that is preventing the cheese from browning during baking, cream cheese is pretty low in fat content at only about 33%.

Tom Lehmann/The Dough Doctor

[Re: sourdough - hydration and toppings](#)

2417

I'm humbled by your comments. My training Through the AIB has been as both a researcher and an educator where we used education and assistance as a means of disseminating new found knowledge. One of my idioms is "Knowledge gained and not shared is knowledge lost". There is a lot of shared knowledge here as well as at the PMQ Think Tank and I'm pleased to be able to contribute to just a small part of it.

Tom Lehmann/The Dough Doctor

[Re: restaurant consulting](#)

2418

Nick;

I'll be glad to work with you BUT there are a lot of things that you need to do on your part before moving ahead.

Please feel free to contact me directly at <thedoughdoctor@hotmail.com>.

Tom Lehmann/The Dough Doctor

[Re: Pizza Consultant - SE Michigan](#)

2419

I have been a consultant to both the pizza and baking industries since 1968 and since my retirement from the AIB five years ago I have been charging \$1,000.00 per day for my consulting services (a LOT less than what they were when I was employed by the AIB), if the job is a small one, requiring less than a day on my part I charge \$125.00 per hour.

Tom Lehmann/The Dough Doctor

[Re: restaurant consulting](#)

2420

If I remember correctly I think we might have something here on the function of the various ingredients used in making pizza dough, aside from that, sugar is multi-functional in yeast leavened dough, at low levels (typically 3% and less) it provides a nutrient for the yeast to feed upon during long fermentation times and it can also precipitate crust color development or enhance crust color. At higher levels it can have an influence on the flavor of the finished crust by providing a sweet taste or even a unique taste/flavor depending upon the type of sugar being used. For example, non-diastatic malt can add a nutty or even a malted milk type flavor to the finished crust while lactose provides essentially no sweetness but instead has a significant impact upon crust color characteristics, honey, can provide a broad spectrum of flavor to the finished crust depending upon the color of the honey. The lighter shades of honey provide less flavor while the darker shades provide more flavor but the color of the honey doesn't impact the crust color characteristics. Unsulfured molasses will provide yeast nutrient to sustain yeast activity while also contributing to crust color and providing a unique flavor to the finished crust. The type of pizza being made can also dictate the use of sugar in the dough formulation however, in many cases when sugar is not used, an un-malted flour is used which means that you will need to be baking your pizzas at high temperatures (above 750F) if crust color is to be achieved, if your oven is not capable of baking at this temperature you might find yourself needing to add a small amount of "sugar" to precipitate the browning reaction allowing you to get a decent crust color on your pizzas.

Tom Lehmann/The Dough Doctor

[Re: Sugar in dough](#)

2421

What kind of temperatures are we talking about?

Tom Lehmann/The Dough Doctor

[Re: steps after a 24 hr cold proof](#)

2422

Hey man...I understand fully! When I'm posting late at night I have trouble spelling my own name correctly! ^^^ :-D

Tom Lehmann/The Dough Doctor

[Re: Opening a shop with zero experience](#)

2423

You will not want to apply heat to the dough in any way unless it is humidified heat. If you heat the air it won't appreciably speed the warming process but since warm air holds more moisture than cold air it will have a significant drying effect upon the dough resulting in the development of a crusty skin on the dough ball(s). Leaving it warm AT room temperature normally takes about 90 to 120-minutes. This is a good time to be pre-heating the oven and prepping the toppings.

Tom Lehmann/The Dough Doctor

[Re: steps after a 24 hr cold proof](#)

2424

What was the baking temperature in their wood fired oven as compared to your oven? Aside from temperature, all ovens bake differently for a myriad of reasons, someone one said "Every oven is a law unto itself and only unto itself". I'm guessing you're just going to need to experiment with baking pizzas made using that dough formulation and that dough management procedure to find the baking conditions needed to give you the pizza you're looking for.

Tom Lehmann/The Dough Doctor

[Re: Wood vs propane results](#)

2425

Doesn't that hurt? Building an oven on your fingers. :-D

Tom Lehmann/The Dough Doctor

[Re: Opening a shop with zero experience](#)

2426

Both wood and gas produce moisture/water as a by-product of combustion. Were the baking conditions the same? How about the way the dough was managed or handled prior to baking? Too many variables here to be definitive.

Tom Lehmann/The Dough Doctor

[Re: Wood vs propane results](#)

2427

When it comes to electric ovens I really like the Sveba Dahlen brand ovens out of Sweden. Lately they've had a booth at Pizza Expo.

Tom Lehmann/The Dough Doctor

[Re: Gas Oven](#)

2428

I don't know what their temperature rating is but we never had any issues with them charring at our baking temperature of 500F. Crispy yes, but not so that it would break off in the oven or even when removed from the oven but when we tossed them into the trash you could feel that they were definitely crispy. The part that is covered by the pizza won't get up to anything even close to 500F, and I doubt that the part of the paper sticking out around the edge of the pizza gets much above 400F due to the cooling effect of the pizza during baking.

Tom Lehmann/The Dough Doctor

[Re: best pan/surface for gluten free crust](#)

2429

When we made them at AIB we used to bake them on the silicone baking sheets (not the mats), right on the deck. The heavier weight ones work better than the flimsy, light weight ones.

Tom Lehmann/The Dough Doctor

[Re: best pan/surface for gluten free crust](#)

2430

It's a lot easier to control amylase than damaged starch. The malt by itself will help to create crust color.

Tom Lehmann/The Dough Doctor

[Re: Falling number... Amylase activity or damaged starch ?](#)

2431

It could be that you're using too much salt, try making a dough with 1/2 of the amount you're presently using, that will get you pretty close to a typical level of 2%, if that helps you can always incrementally work up to suit your taste.

Tom Lehmann/The Dough Doctor

[Re: Dense/ doughy crust](#)

2432

You might also place your post in the Think Tank at <www.pmq.com>. That site is visited mostly by owners/operators and they might be able to provide you with some additional first hand input.

Tom Lehmann/the Dough Doctor

[Re: High Temp Gas Ovens](#)

2433

Your option #1 could be very viable if done right. I'd suggest striking up a conversation with Norma as she is just now getting out of operating a successful operation like that and I'm sure she could provide some valuable advice as to how to get started.

Good Luck,

Tom Lehmann/The Dough Doctor

[Re: Local Pizzeria Closed.. Desperately need help to move fast w/my new Startup!](#)

2434

Amylase activity. Falling Number does not measure damaged starch. The fact that the FN is high is the reason why pizzas made using these flours must be baked at very high temperatures, UNLESS amylase or sugar is added to the dough formulation, then it performs more like any other normally malted flour.

Tom Lehmann/The Dough Doctor

[Re: Falling number... Amylase activity or damaged starch ?](#)

2435

As a note to this story, I have been personally involved in the development of two different pizzeria operations (as a consultant), both of which were valued at over \$1,000,000.00 (ground-up construction), both were essentially built for "the kids", once completed and opened it we found that the "kids" enjoyed hanging out at the pizzeria with their friends but work of any kind was simply off of their radar screens and both failed within a year and since "Daddy" had no previous knowledge of the pizza industry attempts to find someone to operate the business also failed. Both operations had totally failed within two years of opening, hence my first post to this thread. My good friend Adam Peyton, owner of AJ's New York Pizzeria here in Manhattan, Kansas bought the ovens from one of those failed businesses for pennies on the dollar.

Tom Lehmann/The Dough Doctor

[Re: Opening a shop with zero experience](#)

2436

Stone mills do not damage much starch at all, to do so the stones would essentially need to contact each other and we know this doesn't happen. This is also why stone ground flour is coarser than roller milled flour, in fact the most coarse type of whole wheat flour is known as "stone ground" even though it's milled on a roller

mill.

Tom Lehmann/The Dough Doctor

[Re: Falling number... Amylase activity or damaged starch ?](#)

2437

The typical U.S. roller milling process results in flour with about 6 to 8% damaged starch which is about all that you can get with a roller mill. To achieve a higher level of damaged starch ball milling or pin milling is required. In Mexico they do as high as 20% damaged starch in some areas (the reason for this is because local bakers think the ability to get more water into the dough makes their products cheaper to make due to the higher yield BUT the truth is you have to bake out all of that extra water. Finished bread will have a maximum moisture content of about 40 to 42%, higher than that and the finished bread is doughy. Hamburger/hot dog buns come in at around 36% moisture and pizza crusts come in at around 26%, crackers come in at about 6 to 8% BUT they can achieve that moisture content ONLY by passing the crackers through what they refer to as a "kilning" process which is a process where the crackers are passed under the baking chamber at a slow speed to drive off additional moisture, they're then packaged HOT as they will pull moisture from the air at that moisture content. I digress.

Back to Mexico, to get the amount of starch damage they're looking for they pass the flour through an Entialtor several times which is nothing more than a pin mill which is designed to break up insect eggs in the flour but when the flour is passed through it several times it becomes a pin mill which results in significant starch damage. When we studied starch damage at AIB we found that pin milling was the most effective and fastest way to damage the starch.

[Re: Falling number... Amylase activity or damaged starch ?](#)

2438

Sorry to say this but this sounds like the prologue to a horror story.

Tom Lehmann/The Dough Doctor

[Re: Opening a shop with zero experience](#)

2439

Stuart;

It looks like all of your water is "warm water". The only portion that should be warm is that which is used to activate the ADY in (100 to 105F) with the remainder being cool water (typically about 70F). The salt level is low at only 1% (10-grams per Kg. flour), for both flavor and controlling the rate of fermentation the salt level should be between 1.75 and 2.5%, or about twice of what you are presently using. From your description it sounds like the dough is being over fermented and 14-grams of ADY per Kg. flour isn't helping the cause. For your dough management procedure I think you'll be better served using only 2 to 3-grams of ADY.

Tom Lehmann/The Dough Doctor

[Re: My dough isn't stretchy and elastic Im doing something wrong.](#)

2440

The issue with damaged starch and amylase activity, as has been explained previously, is that damaged starch has a very high absorption as compared to non-damaged/intact starch. In effect, the damaged starch is responsible for and mostly carrying the increase in dough absorption...now we add amylase into the equation, the amylase hydrolyzes the damaged starch into dextrins and/or maltose and the water that the starch was carrying is now freed up to act as non-bound water in the dough making it overly soft and sticky. Some flours can have a naturally high

amylase activity (especially those which were made from wheat which had been allowed to sprout prior to or after harvest), these wheats are typically considered as having little or no application in the baking industry and end up going into channels destined for the industrial wheat market for use in such things as adhesives, and well drilling paste. This is why it is important to know and control the amylase activity of any given flour....a little is good for fermentation and crust color but too much can/will make a mess of things.

It must also be remembered that flour with a high level of damaged starch (15% and above) will have similar issues even without added amylase as there are enzymes present in the yeast which readily attack and hydrolyze the damaged starch, again creating a wet, sticky dough situation during the fermentation process. This is one reason why in countries where the flour is milled to high levels of starch damage the dough fermentation times are held to not more than an hour. I neglected to take this into account when I was in Guyana and after a 3-hour room temperature fermentation period we had to "pour" the "dough" out of the bowl....Oops!

Tom Lehmann/The Dough Doctor

[Re: Falling number... Amylase activity or damaged starch ?](#)

2441

Nope, not unless it's inverted. You can put sucrose into a pan and heat it until it melts to a clear liquid and it won't develop any color. This is the reason why angel food cakes are made using only sucrose (sucrose is the sweetest of the common sugars and it doesn't provide any color) The little bit of crust color seen on an angel food cake is due to the Maillard browning reaction with the egg protein. The enzyme invertase inverts the sucrose into reducing sugars (dextrose and fructose) almost instantly which are responsible for the impact on crust color which we see when including sucrose in a yeast leavened dough formula.

Tom Lehmann/The Dough Doctor

[Re: 5 Minute Thin Crust Dough](#)

2442

Are you sure you can tackle this by yourself? Let's see....you will be prepping pizzas, tending the oven (out back), cutting, boxing or bagging, and running the front counter as well as table service (if you have it)? You're going to go broke at the cost of the gloves you'll be buying. Maybe I'm missing something but I just can't see this as a one man show. Just trying to be realistic not discouraging. Scaling up your dough to a 30-qt. mixer is easy. If you have a Hobart HL-30 mixer the capacity is about 18-Kg of total dough weight at a minimum of 60% absorption or half of that at 50% dough absorption. If your mixer is old/tired it may not work well at full capacity so let's fudge a little and use dough weights of 15 Kg. and 7.5-Kg. At 15-Kg. you have 33-pounds of dough weight. Add up all of the bakers percent for your dough formula, divide this by 100 then divide the new dough weight (33-pounds) by that number. This will give you the flour weight needed to make your new dough weighing a total of 33-pounds. The rest is easy, just bakers% X flour weight (press the "%" key) and read the ingredient weight in the display window.

Tom Lehmann/The Dough Doctor

[Re: Local Pizzeria Closed.. Desperately need help to move fast w/my new Startup!](#)

2443

Actually, adding sucrose (cane or beet sugar aka table sugar) won't help the crust develop any color. This is because sucrose is not a reducing sugar, it depends upon

the enzymes in the yeast to reduce it to sugars capable of providing crust color, so you will either need to include a small amount of yeast or use corn syrup or dextrose solids to improve the crust color....then too you could always figure out how to bake it at temperatures of 800F or more in which case sugar would be a moot issue.

Tom Lehmann/The Dough Doctor

[Re: 5 Minute Thin Crust Dough](#)

2444

What you saw when using colder water was perfectly normal. When making slight adjustments in the dough temperature (assuming "normal" temperature in the 75 to 85F range) we normally figure that a 5F drop in water temperature gives us a 2F drop in dough temperature. The reason for this is because all of those ingredients are really nothing more than a heat sink.

It sounds like you were putting a lot of oil onto the dough balls. The correct amount is JUST enough to see a shine on the dough ball. Since oil is a tenderizer in the world of ingredient function it will contribute to a softer eating finished crust if used in excess. I never use oil on the bottom of the dough ball as it results in the dough balls skating around in the dough box....not a good thing. The only time I ever oil the entire dough ball is when I use a plastic bag to ferment the dough ball(s) in, which anymore is most of the time come to think of it.

Putting flour on the bottom of the tray.....moisture migrates from the dough ball into the flour, thus hydrating it, and turning it into school paste over time which is not conducive to easy removal of the dough ball. Try plastic bag fermentation, once you get the hang of it you may like it, I use it as do others here and it works well. Look Ma! It just falls out of the bag by itself!! :)

Tom Lehmann/The Dough Doctor

[Re: Olive Oil and Dough Balls and Finished Dough Temperature](#)

2445

Where are you planning to have the small wood fired oven? What are you going to do for a refrigerated prep table? How many employees? Are they already set up for self-serve soft drinks. To me it sounds like at least a 3-person operation which is going to be tough for such a low income area, but if you have enough seating your draw from the surrounding area can have a positive impact if you play your cards right. In all probability you won't have a beer/wine license so that'll hurt average ticket cost. You can offset some of this by looking for a really good dessert, either locally made or frozen and shipped to you (cheese cake ?).

If you want to discuss please feel free to contact me at 785-537-1037 (please email me at <thedoughdoctor@hotmail.com> with a date and time to make sure I'll be here to take your call. We're on central time right now.

Tom Lehmann/The Dough Doctor

[Re: Local Pizzeria Closed.. Desperately need help to move fast w/my new Startup!](#)

2446

Small place, small town, only open until 1:00 p.m.....Am I missing something? It seems as if you are locked into a very short lunch trade with an initial maximum of only 30-pizzas at most. What are the local demographics? Small town but a lot of people work there?

Tom Lehmann/The Dough Doctor

[Re: Local Pizzeria Closed.. Desperately need help to move fast w/my new Startup!](#)

2447

My preferred method is to scale and ball immediately after mixing (finished dough temperature 70 to 75F), then lightly oil the dough balls and place into individual plastic food saver bags (they come on a roll and they're cheap) or use bread bags (they work great). Twist the open end into a pony tail and tuck it under the dough ball as you place it into the fridge, allow to cold ferment for 48-hours, remove from fridge and allow to temper AT room temperature for about 2-hours, then begin to open into skins. There is currently a video of Norma opening a dough ball and it shows her using this method to store the dough balls on the board.

Tom Lehmann/The Dough Doctor

[Re: tough dough](#)

2448

Zing;

I can't speak for your local P.H. but for most box chain stores they are hung up on short baking times. For example, PJ's would have a pretty decent product IF they would just bake it 30-seconds longer....doesn't sound like much but it's a lot in an air impingement oven. If we add to that the fact that in a lot of stores they pull the pizza off of the conveyor before it fully exits the baking chamber and you have the stage set for a less than ideal finished crust under the pizza. Next time you go there go during a slack time 3:00 p.m. in the afternoon, and ask them to give the pizza a little more bake time by pushing the pizza back into the oven then see if it's any better.

Tom Lehmann/The Dough Doctor

[Re: Can You Still Get A Decent Pizza Hut Thin 'N Crispy Pie](#)

2449

There is a good probability that the dough balls are not sufficiently relaxed after being balled by your process. You might try balling the dough at least 10-hours prior to when you plan on opening them into skins, when you ball the dough after a fermentation period it really takes quite a bit of time for the dough to completely relax again.

Tom Lehmann/The Dough Doctor

[Re: tough dough](#)

2450

Why not use the silicone baking sheets? Be sure to buy the heavier weight ones. We use them for making everything from brownies to focaccia and have never had a problem, all of the commercial focaccia lines use the same material but on a roll as opposed to individual sheets.

Tom Lehmann/The Dough Doctor

[Re: Silicone baking sheets](#)

2451

Unless you want the pizzas to look like they have melted plastic on them I suggest going with the humidified cabinet warmer. Your maximum holding time should be around 2.5-hours or less.

Tom Lehmann/The Dough Doctor

[Re: Best countertop warmer?](#)

2452

Very little multiplication of the yeast in a dough system but greater amount of yeast will result in faster fermentation. The amount of yeast used will, to a great extent, be determined upon how the dough is managed. By adding the ADY dry as you are

will result in some of the glutathione leaching out of the yeast cells as well as creating a situation where the yeast can begin to cannibalize itself due to not being uniformly distributed throughout the dough (if you can pick through the dough and find small particles of ADY you likely are experiencing this problem). This potential loss of activity could be responsible for what appears to be a lack of oven spring with your dough.

Tom Lehmann/The Dough Doctor

[Re: Stretching Pizza Dough](#)

2453

Assuming a total dough formula percent of 170, one pound of flour will make approximately $1.7 \times 16 = 27.2$ -ounces of dough. Assuming 10-ounces of dough for a 12-inch pizza 27.2 divided by $10 = 2.72$, 12-inch pizzas can be made from one pound of flour. Or to put it another way, after accounting for bowl loss, from one pound of flour you will have sufficient dough to make two 12-inch pizzas and one 8-inch pizza.

Tom Lehmann/The Dough Doctor

[Re: How many 12 in pizzas per pound?](#)

2454

Cool!

Tom Lehmann/The Dough Doctor

[Re: Affordable, HIGH QUALITY Artisan Dough Sheeters starting at 350.00 - see video](#)

2455

I didn't see where you are activating the ADY in a small portion of 100F water, did I miss that?

Tom Lehmann/The Dough Doctor

[Re: Stretching Pizza Dough](#)

2456

Flour has four main parts, moisture (about 12 to 13%), bran (about 5 to 7%), starch (about 70%) and protein (about 12 to 14%) we're talking about typical flours used for making pizza. Starch raw, intact starch has very little absorption properties (try adding some corn starch to water in an attempt to thicken it and you'll see what I mean), so it is the protein which exhibits almost all of the absorption properties in the flour, as the amount of protein in the flour goes up or down the dough absorption typically follows a similar trend. You can see this first hand by hydrating some vital wheat gluten (purified gluten from a flour based dough), it will have a very high absorption capacity.

Tom Lehmann/The Dough Doctor

[Re: chewy pizza](#)

2457

Hopefully not rubbing alcohol! :(

The by products of yeast fermentation are:

Carbon dioxide

Acids (acetic, lactic and propionic are the main acids formed)

Alcohol (that's what you're smelling, just a normal by-product of fermentation which is more evident in a liquid or more liquid environment than in a dough as the alcohol is lost more readily to the air as opposed to being entrapped in the dough matrix).

Tom Lehmann/The Dough Doctor

[Re: Poolish smells like Alcohol](#)

2458

Werty20;

Higher protein flour will typically require a higher dough absorption with all things equal.

Tom Lehmann/The Dough Doctor

[Re: chewy pizza](#)

2459

Joe;

I forgot to add, you say you are allowing the dough balls to warm for several hours before opening it into skins, this might also be part of your problem, they only need to be allowed to warm to 50 to 60F range before opening. In most pizzerias they use 50 to 55F as their target temperature before they begin opening the dough balls. Note: This is internal dough ball temperature, not the surface temperature.

Tom Lehmann/The Dough Doctor

[Re: Stretching Pizza Dough](#)

2460

Joe;

If the dough is handling OK and you're just getting thin spots and holes in the center section it's probably just your technique. I developed a method for training new hires how to open pizza skins by hand when they have little or no prior experience. Once you begin using the technique you will soon automatically begin to master the technique of opening your dough balls into skins. Do what you are doing, but when you go to open the dough balls do so using a rolling pin (remember to NEVER allow the barrel to roll off of the skin), open the dough to within about 2-inches of the desired finished diameter, then finish opening the dough by hand to the full diameter. This procedure works like a charm and soon you will be putting the rolling pin away and opening the entire dough ball by hand without those holes and thin spots. I've got a video of the process being used in AJ's New York Pizzeria, here in Manhattan, KS that I'll be glad to share with you, just P.M. me with your request for the AJ's video and give me an email address where I can send it to.

Tom Lehmann/The Dough Doctor

[Re: Stretching Pizza Dough](#)

2461

Werty20;

From what I am seeing it looks like a pretty typical hand kneaded dough, the gassy appearance shown in the last photo is common to an under mixed dough, with that said, the pizza looks pretty good.

Tom Lehmann/The Dough Doctor

[Re: chewy pizza](#)

2462

Pizza Hut, for many years, has used very generous amounts of oil in their deep-dish pans (peanut oil) to achieve a unique fried effect as opposed to a baked effect which you get using a plastic fat such as Crisco. Many of us here use a commercial garlic infused oil in their deep-dish pizza pans, or my favorite is a commercial garlic infused butter oil, which from your description sounds like what you might

be looking for, or you can make one yourself by adding garlic powder to an oil. When garlic is added TO the dough it has a softening effect upon the dough in much the same manner as L-cysteine/PZ-44 softens/relaxes the dough. This has been covered a number of time here if you want to read more about it.

If you want to have a softer, chewier finished crust with your deep-dish pizza the first thing I might try is just letting the pizza set in the pan for a minute or two after baking, this will drive much of the moisture from the pizza back into the pizza making it softer, chewier and somewhat tougher. Remember, oil/fat IN the dough formula is a tenderizer so if you delete the fat from the dough formula you will be moving the eating/mastication properties of the finished crust towards a more chewy characteristic if that's what you are looking for.

Tom Lehmann/The Dough Doctor

[Re: Oiling the pan with garlic oil](#)

2463

Pictures of the finished pizza/crust would help in this case (be sure to show a picture of an inverted slice too so we can see what the bottom looks like. Aside from that, you say you are getting a smooth and soft dough after only 2 to 3-minutes of hand kneading....are you sure about this? Even machine mixing takes more than twice this long to achieve the desired dough characteristics. I see that you are using IDY but you don't indicate that you are suspending it in 95F water prior to addition to the dough. IDY should only be added dry when machine mixing. You indicate that you allow the dough to rise until doubled or more, can you put a time on how long this is taking? The more information we have the better.

Tom Lehmann/The Dough Doctor

[Re: chewy pizza](#)

2464

Just a short time back we had a lot of discussion on just such a topic (Detroit style pizza pans, steel ones too) If I remember correctly there was even a reference as to where they might be available, maybe Peter can work his magic and help dig it out.

Tom Lehmann/The Dough Doctor

[Re: Sicilian/Grandma's Pan](#)

2465

I think it all started when kids began spending more time at the television, and then their computers and games than playing outside. I think the only part of the body being exercised by kids anymore is the thumbs. Society has also changed, and not for the better, parents are working when kids come home from school, kids eat junk food to hold them over until parents come home, all too often with a prepared meal such as pizza, fried chicken, etc., what ever happened to the vegetables and salads that we used to get at every dinner when I was a kid? Define a "snack", when I was a kid it was defined as an orange, apple, maybe some grapes, or a banana, how does that hold up to the modern definition? The situation isn't much better for breakfast either, pre-sweetened cereal, toaster pops, if you do a calorie count against what kids eat for breakfast today (if they even eat breakfast...that's another story) an egg, piece of toast, glass of milk and a piece of fruit or small glass of juice doesn't look too bad, but too many parents don't have time for preparing such things anymore. With adults portion control is a little understood concept or the concept they have is grossly distorted, take for example, what constitutes a serving of pasta? What is a serving of steak? What is a bowl of cereal? Add to that: Would you like to supersize that for \$1.00 more? Nuff said!

Tom Lehmann/The Dough Doctor

[Re: Pizzas must shrink or lose their toppings under Government anti-obesity plan](#)
2466

Be cautious when using a ZipLock bag as the pressure developed by the fermenting dough can pop the bag open as this type of bag doesn't allow the bag to burp itself as a bread bag does, additionally, you seldom get full contact around the entire dough ball when using a ZL bag and those areas where the bag is not contacting the dough is a place where you can get condensation forming resulting in a wet spot on the dough which usually leads to a bubble formation during baking as the moisture is vaporized. Bread bags or food saver bags are also dirt cheap, and if you're like me, you will reuse them several times making them "cheaper than dirt". I just roll-up my oily, used bread bags and stuff them into a repurposed soft spread margarine container and store them in the fridge.

Tom Lehmann/The Dough Doctor

[Re: Yeast](#)
2467

It's used in the baking industry, if you contact a n ingredient supplier, like Watson Foods I'm sure they would have it. There is also a product called Butter Buds that you might be able to get at your local supermarket or I know for sure you can buy it on the Internet, just Google "Butter Buds".

Tom Lehmann/The Dough Doctor

[Re: Butter Powder in deep dish dough](#)
2468

My "burning" questions are do you bake your raw dough pizzas on a steel or stone, or just on a pan, what is your dough formula, what kind of pizza are you making, and what is the dough ball weight? No such thing as TMI here. :)

Tom Lehmann/The Dough Doctor

[Re: Oven Rack Heights?](#)
2469

Actually, the dough balls look perfect for the times indicated. What were you anticipating? If you reduce the IDY the dough may not be fully ready to use in 24-hours but instead most likely closer to 48-hours. Most pizzerias want to be able to use the dough on the day after it's made and still be able to use it at 48 to 72-hours. That's what that specific dough formula and procedure were designed for but like most things you can modify it to meet your specific needs. If you want to target a dough that will be better to use at 72-hours my recommendation is to just reduce the targeted finished dough temperature (75 to 80F range). If you reduce the yeast level there is always a possibility that you can get into a situation where you begin to reduce the oven spring properties of the dough which then opens a "Pandora's Box" of dough issues, the biggest of which is the development of the "dreaded gum line", followed by reduction of crumb porosity, loss of crispiness or crust turns soft soon after baking, toughness/chewiness, even bottom crust color issues can be experienced, like I said.....Pandora's Box.

Tom Lehmann/The Dough Doctor

[Re: I've been playing around with The Dough Doctor's dough recipe... Thoughts???](#)
2470

The dough management procedure that I use most when making pizzas at home is as follows:

1) Weigh water into bowl, add flour, salt, sugar (if used), and IDY (in a suspension

with a small amount of 95F water).

2) Using a wooden spoon, stir until well blended.

3) Using a plastic scraper, transfer the dough to a well oiled bowl.

4) Drape with a piece of plastic and allow to ferment at room temperature for 2-hours.

5) Turn dough out of the bowl onto a flour surface and knead for about 2-minutes.

6) Scale into desired weight pieces (11-ounces).

7) Form each piece into a ball, oil each dough ball and place into individual bags (bread bags).

8) Twist the open end of the bag into a pony tail and tuck it under the dough ball as it is placed into the fridge.

9) Allow to cold ferment for 18 to 24-hours or as long as 48-hours.

10) Remove from fridge and allow to temper AT room temperature for about 2-hours (dough temperature 60F).

11) Roll bag down onto the dough ball and invert the bag over a floured surface allowing the dough ball to fall free from the bag.

12) Dust the dough ball well and open into a pizza skin for immediate dressing.

Tom Lehmann/The Dough Doctor

[Re: Dough Fermentation Process](#)

2471

The more dense something is the better it will conduct heat (have better heat transfer properties) so yes, it is possible that cutting the loaf in half might help a bit as this would allow for a faster trip through that critical temperature zone for accelerated staling. This is the same reason why if we form our dough balls into a puck shape by flattening them slightly they will cool or freeze more efficiently (less cross section).

When we make croutons commercially we use a lean formulation bread (low in fat and sugar), then give it a long, slow bake (25 to 30-minutes at 400F), the bread is depanned and allowed to cool, it is then placed on racks and stored in a cooler (40F) overnight, on the following day the bread is sliced, lightly toasted, passed through a cube slicer, run through a cone shaped tumbler where they are sprayed with oil and a seasoning is added, after tumbling the croutons proceed directly to packaging (M.A.P. is generally used to protect the flavor and prevent development of rancidity).

Tom Lehmann/The Dough Doctor

[Re: Freezer to croutons](#)

2472

OK...That does it!!! No more late night/VERY early morning posting by me, when I can't even spell my own name right (been practicing that for over 70-years too) you know it's time for me to hit the sack! :-D :-D :-D

Tom Lehmann/The Dough Doctor

[Re: need more crackle](#)

2473

There are several things at work here;

1) You should never allow the bread to thoroughly cool prior to freezing, instead, it should be cooled to an internal temperature of 100F and not more than 105F, then wrapped snugly so as to eliminate any head space around the product.

2) A home freezer is about the slowest way to freeze anything known to man outside of an oven. What this means is that the bread is being very S L O W L Y frozen which means that it is passing through the critical temperature zone for

staling (60 to 20F) at a very slow rate, the wrapping material applied slows it even more. All of this equals stale bread within the first 24-hours and one of the characteristics of stale bread is the firmness of the crumb structure (this is due to a characteristic of the wheat starch as it retrogrades during cooling) and aside from adding a commercial bread softener not too much can be done to prevent it, but reheating it TEMPORARILY reverses the staling for a few minutes. The addition of 5 to 10% mashed potatoes can help a little but it is not a "silver bullet".

3) The stretch wrap materials which we have available to us generally do not provide a sufficient moisture transfer barrier to prevent desiccation during the freezing process and the time the product is held in the freezer.

4) The average home freezer today has an Energy Star rating, to achieve this rating (improve operating efficiency) the freezer is designed to go through as many as 20 defrost cycles during a 24-hour period which makes freezer burn/desiccation a sure thing, and it certainly doesn't help the freezing rate by any stretch of the imagination.

5) It is well recognized that the more a product is baked the more severe the crumb firming due to the staling process will be, in fact, many of the bread softeners/anti staling agents, are essentially ineffective if the bread is baked more than 20-minutes at 425 to 450F.

6) Additionally, keep in mind that the larger the product (greater cross section) the more difficult it becomes to effectively freeze the product. This is why we find many times that smaller items such as buns and rolls will tolerate freezing better than larger items like a loaf of bread.

7) I should also add that the ideal temperature for slacking-out/thawing frozen bread products, be it bread, rolls or buns is 105 to 110F with a relative humidity of 75 to 78%. This temperature and humidity affords the fastest thaw while still allowing time for moisture to equilibrate throughout the crumb (moisture migrated from the center of the crumb to an area closer to the crust during frozen storage). If the product is thawed too fast a wet, soggy product will be experienced, if it is thawed at a slower rate additional crumb staling will result as the product passes through the critical temperature range for crumb staling as it warms up.

Tom Lehmann/The Dough Doctor

[Re: Freezer to croutons](#)

2474

Peter;

Duhhh! :-D

I must have been too tired when responding either that or I need to clean my glasses more often!

Tom Lehmann/The Dough Doctor

[Re: need more crackle](#)

2475

If you could provide your dough formula and dough management procedure it would help a lot. Also tell us what you can about your oven and how you bake your pizzas. With the limited information provided 50% absorption is rather low for a neo pizza. Is there a specific reason why you are using such a low absorption?

Tom Lehmann/The Dough Doctor

[Re: need more crackle](#)

2476

From the outward appearance I'd say it looks remotely like a Chicago style thin crust but with all that thick, heavy sauce it sure ain't, plus Chicago thins are

nowhere near 1 to 1.25-inches thick! That thickness qualifies it as a thick crust pizza in my book. Using a screen to bake in a deck oven significantly slows the baking which accounts for the oven spring creating the thicker crust and considering the amount of sauce and cheese I'd say it probably needs all the bake time it can get and from the color I'd say it's getting it. Aside from that, I can't really see much of the crust or tell anything about it. My suggestion would be to start with a typical N.Y style dough, adjust the thickness so when baked, after being formed using a pie pin or rolling pin you get something close to the desired thickness. Baking temperature will most likely be about 500F. From this benchmark you can begin to make incremental adjustments to achieve what you feel are the desired crust characteristics.

Get ready to eat some pizza!

Tom Lehmann/The Dough Doctor

[Re: Replicating a bygone local classic, starting with the dough](#)

2477

Come to think of it, it did kinda look like a large over fermented dough, didn't it?
:-D

While I'm sure many yeasts are genetically modified in some way (we're essentially all genetically modified, I'm the result of a German mother and an Italian father) but most yeasts are cultured, a strain having a desirable characteristic is cultured/propagated until the characteristic is dominant, it's then set aside for future reference or bottled for sale. I know that's how they came up with a variety of yeast specifically for freezing applications, a strain having a thicker than normal cell wall was identified and cultured and is now being sold (SAF/Green Label) for freezing applications where it demonstrates a slight advantage over conventional strains of bakers yeast.

Tom Lehmann/The Dough Doctor

[Re: Vacuum Sealing Frozen Dough Balls](#)

2478

About a year ago I bought one from HF and my son liked it so much I gave it to him and went back and bought another one for myself. Paid \$15.00 each, then right after that Manard's had them on sale for \$11.00 each so, not to pass up a good deal I bought one of those too, so far all three are batting 1000. When I was at AIB I bought my first one for \$225.00!!!

Tom Lehmann/The Dough Doctor

[Re: My new toy](#)

2479

Just as a FYI, you will be able to say you heard it here first, there is a new type of yeast being trialed right now as I type this that will change the whole complexion of dough storage as we presently know it. I have samples of it and it really works as it is designed to work. This new yeast is used just like any other IDY BUT it STOPS FERMENTING and essentially goes dormant when the internal dough temperature reaches 45F, then, after it is warmed back up to a temperature over 45F it resumes normal feeding/fermentation activity just as if nothing had ever happened...kinda mind blowing, isn't it! I'll be talking more about it as soon as I have approval to "let the cat out of the bag".

Hang in there, help is on the way!

Tom Lehmann/The Dough Doctor

[Re: Vacuum Sealing Frozen Dough Balls](#)

2480

The big commercial frozen dough manufacturers target a 19 to 21-week shelf life on their frozen dough, to get this they employ little or no fermentation prior to freezing, mechanically blast freeze at -20 to -35F with an airflow of 600 to 800 linear feet per minute over the product, then then place the dough into a holding freezer at -10F for 24-hours prior to shipping. The dough can also be cryogenically frozen using an industrial cryogen (liquid carbon dioxide or liquid nitrogen) at a temperature in the product zone of -55 to -65F, this will shell freeze the dough so it must go through an equilibration period in the holding freezer (90-minutes) for the temperature to equilibrate throughout the dough. They look for an equilibration temperature of +10 to +15F. The dwell time in the cryogenic freezer is adjusted to achieve the targeted equilibrated dough temperature. The dough is held in the holding freezer for 24-hours prior to shipping. Since temperature fluctuations and thawing are the main issues to achieving long frozen dough shelf life great detail is paid to shipping, warehousing and distribution of commercially made frozen dough. Most go so far as to own and operate their own fleet of delivery trucks/"reefers". Using static freezing (walk-in freezer/0 to -10F) with little to no airflow, about the best one can hope for is six weeks before dough performance begins to get spotty, which is not a big deal if you're making pizzas at home, but it is a big deal if you are a restaurant, hotel or pizzeria and you have freezer full of the stuff and it's failing.

Tom Lehmann/The Dough Doctor

[Re: Vacuum Sealing Frozen Dough Balls](#)

2481

Since it's not the air, but instead the slow freezing rate and the constant temperature fluctuation in a home freezer (and you paid extra for that 5 Energy Star rating) that impacts the shelf life. Home freezers (especially the more efficient ones) will go through as many as 20 defrost cycles in a 24-hour period which is disastrous for the dough, or should I say the yeast.

Tom Lehmann/The Dough Doctor

[Re: Vacuum Sealing Frozen Dough Balls](#)

2482

I'm in total agreement with Steve, Spiral mixer, dough divider/rounder, plus an additional rounder so you can double round the dough balls. From there you will need to have a walk-in cooler/retarder sized to hold at least 65 to 70-dough boxes minimum (assuming 8-dough balls per box) also make sure you will have sufficient room to cross-stack the dough boxes. Assuming 10 dough boxes in a stack you will be inventorying about 6 to 8 stacks of boxes, allow a little more than double that space for cross-stacking. You will also need to have a delivery vehicle for transporting the dough balls from your "commissary" to the event. You will need to have refrigeration at the event too for holding dough, sauce, cheese and toppings. Your local health department will spell out everything else you will need to have in place both at the commissary and the event.

Tom Lehmann/The Dough Doctor

[Re: Co-packer Commercial Bakery for your Dough Balls?](#)

2483

Irishboy;

There is little to no perceptible difference in fermentation rate of finished product flavor resulting from the use of ADY, IDY or CY when used at the correct substitution levels and assuming all are of good quality and haven't been time or

temperature abused in any way. As for ADY, yes, it REALLY does need to be suspended in warm (100 to not more than 105F/37.7 to 40.5C) water for about 10-minutes prior to addition to the dough. Unlike IDY, ADY is somewhat difficult to hydrate properly which is why it must be suspended in warm water prior to use. IDY is designed to hydrate much easier/faster (which is where the "instant" comes from), as in instant hydrating so it can be added directly to the flour or if desired to the dough mass about 4 to 5-minutes prior to the completion of the mixing cycle.

Tom Lehmann/The Dough Doctor

[Re: Yeast](#)

2484

Well done! Not too shabby!! All things considered. :)

Tom Lehmann/The Dough Doctor

[Re: what is the correct process for 72 cold bulk](#)

2485

First of all, frozen pizza right out of the freezer isn't all that great :-D but after being reconed/reheated for serving, it can be pretty decent. I think what you are asking is can one make a frozen pizza using a par-baked crust which when reheated for serving is on par with a pizzeria quality pizza? Done properly, and reheated correctly I think you can get quality within the range of that from a pizzeria, remember though that pizzeria quality is literally all over the board and also since quality is highly subjective what one person thinks is great another may find it to be not so great. So let's just say this, yes you can make a decent quality frozen pizza using a par-baked crust but only if it's done correctly and consumed while still hot/warm after being baked for serving.

Tom Lehmann/The Dough Doctor

[Re: Restaurant Quality Frozen Pizza](#)

2486

Can you make bread with the dough? Sure, scale, ball, place on lightly oiled pan (a cake pan works well) and cover with a large bowl (I like to place a wet/damp towel under the cake pan as it will provide humidity to the proofing dough) allow to proof, cut a few docking slits in the top of the ball, spritz with water and bake at 400/425F until golden brown.

Yes, you can freeze the dough but only for a week or so.

Tom Lehmann/The Dough Doctor

[Re: what is the correct process for 72 cold bulk](#)

2487

The direction provided by Norcosia is spot-on. But as it sounds like you are already into the process, do not delay, remove the dough from the fridge, scale into desired weight pieces and form into balls, then allow the dough balls to sit out at room temperature (cover with a sheet of plastic to prevent drying) until they are sufficiently soft and pliable to be opened into skins for immediate use, or if you are three to five hours out from using the dough just scale, ball, oil the dough balls and place into individual plastic bags (bread bags work well, very well) twist the open end into a pony tail and tuck it under the dough ball as you place it on the counter top, then set aside to ferment at room temperature until ready to use. To remove the dough from the bag just roll the bag down around the dough ball, and invert the bag allowing the dough to strip itself out of the bag falling onto a well dusted surface, open into a skin by your preferred manner.

Tom Lehmann/The Dough Doctor

[Re: what is the correct process for 72 cold bulk](#)

2488

Believe it or not, adding the IDY (in dry form) to the mixed dough is actually the manufacturer's recommended way to add the IDY, so no harm was done.

Tom Lehmann/The Dough Doctor

[Re: Forgot to add idy](#)

2489

Yael;

When making pizza we open the dough ball into a "skin" which is ultimately topped with sauce and dressed to the order to make a pizza, but when making bread we usually just bake the dough from a round ball shape, or we can flatten it slightly and roll it into shape as when making Italian bread, French bread or baguettes. When making a typical American or British pan bread the dough is rolled flat, about 1/4-inch thick and then rolled (like a jelly roll) into a loaf shape which will be final proofed and baked to make the customary loaf.

Tom Lehmann/The Dough Doctor

[Re: My first attempt at no-knead bread](#)

2490

Did you ever look at the deck of a commercial pizza oven? Yep, I agree totally with Craig.

Tom Lehmann/The Dough Doctor

[Re: Ruined?](#)

2491

James;

Some time ago I wrote an article in Pizza Today Magazine on the impact of using different methods to open the dough on characteristics of the finished crust. You might be able to find this article in their archives. Using a dough roller/sheeter will have somewhat of a degassing effect upon the dough as compared to the other methods of opening the dough, especially opening by hand. The end result is typically a thinner, more dense/compact crumb structure. As for the problems you are experiencing running the dough through the sheeter, I offer the following:

- 1) Are you allowing the dough to warm up to at least 55 to 60F before trying the sheet it?
- 2) Are you using multiple passes through the sheeting rolls to open the dough? Typically four or more passes are required with one or two adjustments made to the thickness setting.
- 3) Are you dusting the dough ball with dusting flour before sheeting it?
- 4) Check to make sure the dough is sufficiently relaxed prior to sheeting, you can do this by simply pressing down on the dough ball, if it feels firm and springs right back sheeting will be less than desirable, but if it can be easily pressed and deflates slightly it should be sufficiently relaxed for decent sheeting properties.

A number of years ago I developed a method for opening the dough using both the sheeter (to pre-open the dough to within 2 to 3-inches of full diameter and then finishing the opening by hand to full diameter. This method results in faster, more consistent opening of the dough with the added benefit that you don't get a thin center section in the opened skin (common to many skins opened entirely by hand, especially if opened by someone without a lot of experience in hand opening dough. I have a video showing this process in actual use in a pizzeria, if you would like to

see a copy of the video just email me at <thedoughdoctor@hotmail.com> and I'll be glad to share it with you.

Tom Lehmann/The Dough Doctor

[Re: Naughty words - dough roller...and hydration rates...](#)

2492

If the guy has Hep. or some other communicable disease I think it might be viewed the same as AIDS by the courts. Then too, it appears tyhat the spit was applied prior to baking so it might be argued that any pathogens would be destroyed during the baking process, Dirty Harry had the right response to that "Do ya feel lucky?"

Tom Lehmann/The Dough Doctor

[Re: I'll pass on that first ingredient](#)

2493

Yep, that's how pita is made. Try this instead, apply 1/2 of the sauce to the skin just before placing it in the oven to par bake, this should help address the problem, you can also dock the dough with a blunt shaped dough docker.

Tom Lehmann/The Dough Doctor

[Re: Dough bubbling up](#)

2494

If you'll remember back a number of years ago when we were seeing all sorts of food tampering (glass in baby food, rat poison in Tylenol, nail polish remover in bread, etc.) Now those days are pretty well gone because of the Federal mandated sentencing guidelines for food tampering...20-years, no give or take. If you're found guilty, by, by for 20-years! This guy could be in for a BIG HURT in they decide to go after him on this, which, in all probability, they will if he doesn't pass a health test with flying colors.

Tom Lehmann/The Dough Doctor

[Re: I'll pass on that first ingredient](#)

2495

Yael;

When making dough by this process and using IDY, the IDY should first be suspended in a small amount of water at 95F/35C, and then added into the remainder of the dough water. Failure to do so can result in erratic results. Once biochemical fermentation does its thing you should be able to scrape the dough out of its container and form it into a ball, then allow the ball to rest at room temperature until it can be easily opened into a skin (this usually takes about 3-hours).

Tom Lehmann/The Dough Doctor

[Re: My first attempt at no-knead bread](#)

2496

Several years ago I was invited to spend a few days with Stanislaus during the tomato harvest to see first hand how they're harvested and processed. If anyone ever gets an invitation don't hesitate to accept it. They only harvest the fields but once, then the remainder of the crop is sold to another processor mostly for picante sauce.

Tom Lehmann/The Dough Doctor

[Re: In the Stanislaus fields with Steve Rouse](#)

2497

Is the IDY that you are using fresh, like from a recently opened package or has it been in some type of storage a for a while? I have done a huge amount of research on IDY since the late 1960's when Fermipan, then SAF first came into this country. Included in this research were studies to determine how well it held up to long term storage under various conditions...remember, at that time a 2-year shelf life was unheard of for any kind of yeast. What we found was that unopened packages (vacuum packaged) were good for at least a full year if held refrigerated, frozen or in a cool environment (70F), after two years we began to see spotty results with some samples showing a loss of as much as 25% gassing power. After the packages were opened the yeast showed much less tolerance to storage temperature, so much so that we would see a change in gassing power after as few as 3-weeks storage at ambient temperature storage when refrigerated or frozen another week or two could be added before we saw changes taking place. Here's the "kicker" in home use of IDY. When stored in the fridge or freezer every time you open the storage container you allow air to enter and contact the yeast, this air is warm and contains moisture which now condenses on the cold yeast (moisture is the #1 enemy of IDY) this leads to deterioration of the IDY as it is repeated every time the container is opened. This is why we do not recommend storing opened IDY for more than just a few weeks as the performance of the IDY cannot be predicted after that time. Actually, if you are going to store opened IDY, place it into a small plastic bag where you can reduce/eliminate any head space, close it tightly and store it at room temperature, this eliminates the condensation issue and depending upon local humidity conditions should give you 6-weeks or more usable shelf life for the IDY. When IDY begins to deteriorate you will begin to see the doughs getting slack/soft and not rising as expected for the amount of IDY being used. This is why I have raised the question regarding the age of your IDY.

Additionally, you might just try increasing the amount of IDY, if the doughs seem to get even softer and still don't rise properly you've got a pretty good idea of what might have happened if any of this applies to you.

Tom Lehmann/The Dough Doctor

[Re: Bulk Fermentation.](#)

2498

Once the dough has been fermented it is gassy and porous/less dense so it becomes an excellent insulator, as such it is hard to darn near impossible to change the temperature of the dough within a meaningful period of time, add to that the fact that you also have heat of metabolism to contend with (dough is generating heat at the rate of approximately 1F per hour). So, what to do? I would consider degassing the dough and re-balling it, then as soon as possible flatten the dough ball into something of a "puck" (like a hockey puck) shape as this will reduce the cross section of the dough piece allowing for more efficient cooling. To promote better heat transfer I would think about placing the dough puck into a plastic bag rather than a box or bowl as the thin plastic will afford better heat transfer properties. I would think you should be able to eek out an additional 24 to 48-hours by doing something along these lines.

Tom Lehmann/The Dough Doctor

[Re: Slow down dough 50-100% into fermentation?](#)

2499

We always trained our students in assembling the pizza in a manner similar to the appearance of a volcano where there are more toppings applied around the circumference (especially cheese and sauce) than in the center of the skin. This

allows for a better bake in the center of the pizza. Don't worry about the distribution of the toppings, as the pizza bakes the sauce and toppings will naturally flow towards the center as the edges of the skin begin to rise during the oven spring period of baking. There is also a strong tendency to get the center of the skin too thin as the dough ball is being opened, this results in excessive heat transfer through the dough (discussed in detail previously) resulting in a finished crust in the center section with less than an ideal bake which results in a soft, limp center to the baked pizza and droopy slices.

Tom Lehmann/The Dough Doctor

[Re: 550 degree home oven vs 600 degree pizza oven](#)

2500

I forgot to add that the bagged dough in the pictures does not appear to have had the bad pulled down around the dough ball prior to closing the bag. When correctly bagged you won't see the corners of the bag inflating with gas. There is also a possibility that the bag(s) were too large which would also result in this happening. I have found that bread bags, whether new or reused are about the right size for all but the smallest dough balls. I tried bun bags (like hamburger and hot dog buns come in) and I had a similar issue with the corners of the bag as they are a wider bag.

Tom Lehmann/The Dough Doctor

[Re: Problem with dough not staying in a ball shape - do i need to reball?](#)

2501

With that much fermentation on the poolish it is going to be quite acid which is not good for the gluten forming proteins as they are broken down by both the acids formed during fermentation and the enzymes which are present in both the yeast and the flour, much of the starch will be hydrolized into sugars to support fermentation so what's left in the poolish aside from the water? Just my estimation. So now we just take into account the water in the poolish for formulation purposes and maybe the yeast. But if the yeast runs out of nutrient to feed upon it will begin to cannibalize itself which will release glutathione into the system (remember glutathione is just like L-cysteine) making for a very slack, sticky dough characteristic.

I'm not saying it's so, that's just how I see it in my mind's eye not having seen the dough or the entire process. Call it an educated S.W.A.G.

Tom Lehmann/The Dough Doctor

[Re: Problem with dough not staying in a ball shape - do i need to reball?](#)

2502

Balancer flour is lower in protein content than All Trumps flour, so all things being equal one could expect that the lower protein flour would provide a less chewy finished crust characteristic.

Tom Lehmann/The Dough Doctor

[Re: Balancer?](#)

2503

After 18-hours fermentation you should not be including the flour in the poolish in with the dough flour as it is essentially non functional as a structure builder (strengthenener) in the dough. So, unless I've missed something, this is what I'm looking at here: warm water + ice = 280-grams + 45 grams in the poolish for a total of 325-grams of water. Total flour (excluding the flour in the poolish) = 353-grams. Total absorption (325 divided by 353 X 100) = 92% dough absorption.

Tom Lehmann/The Dough Doctor

[Re: Problem with dough not staying in a ball shape - do i need to reball?](#)

2504

In your reference to the yeast you say 0.034 @ 70F. would you please explain what you mean by this?

Tom Lehmann/The Dough Doctor

[Re: Bulk Fermentation.](#)

2505

Yay;

To calculate the dough absorption just divide the weight of the water added to the dough by the weight of the total flour and multiply by 100. If you provide us with the flour weight as well as the weight of the water you added to the dough we can do the calculation for you.

Tom Lehmann/The Dough Doctor

[Re: Problem with dough not staying in a ball shape - do i need to reball?](#)

2506

In view of the "J" hook I'm guessing that your dough might be under mixed which by itself results in a sticky dough. Maybe follow up on the machine mixing with some hand kneading before doing the bulk fermentation.

Tom Lehmann/The Dough Doctor

[Re: Bulk Fermentation.](#)

2507

One trick to finding good hardwood is in locating a lumber mill and buying their trim scrap pieces. We used to buy it by the pick-up load for just a few dollars at a mill just outside of St. Paul, Arkansas. People down there buy it to feed their wood burning furnaces during the winter months.

Tom Lehmann/The Dough Doctor

[Re: Best types of wood for pizza ovens](#)

2508

Actually...hydration rate is the rate that the flour absorbs the water, not the amount of water actually being absorbed. The temperature of the flour can have a significant impact on the hydration rate of the flour with cold flour having a slower hydration rate than warm flour. This is why the Brabender Farinograph laboratory instrument for measuring both flour absorption and hydration rate) has a temperature controlled mixing bowl. Your math is spot-on! :) and your example explained it quite well.

Tom Lehmann/The Dough Doctor

[Re: Flour VWG protein calculator](#)

2509

When we used wood fired ovens we used to use seasoned split oak exclusively.

Tom Lehmann/The Dough Doctor

[Re: Best types of wood for pizza ovens](#)

2510

Three questions: What was the finished dough temperature? What was the total dough absorption? What was the temperature of the fridge?

Tom Lehmann/The Dough Doctor

[Re: Problem with dough not staying in a ball shape - do i need to reball?](#)

2511

The water pooling in the corners of your fermentation containers is an indication of one of two things;

- 1) You are not leaving the containers uncovered long enough after placing them into the fridge.
- 2) You are not leaving the containers uncovered after placing them into the fridge. Physics 101, dough is warmer than the fridge, dough heats air trapped in the container, moisture moves from the dough to the warm air, container walls cool down causing moisture inside the container to condense against the container walls....gravity does the rest.

Pooled water in the container can cause problems such as sticky dough, extreme or excessive bubbling or dough sporadically sticking to the peel.

Tom Lehmann/The Dough Doctor

[Re: Kneading vs Tearing Dough in Mixer](#)

2512

Straight mozzarella is pretty mild in flavor so if it's flavor you're looking for try blending it with another cheese. My personal favorite is to add a combination of Parmesan and Romano to augment the flavor of the mozzarella. If it's butter fat content you're looking for use straight provolone as it's higher in fat content than mozzarella but the flavor will not be all that different unless it's a smoked provolone.

Tom Lehmann/The Dough Doctor

[Re: Highest butterfat Low Moisture Whole Milk loaf Mozzarella cheese?](#)

2513

Since pizza doughs are fermented for long periods of time the finished dough temperature is important in achieving a consistent quality dough as well as in preventing over fermented doughs. You mention that your dough appears to be over fermented, what is your finished dough temperature and how are you managing the dough after mixing?

You can add the CY just as it is, the mixer will disperse it throughout the dough it for you, or if you wish, you can make a yeast suspension using a small portion of the dough water. Either way works well.

Tom Lehmann/The Dough Doctor

[Re: Kneading vs Tearing Dough in Mixer](#)

2514

I'd start at 65%, this will get you close enough to make minor adjustments as needed.

Tom Lehmann/The Dough Doctor

[Re: 00/bread flour mix: what percent hydration?](#)

2515

What type of pizza are you wanting to make?

Tom Lehmann/The Dough Doctor

[Re: 00/bread flour mix: what percent hydration?](#)

2516

The only way to get that pastry crust characteristic is to incorporate pieces of hard

fat into the dough, much like making a long flake pie crust dough or folding in some way to get laminations.

Try this:

Refrigerate the flour overnight.

Add 10% butter or margarine (must also be refrigerated).

Cut the fat into the flour as one would when making a flaky pie crust dough.

Adjust dough absorption to 50%.

Use cold water right out of the fridge when making the dough.

Put salt, sugar and compressed yeast into the water and stir until the yeast is suspended.

Immediately add water to the flour-fat mixture.

Mix until a shaggy dough is achieved. DO NOT OVER MIX.

Scale to desired weight and form into puck shape.

Place into individual plastic food bags, twist to close and place into fridge to CF for at least 48-hours.

Remove from fridge, allow the temper to 50F and roll out (does not open by hand well at all) using a rolling pin or pastry pin to desired thickness, trim to round shape, dock, dress and bake.

Tom Lehmann/The Dough Doctor

[Re: Pie/croissant - like dough - no solution via forum](#)

2517

The only way vital wheat gluten can be added is to dry blend it into the flour. DO NOT allow the VWG to come into direct contact with water as this will cause it to "pill" (form lumps) which are next to impossibility to work out. When dispersed into the dry flour the gluten will hydrate normally right along with the flour.

Tom Lehmann/The Dough Doctor

[Re: Adding gluten to low-protein flour?](#)

2518

When storing pre-opened pizza skins we typically place them individually onto pizza screens and place into the cooler on a wire tree rack for at least 30 to 45-minutes to thoroughly chill, then place a piece of silicone paper on a screen and place one of the chilled skins on the paper, place another skin on that paper and another skin, build a stack not more than 5 high, place back onto the wire tree rack and cover with a plastic bag.

Tom Lehmann/The Dough Doctor

[Re: In a commercial setting...](#)

2519

A good place to start would be to get an electronic scale (quite economical) and begin scaling your ingredients so you know what you have for a dough and this will also allow you to make meaningful changes and follow the changes in the dough to achieve the dough characteristics you're looking for. Additionally, don't allow the dough to warm to room temperature after the CF period, instead, allow it to come to 55 to 60F before you begin opening the dough into pizza skins, this step alone may significantly change the way your dough handles.

Tom Lehmann/The Dough Doctor

[Re: Dough and Oven Temp](#)

2520

Very few people are looking for a yeast/yeasty flavor, instead what they are looking for is a fermentation flavor, as I correct in assuming this? (yeast has a lot of the

flavor characteristics of old, wet newspaper). Your dough formula as well as dough management procedure would be very helpful in answering your question.

Tom Lehmann/The Dough Doctor

[Re: dough flavor](#)

2521

If your dough absorption is up around 70% or higher an autolyse will certainly help in getting the water incorporated into the flour but if it's lower then that you probably will not see as much benefit when using a mechanical mixer...total hand mixing yes, but as with what you have described, probably not too much benefit unless you have the high absorption. If it's just a "puffier" edge that you're looking for an increase in dough absorption will probably help as might an increase in yeast but I can't say for sure as I don't know what your dough formula or management procedure is. Anything which will improve/increase oven spring should be a move in the right direction for you.

Tom Lehmann/The Dough Doctor

[Re: Autolyse Question](#)

2522

When it comes to pizza (specific to this response) taste, aroma (flavor = taste and aroma) as well as textural and mastication properties are all purely subjective and based on an individual's perception, for that reason I don't think there can be any "scientific" base line regarding these characteristics. It is well known that in some societies certain characteristics might be preferred over others such as in Japan where things that are tart (sour) and crispy (hard) have not historically been preferred....that is now changing as new "Western" foods are continually being introduced into Japan's culture. In northern Turkey, rancid yak butter is a delicacy, and in Australia, Vegemite is still consumed but, admitted by most Australians that I've spoken to, is an "acquired" taste. Even here in the U.S. flavor and textural preferences are all over the board, so much so that Ragu has regional formulas for their Ragu sauce. About the best one can ever hope for is to identify specific regional preferences and even then it's far from accurate. The good news about all of this is that it forms the foundation upon which the popularity of pizza is built, there are many, many differences in pizza so there is something for everyone and add to that as a product ages in the market over time we begin looking for something a little different.....show of hands please, how many of us has NOT succumbed that? Pizza is continually changing and evolving for the better or worse, so if you don't like one pizza there will always be another one that you enjoy. Don't get too hung up on flavor and texture, find what you like and concentrate on it, you're making it for YOU, so you can develop the pizza specific to your own likes and if you don't like it you know who to blame. Lastly, experiment, over time as our tastes change....yes, they do change, you may want to try something a little different and experimenting is an excellent way to make ourselves more informed, enlightened, and get some great pizza along the way for our trouble.

Tom Lehmann/The Dough Doctor

[Re: Natural leavening Questions](#)

2523

Stickiness is generally an indication of either too much diastatic malt or the use of diastatic malt where a nondiastatic malt is called for. Darn near impossible to get rid of that stickiness too. The excessive softness is most likely due to excessive fermentation. If the stickiness persists try using a nondiastatic malt.

Tom Lehmann/The Dough Doctor

[Re: Sticky, dough too soft. Need help!](#)

2524

The main purpose of the autolyse (flour + water) is to allow time for better flour hydration (absorption of water into the flour) which can be beneficial when making very high absorption doughs or mixing the dough by hand. Water at 70 to 75F is all that is needed, then adjust the temperature of the remaining water to give you a finished/mixed dough at the temperature you are targeting (usually around 75F but may vary).

Tom Lehmann/The Dough Doctor

[Re: Autolyse Question](#)

2525

Any idea of the finished dough temperature? That will have a significant impact upon how much fermentation the dough is exposed to during any given period of time. Typically we look for a finished dough temperature in the 70 to 75F range. The dough that you got from the pizzeria most likely used a dough management procedure similar to this: Mix (finished dough temperature (75 to 80F), immediately take to the bench for scaling and balling, place into dough boxes, oil the top of the dough balls, cross-stack in the cooler for at least 2.5-hours (variable with dough ball weight), down-stack and allow to cold ferment for 24 to 48-hours, remove from cooler and allow dough balls to reach an internal temperature of 50F before opening into skins. The dough balls typically remain good to work with for a period of 2.5 to 3-hours after reaching 50F. (sound familiar?). The yeast level is usually around 0.3 to 0.4% ADY with a dough absorption of 63%.

Tom Lehmann/The Dough Doctor

[Re: Sticky, dough too soft. Need help!](#)

2526

The question is was it a pastry crust (at one time Tony's/Schwan's Food Service/Frozen pizza) made pizzas using a laminated pastry type dough, or was it a cracker type crust? The shape of the crumb cells is a tip off as to which it was. The laminated pastry type crust will have elongated (football shaped holes, it's referred to as fish mouting) while a cracker type crust will have round shaped cell structure. There is a huge difference between the two. Also, at one time some pizzerias were experimenting with sheeting the dough and folding into quarters (fold in half and then in half again) and giving it a final sheeting with 2 to 3 passes through the sheeter. This was typically done with a relatively low absorption (55 to 57%) dough while using a lower (10.7 to 11.2%) protein flour. Typical 48-hour CF dough was used. No roll-in was ever applied to these doughs.

To be more specific more information is really needed.

Tom Lehmann/The Dough Doctor

[Re: Pie/croissant - like dough - no solution via forum](#)

2527

Much crust color development? As you need to reach temperatures in the 340 to 350F range for caramelization of sugars to take place how do you develop crust color at those low temperatures?

Tom Lehmann/The Dough Doctor

[Re: Stop them sticking!](#)

2528

Temperature is the number one driver of fermentation, the colder the dough is the

slower it will ferment and the warmer it is the faster it will ferment within any given period of time.

Also, warm dough will expand more freely than cold dough so even with all things equal the colder dough will be firmer and show less expansion than a warmer dough. This is why we suggest allowing the dough balls to warm-up a bit after removing them from the fridge before opening them into skins.

Tom Lehmann/The Dough Doctor

[Re: Dough expansion when fermenting](#)

2529

Did the sausage bake up crispy like bacon? ;D

Tom Lehmann/The Dough Doctor

[Re: Stop them sticking!](#)

2530

Keep your existing planetary mixer for everything else but the dough, once you use a spiral dough mixer there is no going back to a planetary mixer for mixing dough :).

Tom Lehmann/The Dough Doctor

[Re: Planetary vs. Spiral mixers](#)

2531

Temperatures in the 65 to 75F range will support fermentation just fine so room temperature should work for you. 70% absorption seems a bit high for what you are planning to do. I'd suggest reducing the total dough absorption to 60% and then working up from there in 2% or 5% increments.

Tom Lehmann/The Dough Doctor

[Re: How Much Protein per 100gr for High Hydration Dough?](#)

2532

I just came back from a training project where we made pizzas for the entire day. We used my "go to" blend of equal parts of regular flour, fine corn meal and semolina flour and never had a pizza stick all day, and some of the dough balls that we were working with by the end of the day were past their prime and well over fermented with a burning desire to stick to something but none did when we were using that blend for our dusting flour and peel dust. All pizzas were dressed on a wood prep-peel and peeled into the oven off of the prep-peel.

Another thing that you can do is to dress the pizza on a well seasoned screen, place the pizza into the oven on the screen and after about 2-minutes (maybe a little less) you will be able to slide a metal peel under the pizza and lift it off of the screen and place it onto the deck to finish baking.

Tom Lehmann/The Dough Doctor

[Re: Stop them sticking!](#)

2533

Additionally, we need to know how the flour was portioned by the cup, poured in and struck off level, sifter into the cup or scooped as all will have a different weight. Best thing is the the person to get an actual weight on the amount (3.5-cups) of flour they are using and go from there. Also, define "plain" flour". Knowing more about the flour would help too.

One other thing that might help would be to blend the ingredients together with a wood spoon and place it into a lightly oiled bowl to ferment for about 2-hours to get some biochemical gluten development before kneading the dough, or just

fermenting the dough for several hours or overnight in the fridge to achieve full biochemical gluten development.

Tom Lehmann/The Dough Doctor

[Re: Look at this mess](#)

2534

There are two ways to identify the presence of the dreaded gum line.

1) Cut a wedge from the pizza, grasping the wedge at the heel (crust/rim), pull it apart as if tearing it in two, if the crust cleaves cleanly, like a slice of bread being pulled apart you don't have a gum line. If it feathers (stretches and forms a film as it is pulled apart you have a gum line.

2) Turn the pizza slice upside down and using a razor blade or sharp box knife, carefully cut through the crust from heel to point, then fold so both cut surfaces are exposed (greasy sides together), if you have a gum line you will see a distinct gray area just below the sauce. If you see just a paper thin gray line, this is normal and you do not have a gum line. I normally do both tests to determine the presence or absence of a gum line. These tests are best done about 3 to 5-minutes after removing the pizza from the oven.

NOTE: DO NOT cut the pizza from the top to ascertain if a gum line is present or not. The sauce and cheese will be pulled down over the crumb portion and the crumb will be damaged as a result of cutting from the top which will make this an exercise in futility.

Pictures are the only way to make an accurate determination without actually having the pizza in ones hands.

Tom Lehmann/The Dough Doctor

[Re: Is this a gum line?](#)

2535

50-years ago the baking industry was heavily invested in continuous mixing systems (batter whipped breads as they became known as) which required a very strong, high protein flour to function well so bakers pressured millers to go back to the plant breeders to develop higher protein wheat varieties with stronger gluten characteristics. Plant breeders responded and to some extent the protein content increased (I worked with experimentally grown HRW that was over 20% protein content and was so strong the gluten couldn't be developed in less than 30-minutes of high speed mixing (industry standard requires that the gluten be developed with 10 to 12-minutes of high speed mixing) needless to say these wheat varieties were never released for planting. The result of the efforts by the plant breeders was only limited increase in protein content BUT something happened to the protein characteristics in that it became much stronger (I don't know if there is any correlation, but this is also in the same time frame that we begin to hear more about wheat protein allergies and gluten intolerance issues).

By the time this was happening the baking industry had gone away from the continuous mixing systems and had reverted back to the sponge and dough bread making processes which did not require the strong flours but due to their previous requests from many years earlier (it took 10 to 15-years to develop the new wheat varieties to produce the flour characteristics that the bakers were asking for) so now they were asking the wheat breeders to reverse the direction of the pendulum and develop less tenacious wheat varieties, but alas.....the genie was out of the bottle and the breeders were unable to eliminate the strong characteristic of the gluten from their new wheat varieties.

Back in the 50's and 60's a 10.5% protein HRW was considered to be an industrial wheat only good for non bakery applications but now they were said to be too strong! To this day I don't think anybody really knows what happened to the protein to result in the change that we saw. AIB developed a special group and studied it for well over 20-years with no success as did every university with a cereal science department.

Now, this is where the fun begins, much of the world population consumes rice but there is a world wide shortage of rice so those rice consuming countries have changed over to using greater amounts of wheat, this has been going on for many years now. This has resulted in a greater world demand for wheat, especially HRW#2, a very popular grade of export wheat from the U.S. so wheat acreage has gone up and wheat was planted where it normally would not grow but irrigation and fertilizer made it possible, now irrigation is more strictly regulated and fertilizer prices are out of sight cost wise as well as fuel prices to apply it, so wheat acreage has diminished over the years (corn has greatly replaced it) but the demand still remains so we are now fertilizing less acreage of wheat and the breeders are concentrating more on yield than baking properties as most of the wheat is exported anyhow, and what you now see is what you get.

Typically, as wheat yield goes up, the protein content goes down and vice versa. When I was heavily involved in wheat testing we used to say that the first priority of the wheat breeders was yield (agronomics) and the second was performance.....I think the same is still true today, as ever more land is lost for farming (how many new subdivisions have you seen where there used to be a farm field?) the emphasis will continue to be on yield over performance. Add to all of that, there might be some improved wheat varieties developed that will never see the light of day because that don't have the necessary resistance to drought, rust/fungal infections, or insect resistance. These are now all vital characteristics in new wheat varieties because we no longer have the chemicals needed to address these issues in the field so the resistance has to be bred into the variety prior to release for planting. You have heard me say it before but I'll say it again, one of my two heroes is the flour miller. Considering what they have to work with, they perform a near miracle in giving us the level of consistency we see in our flour. My other hero is Betty Crocker....have you ever see any of her cake mixes fail? :)

Tom Lehmann/The Dough Doctor

[Re: Impending Gluten Crisis--BakingBusiness.com](#)

2536

When we used to make emergency sourdough pizzas we used to double up on the amount of starter used and then spiked the dough with 1% compressed yeast or the equivalent of IDY or ADY, adjust the water temperature to give a finished dough temperature in the 85 to 90F range and we had a true "emergency dough" that went from mixer to oven in about 2 to 2.5-hours. This was developed for stores that might be working with a sourdough starter and needed dough in a hurry for whatever reason.

Tom Lehmann/The Dough Doctor

[Re: SD emergency pizza?](#)

2537

Hummm, I've used the ice calculations for many years and it has always worked well for me. Remember, it works in "F" only not in "C". I used to have the calculations in "C" but I have no idea of where they might be now. Also, remember

you will be replacing an equal amount (weight) of water with ice.
Maybe if you could show your math I might be able to see what the problem is.
Tom Lehmann/The Dough Doctor
[Re: Formula for water temp](#)
2538

Actually, it sounds pretty good just as it is, but since I can never leave well enough alone I'd also add a few fresh onion and tomato slices and top with a light sprinkling of shredded Parmesan cheese. When I make my seafood pizzas I use a basic Alfredo sauce for the base which I make on the stove top by mixing Parmesan cheese and cream and gently heating until moderately thick and creamy (adjust viscosity by adding more cream if necessary) or if too thin add a bit more Parmesan cheese. I then add garlic and white pepper to taste. I use pre-cooked seafood but the fish is used raw. I thin slice it and place on the pizza letting the oven heat cook it for me. In addition to salmon you can use just about any firm flesh fish for a seafood pizza. If you search back in the archives here you will find some discussion on seafood pizzas which you may find of interest for different presentations.

Tom Lehmann/The Dough Doctor
[Re: Tarragon salmon pizza Question](#)
2539

Most of those that I've worked with ferment the dough in large food safe containers at room temperature...yes, they do strive to achieve their targeted finished dough temperature. After the fermentation process they scale/ball and rest until the dough balls can be opened into skins. Some will hold the dough balls or skins under refrigeration (best results are achieved with the skins held under refrigeration as I've described).

If you have a spiral mixer you should be able to put the additional 15% scrap dough in right with your full size fresh dough but if you have a planetary mixer, unless you're mixing smaller size doughs already, you will need to adjust the total dough size so as not to overload the mixer.

Tom Lehmann/The Dough Doctor
[Re: In a commercial setting...](#)
2540

That rest period between mixing and balling aka bulk fermentation is an optional step. I personally never use a rest period as it leads to too much inconsistency in the dough as a result of lack of temperature control if I should miss my target finished dough temperature. My preference is also for the flavor developed during cold fermentation as opposed to room temperature fermentation, but if you have a preference for the flavors developed using room temperature fermentation not a problem, work out a bulk fermentation time that works with your dough formula and finished dough temperature.

Tom Lehmann/The Dough Doctor
[Re: Is it necessary to rest the dough?](#)
2541

Victor;

Easy to do, just manage the dough by your preferred procedure, as soon as you open the dough balls into skins place them onto screens or some other suitable platform, immediately place in the retarder (commercial name for the fridge) on a wire tree rack, after 30-minutes in the retarder cover the tree racks with suitable plastic bags to prevent drying. The pre-opened skins will last all day. Depending

upon your dough formulation you may be able to use the skins directly from the retarder or you might need to allow them to warm AT room temperature for a couple of minutes before dressing and baking. Before you ask, no, I am not saying to bake the pizzas on the screens, they serve only as a carrier in this case. I usually slip the skins off of the screen onto a wood prep peel, then adjust it a little using my hands and fingers prior to dressing the skin to the order and baking.

In most cases we can hold the pre-opened skins over night for FIFO use on the following day, this will depend upon how the dough performs on the following day (all formulas are different in this regard). In a worse case scenario you can add your scrap dough back to your new dough at a rate of up to 15% of the new dough weight, more than that and it will begin to impact the finished crust quality characteristics...remember, in a commercial setting consistency is the key to success.

Tom Lehmann/The Dough Doctor

[Re: In a commercial setting...](#)

2542

I don't like "recipes" since they're based on volumetric portions. When I see a "recipe" that looks interesting to me the first thing I do is to convert it to a "formula" based on weight measures, that way I can accurately replicate it if I want to or if necessary (more often than not) I can easily manipulate the ingredients to give me something based on my specific likes.

I am not too "hung-up" on using "nothing but the best ingredients" Papa John's has already bought up all of the best ingredients...LOL. Like many of us here I like to "fiddle" with the ingredients and procedures....we're not making rocket fuel or nitroglycerin, just good food, and it always seems to taste a little better after I've played with it a bit. :chef:

Tom Lehmann/The Dough Doctor

[Re: What's your take on recipes?](#)

2543

I'm not quite sure what you are asking but the temperature of the dough will have a major impact upon how much the dough rises/ferments during any relaxation period. The warmer the dough the faster it will rise/ferment and the cooler it is the slower it will rise/ferment. This is why it is so important to control the finished (mixed) dough temperature to some pre-determined target temperature and then strive to hit or come reasonably close to that temperature with each dough.

Tom Lehmann/The Dough Doctor

[Re: Is it necessary to rest the dough?](#)

2544

While defatted soy flour contains roughly 51% protein it is a non gluten forming protein so it really doesn't benefit flour in any way. Soy flour typically has 100% absorption, meaning that for each 1% soy flour added you need to increase the dough absorption by 1%. The main reason for adding soy flour to a dough is to provide a level of improved nutrition to the baked product. A lot of the flour sent overseas through the AID Program is fortified with up to 30% soy flour. In the commercial baking industry defatted soy flour is commonly used as a milk substitute in various pan breads and rolls/buns. It is also used in yeast raised donut mix formulations to adjust the absorption of the mix.

Tom Lehmann/The Dough Doctor

[Re: Soy Flour](#)

2545

QJ is way ahead of me :).

What is the total weight of your "bulk" dough and what is the temperature of the dough?

Tom Lehmann/The Dough Doctor

[Re: work flow for long cold ferments](#)

2546

I'm not overly fond of wrapping in plastic wrap/stretch wrap as I find that the dough has a greater tendency to stick to it than it does a plastic food bag, just my observation. Additionally, when handled correctly, the food bags can be reused any number of times before discarding them.

Placing the dough balls that have been plastic wrapped into a container only makes sense if you place it into the container and cover it after the dough has been well chilled outside of the container for at least 3 to 4-hours. Otherwise you're more likely than not to be trapping heat in the dough ball(s) which can result in an inconsistent rate of fermentation among your dough balls. Additionally, wrapping the dough balls in plastic wrap makes it difficult, even for me, to ascertain the quality of the dough as it pertains to the amount of fermentation it has received. The only observation I've been able to make regarding fermentation with plastic (stretch wrap) dough balls is that when they might be over proofed the plastic wrap will be stretched tighter than a drum and the dough will look like it is ready to tear through or pop the plastic membrane at any minute.

Tom Lehmann/The Dough Doctor

[Re: Storing Premade Dough Balls.](#)

2547

Mike;

You're probably going to be ahead by storing them in the fridge. With a little luck you should be able to hold them up to three days or so, and if they begin looking over fermented just re-ball, lightly oil and place into individual plastic bags (food saver bags, not Zip-Lock), twist the open end to form a pony tail and tuck it under the dough ball as you place it into the fridge and you should be able to get a few more days from it.

Tom Lehmann/The Dough Doctor

[Re: Storing Premade Dough Balls.](#)

2548

The best way to slack-out frozen dough balls is to lightly oil then while frozen and then place them into plastic food bags, twist the open end into a pony tail and tuck under the dough ball as you place it into the fridge, allow to thaw at least over night, then remove from fridge and allow to temper to 50 to 60F before opening. My favorite way though is to remove the dough from the fridge allowing it to warm to 60F and then placing it back into the fridge for use later in the day or better yet, on the following day, just remember to allow the dough to temper to 50 to 60F prior to opening.

Tom Lehmann/The Dough Doctor

[Re: UPDATED on Frozen Dough Balls](#)

2549

The question begging to be asked is: What is the speed/r.p.m. of the spiral mixing arm?

Tom Lehmann/The Dough Doctor

[Re: what dough mixer!](#)

2550

Dry milk solids, unless they are specifically labeled as "bakery grade" are low heat treatment meaning that it has not had the whey protein denatured so it will still need to be scalded prior to use or it can have a reducing (softening) effect upon the dough. Bakery grade milk solids have been exposed to "high" heat treatment so the scalding process is not required. Along the same lines, any low heat dry milk solids can also be used for making cheese but high heat cannot. This is why back when the CCC (Commodity Credit Corporation) had all that dry milk powder that was bought through the dairy subsidy program in government storage it was specified that it be low heat treatment which allowed the schools to draw upon the stocks of CCC dry milk and trade it to dairies in exchange for cartons of milk. The traded dry milk solids were then used in cheese production by the dairies. I had a project with the CCC where I was traveling to schools and universities across the U.S. for two years showing them how to utilize maximum amounts of dry milk solids in baked goods. The scalding of the milk is only required in yeast leavened products, any type of milk or milk solids can be used in chemically leavened products without the need to scald.

Tom Lehmann/The Dough Doctor

[Re: Milk in dough](#)

2551

Julius;

For each 1% (bakers percent based on flour weight) of vital wheat gluten (VWG) that you add you will increase the protein content of the flour by 0.6%. If your existing flour has 10% protein content and you want to increase it to 14% (like All Trumps flour commonly used in N.Y.) you will need to add 4% additional protein so $4 \div 0.6 = 6.6\%$ VWG to be added. For each 1% VWG added be sure to increase the dough absorption by 1.8 times the weight of the VWG added.

NOTE: Be sure to dry blend the VWG into the flour before adding any liquids.

Tom Lehmann/The Dough Doctor

[Re: Adding gluten to low-protein flour?](#)

2552

I wrote an entire article on "the dreaded gum line" for PMQ Magazine some time back, maybe you can find it in their archives. There are MANY different things that can cause the gum line both singularly and in combination so it's impossible to immediately put a finger on the cause but maybe we can work through it.

Can you send me a picture of the pan you're baking the pizzas in? Also, what is the crown height (difference between the deck surface and inside top) of your oven?

Tom Lehmann/The Dough Doctor

[Re: Gum line issues](#)

2553

This should work for you;

Open skins in your normal manner, place onto pizza screens and refrigerate thoroughly, apply a LIGHT application of oil to the top of the pizza skin followed by application of the chilled sauce, place back into the fridge until needed (assuming 2 to 3-hours). Note: If you place a piece of parchment paper under each skin as you place it on the screen you can dress the skins and peel them (just as you are presently doing) into the oven in a timely manner without disrupting the dressed skin. As one pizza is baking the next one can be dressed and ready to go into the

oven as soon as the baked pizza is removed.....assuming you can maintain temperature of the deck when baking back to back.

You can fully dress the pizzas in this manner too but in that case I'd recommend leaving them out to warm slightly (15-minutes?) as part of the staging of the pizzas prior to baking.

Tom Lehmann/The Dough Doctor

[Re: Prepping Pizzas in Advance for Party](#)

2554

Conditions in a dough or liquid ferment are not correct for reproduction as there is a deficiency of oxygen.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2555

Can you provide any pictures? Top, bottom and cut edge would be helpful. Are the pizzas pre-baked and just reheated for serving or are they baked to the order as most pizzas are? TMI can also be a good thing when you're trying to figure out how somebody is doing something.

Tom Lehmann/The Dough Doctor

[Re: Crunchy crouton like pan pizza\(grandma pie\)](#)

2556

Your sourdough starter is comprised of both wild yeasts as well as lactic acid forming bacteria. The yeast doesn't multiply, but the bacteria, like other bacteria freely multiply and that is what you are seeing.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2557

The actual number of yeast cells does not increase substantially, instead what happens is that daughter cells mature as do budded cells but further budding does not occur unless significant amounts of oxygen and nutrient are introduced into the yeast slurry and held under strict pH and temperature conditions, this is how yeast is cultivated by the major manufacturers. If yeast cells were to multiply during fermentation we would have run away fermentation at the slightest provocation. I'm sure you can research how bakers yeast is made on the Internet to get more information and if anyone has the Pyler books (Baking Science and Technology/E.J. Pyler) I believe it's covered in there too.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2558

From a technical standpoint, yes, but from a practical application, no. The time gained wouldn't be all that great and there would be a fear of reducing the yeast to a level where it cannot produce sufficient leavening power to provide the desired oven spring which opens a Pandora's Box of good things to happen such as development of a gum line, tough, chewy crust, lack of crispiness, sometimes even getting the bottom to color up properly can result when the yeast is reduced too much. I see this quite frequently at pizzerias where they don't cross-stack or don't cross-stack long enough and the dough blows so they reduce the yeast to address the blown dough issue and end up with a plethora of new issues to contend with.

Tom Lehmann/The Dough Doctor

[Re: Warming up the dough - Why?](#)

2559

So what you have there is a brew. It's common to not include the flour in the brew as part of your 100% dough flour as it is pretty well degraded due to all that fermentation.

Since yeast does not multiply during fermentation you will have the same amount after the fermentation period as you added to the brew when you set it, since you are adding only 75% of the brew you are getting only about 75% of the yeast that you added (0.36×75 press the "%" key and read 0.27-gram. So 0.27 divided by $453 \times 100 = 0.0596\%$ yeast being provided by the brew (assuming 100% yeast survival). Considering that a typical pizza dough formulation will call for something on the order of 0.5 to 1% CY, I think you would be safe by just adding 0.5 to 1% CY with or without the addition of the brew, however, if the brew is deleted you will need to add the water contained in the brew to the dough formula and your dough management procedure will need to include sufficient fermentation time to condition the dough and develop flavor for the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2560

One piece is still missing: How long do you ferment the poolish for and what is the temperature?

Tom Lehmann/the Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2561

It sounds like you might be making a brew but it's impossible to say without knowing how much water was used, how much yeast was added and how much flour was incorporated, then I would need to know your actual dough formula including how much of the "brew" you usually add to make a dough.

What type of yeast are you getting from your local bakery? From the description it (directions) it sounds like ADY or IDY. Most bakeries use fresh yeast/compressed yeast/wet yeast but the directions you provided clearly calls for some form of dry yeast.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2562

It might help a bit with the handling.

Tom Lehmann/The Dough Doctor

[Re: Does hydration change during fermentation?](#)

2563

Matt;

That certainly sounds like your dough might be getting too gassy due to allowing it to warm up too much. Been there, done that too with the bubbles in the dough. As the bubbles form they displace dough so when you pop them there is little or no dough under them which results in the thin spots. I normally just treat it like a hole in the dough, pull a piece of surrounding dough over the thin spot or hole and press it down to lock it in place and hope for the best.

Tom Lehmann/The Dough Doctor

[Re: Warming up the dough - Why?](#)

My personal experience with Caputo flours is that they do not have a lot of tolerance to long fermentation times. I've found that the doughs made with Caputo were generally getting too soft to handle after 36-hours of total fermentation time (in the cooler), and seemed to be at their best after 24-hours.

Specific to your question, both water/dough absorption and fermentation have a significant impact upon the dough viscosity so a dough that is becoming too soft and sticky "might" benefit from the use of a lower dough absorption but if the stickiness is due to breakdown of protein and hydrolizing of starch into sugars there will be nothing that can be done to alleviate the stickiness.

Tom Lehmann/The Dough Doctor

[Re: Does hydration change during fermentation?](#)

2565

The greatest downside to letting the dough/dough balls rest at room temperature before placing them into the fridge is that during those 20-minutes the dough is beginning to ferment causing the dough density to change (become less dense) and become a better insulator as it does so. This in turn magnifies the effect of the finished dough temperature as it impacts the rate of fermentation, this is not a problem if your finished dough temperature is always "spot-on" but if you're like me you have those days when when you can only scratch your head and wonder how you ended up with the finished dough temperature indicated on the thermometer as it's not even close to target, this is when the real fun begins as the entire fermentation cart has been upset and you will now be forced into making a judgement call as to when the dough is ready to use and sometimes you win and well.....sometimes you don't. All of this can be avoided or at least minimized by taking the dough straight to the fridge as soon as possible after mixing and balling.

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2566

If the "starter" is made using domestic yeast it is commonly referred to as a liquid ferment or brew. If there is sufficient flour present to give it a dough like consistency it is referred to as a "sponge". Essentially all white pan bread sold in the U.S. through the chain stores (supermarkets) is made from one of these two ferment systems. Typically the ferment provides about 50% of the required amount of yeast to leaven the dough with the rest of the yeast being added to the dough (commonly referred to as a "yeast spike"). The liquid ferment/brew/sponge main purpose is to condition a portion of the flour and to provide flavor for the finished product, the longer the fermentation time the more "fermentation" flavor will result. Without knowledge of your entire process I cannot say if the formula might need to be changed if you leave the yeast spike out but try it to see what you get, if you want more oven spring you can always add a small amount back as a spike.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2567

If you delete the domestic yeast from your starter then you will need to adjust your procedure to accommodate the leavening from your starter.....some might say that you'll be making the dough by a sourdough process.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2568

E-300 appears to be what we call a "cocktail" ingredient comprised of ascorbic acid and amylase enzyme. You will see this here in the U.S. too. Puratos Company is a big supplier of these "cocktail" ingredients.

Tom Lehmann/The Dough Doctor

[Re: Malt + amylase in flour... Why ?](#)

2569

Not really, I guess if you are talking about just a dough ball then doubling in size might be considered a good target, but in pizza production where we can go through a bulk fermentation period of a day or more and then scale and ball and give RF or CF to achieve final conditioning of the dough for opening into skins. As you can see, in this case there is a lot more fermentation than what we typically think of for bread (artisan breads excluded). The only dough test that applies to both bread and pizza doughs is the finger indentation test where a finger is pushed into the dough to the first joint and removed, if the dough doesn't do anything it is not ready for opening but if it recedes slightly it's ready for opening, if it collapses it's over fermented for bread but in most cases it will still work for making great pizzas. This is why we see so many different dough management procedures being used for making pizza with amount of total fermentation all over the board while with bread (think pan breads) you're limited to following some pretty common and basic guidelines for fermentation.

Tom Lehmann/The Dough Doctor

[Re: Question on cold fermentation and doubled rise](#)

2570

Scaling error is the only thing that comes to mind. I'm not familiar with the specific starter so I can't comment on how using less of it might impact the dough and finished crust and it would make a difference if the flour or water were mis-scaled so it's impossible to say.

Tom Lehmann/The Dough Doctor

[Re: Tony's Poolish & Tiga Recipe's not producing the proper weight starter??](#)

2571

Doubling of the dough volume is about right for bread but pizza technology is different from bread technology as the dough doesn't need to expand to nearly the volume that it does when making bread, this is why we can ferment the dough for extended periods of time for flavor development. The difference between cold fermenting and fermenting at room temperature is primarily in the type of flavor developed aside from any convenience factors.

Tom Lehmann/The Dough Doctor

[Re: Question on cold fermentation and doubled rise](#)

2572

That first dough ball appears to have been rounded twice back to back which is why it has a rough/lumpy appearance. In a case like that where you find the second dough ball weights more than the one already rounded (balled) the correct thing to do is to just cut a piece off of the heavier dough ball and slip it under the lighter weight dough ball, then forget about it. The piece that you added will become as one with the rest of the dough ball.

Tom Lehmann/The Dough Doctor

[Re: One dough ball lumpy texture, the other smooth?](#)

2573

I should also mention that the dough balls appear to have been placed a bit too close together for your dough management procedure, it appears that only four dough balls would provide a better placement in your boxes.

Tom Lehmann/The Dough Doctor

[Re: PLEASE HELP: Issue getting dough out of boxes](#)

2574

First of all, you only want to allow the dough balls to warm to 55 to 60F before using them, secondly, the second picture provided shows the dough balls just "kissing" so they should not be too difficult to remove using the correct tool. If you go to the WRH web site <www.wrh.net> and go into their pizza products and click on their scrapers you will see their scraper Model DS-2 which works very well in tight spaces, I have found that the DS-1 is a little too big for use in removing the dough balls from most boxes but it works well on the bench.

Tom Lehmann/The Dough Doctor

[Re: PLEASE HELP: Issue getting dough out of boxes](#)

2575

In all probability you don't have a reverse spiral dough arm for your mixer, instead, what it sounds like you might have is just a plain old "J" hook and it is a very common thing for the dough to climb up on the hook and just go for a free ride on the hook as you have described. We have discussed the reverse spiral and "J" hook in detail previously, you might want to take a stroll through the archives to find a few of these discussions, or if you want, just post a picture of your existing hook and we can make an immediate determination as to whether it's a reverse spiral or "J" hook.

Tom Lehmann/The Dough Doctor

[Re: How Much Protein per 100gr for High Hydration Dough?](#)

2576

In most instances the domestic yeast will quickly become the dominant microflora and provide what we know as "normal" yeast fermentation however you can still have some of the residual flavor components of the starter to provide an additional dimension of flavor.

Tom Lehmann/The Dough Doctor

[Re: Fresh Yeast + Starter?](#)

2577

Frenchy2000;

I still stand by my last post, begin with 100% Manitoba and begin introducing the Caputo in 25% replacement increments, it'll be a journey of learning and there will be some good pizza to be had along the way. :)

Tom Lehmann/The Dough Doctor

[Re: How Much Protein per 100gr for High Hydration Dough?](#)

2578

If you wait too long and allow the dough to warm up too much it can become difficult to open, this is especially true if you have a high absorption dough, also the dough will become more gassy, those gas bubbles will begin to expand almost immediately upon placing the pizza in the oven resulting in more oven spring which we can live with at home but in a pizzeria it will make the pizza look

different or if they are being baked in any kind of a conveyor oven it can dramatically impact how the pizza is baked....neither of these are favorable in the eyes of the consumer as it makes the pizza "different" be it good or bad. In a commercial setting we all know that quality is not necessarily attribute #1 (let's see a show of hands from all who agree). Operators like to think that it is but the real #1 is product consistency, if the product isn't consistent it don't make no matter how good the pizza is. We like to refer to this as the McDonalds philosophy, not the best burger in the world, but you ALWAYS know what you're going to get.

Tom Lehmann/The Dough Doctor

[Re: Warming up the dough - Why?](#)

2579

When baking pizzas in a pan bubbles are much fewer and further between than when the pizza is baked right on the deck at those lower temperatures. Next time try baking the pizza directly on the stone or on a piece of parchment paper placed directly on the stone.

Tom Lehmann/The Dough Doctor

[Re: BUBBLY CRUST WANTED](#)

2580

DustinA;

This is due to the colder dough being slower to set/gelatinize while allowing more time for the yeast to generate leavening gas as well as more time for water vapor to turn into steam all of which contribute to what we refer to as the pita effect, where the bubbles become so large so as to make the crust look like a pita. When the dough is warmer the dough reaches the generalization point/temperature (about 140F) more quickly thus locking up the structure before it can be expanded into those large bubbles.

[Re: Warming up the dough - Why?](#)

2581

JVP123;

I'm afraid that a cold dough will bubble excessively and possibly turn into a pita, but if one were to dock the skin well this might control the bubbling and possibly give something closer to the desired result.....just to clarify, we are talking about surface "bubbling" not achieving an open, porous crumb structure.

We also know from work that we did on eliminating bubbling that fermentation plays a big role in bubbling. When a dough is made with less than 2.5-hours total fermentation time bubbling is prevalent and it diminishes as fermentation time is increased so if the dough is freshly made and fermented at room temperature for, let's say 1.5 or 2-hours, (mix, immediately ball, ferment balls for 2-hours at room temperature and open into skins for immediate use) this might also work, again docking might be necessary to control bubbling. Make sure to use a proper dough docker with flat points on the docking wheel.

Tom Lehmann/The Dough Doctor

[Re: BUBBLY CRUST WANTED](#)

2582

I like to use a middle to upper one third rack position as I'm looking for more heat to the top of the pizza than to the bottom (remember, it's already fully baked). I do not recommend placing the pizza directly on a stone or baking steel as this will generally cause the bottom to get over done, instead I like to use a screen and just place it directly on the oven rack.

Tom Lehmann/The Dough Doctor
[Re: Dough Formula for Heavy Topped Pizza](#)
2583

The wheat varieties from which Caputo flours are produced tend to give soft and extensible doughs while the wheat varieties from which U.S. and Canadian flours are produced are selected to give doughs with a lot of strength. If its strength that you are looking for I don't think high absorption Caputo doughs are the way to go, instead, start out using 100% strong (Manitoba) flour and work your way up to 70% absorption, once you have that mastered begin introducing your Caputo flour (to replace the Manitoba flour) in 25% increments. I would also suggest dropping the absorption back to not more than 65% with each addition of Caputo flour and working back up from there.

Tom Lehmann/The Dough Doctor
[Re: How Much Protein per 100gr for High Hydration Dough?](#)
2584

The dough balls look like they're ready to open in the last two pics.

Tom Lehmann/The Dough Doctor
[Re: Overfermented dough or not?](#)
2585

Since you're a novice at opening the dough, try this, we developed the procedure to train novices in opening dough into skins with as little effort as possible in the shortest time possible. As you become proficient you will gravitate away from the rolling pin and begin opening the dough totally by hand.

Procedure: Your dough should be made with approximately 65% dough absorption with 48-hours cold fermentation under its belt.

Turn the dough ball out onto a floured surface and dust both sides of the dough, using a rolling pin carefully open the dough to within about 2-inches of the final diameter you are targeting, then hand or bench stretch the dough to full diameter...done. If you want to see this done in a video go to my web site <doughdoctor.com> and watch my dough making video (Part-3) will contain the instructions on opening the dough ball into a skin.

Tom Lehmann/The Dough Doctor
[Re: BUBBLY CRUST WANTED](#)
2586

Are you using an autolyse? If not, include it in your dough making process by placing the flour and water into a bowl, stir until the flour is whetted, cover and allow the flour to hydrate for a couple of hours, then add the remainder of ingredients and mix. If this work for you begin experimenting with shorter autolyse times until you find a time that works well with your flour...it could be as short as 30-minutes or as long as 2 to 3-hours. Also, remember that high absorption doughs will always be soft and somewhat sticky. Lightly oiling you hands will make handling much easier and using a little extra dusting flour helps too. A bench scraper will be a big asset in working the dough and lifting it up off the the work surface.

There are a few very good videos here showing the working of high absorption doughs.

Tom Lehmann/The Dough Doctor
[Re: How Much Protein per 100gr for High Hydration Dough?](#)
2587

Have you contacted Middleby-Marshall about the problem yet?

Tom Lehmann/The Dough Doctor

[Re: middleby marshall ps636](#)

2588

Sounds like a tasty bread. The things I would do are as follows:

- 1) Make sure the yeast level is at about 8% or a bit more (assuming compressed yeast).
- 2) Add only 1/2 of the molasses (unsulfured) and 1/2 of the fat (personally, I'd be using butter (unsalted)).
- 3) Mix the dough to about the same point as you would a pizza dough (just until it comes smooth).
- 4) Add the remainder of the molasses and fat and mix (medium speed) to full gluten development.
- 5) Look for a finished dough temperature of 80 to not more than 85F.

Process as directed from there.

If you don't have a process try this:

- 1) Scale and ball.
- 2) Oil the dough balls and place into individual mixing bowls that have been lightly oiled as well.
- 3) Drape with a sheet of light weight plastic to prevent drying and allow to ferment at room temperature for 2.5-hours.
- 4) Turn the dough out of the bowl onto a lightly floured surface and using a rolling pin form into a rectangle as long as your loaf pan is long (you want the dough to be about 1/4 to 1/3-inch thick).
- 5) Roll the dough into a log and crimp the seam to prevent unwinding, place into a greased pan and proof in a warm (95 to 100F) area until the dough rises about 1/2-inch above the top edge of the pan (a 1# loaf pan will require 18-ounces of dough). You can also proof the dough at room temperature, it will just take longer).
- 6) Bake at 425F for about 22-minutes. The loaf will have a very dark color. NOTE: Depan the bread immediately upon removal from the oven.

Alternative Method:

- 4) Turn the dough out of the bowl onto a floured surface and knead the dough for a few seconds, form back into a ball and place back into the lightly oiled bowl.
- 5) Allow the dough to proof in the bowl for about 70-minutes.
- 6) Carefully turn the dough out of the bowl onto a greased baking sheet, allow the dough to ferment for an additional 15-minutes at room temperature uncovered.
- 7) Carefully dock the dough by cutting a cross-hatch (#) into the top of the dough using a razor blade (you want this to cover the entire top).
- 8) Give the dough a very light misting of water and bake at 400F until done.

Note: Be sure to use ONLY oil where stated. For pan grease use regular Crisco.

I like to brush the top of the still hot bread with melted butter and drape with a clean towel and allow to cool on a cooling rack.

Tom Lehmann/The Dough Doctor

[Re: bread question for Tom](#)

2589

Explanation:

When using a rolling pin you forcibly move air bubbles already existing in the dough around causing them to collapse (much like rolling out a piece of bubble

wrap) which in turn causes many of the cells/bubbles to coalesce forming larger bubbles (they may not always be seen but they're there) and when heated in the oven those larger bubbles expand with much greater force than many small cells/bubbles would, causing them to coalesce even more which results in what you are most likely seeing. The use of a commercial dough sheeter/roller doesn't exhibit this characteristic as the dough is sheeted completely with each pass through the sheeting rolls resulting in pretty efficient de-gassing of the dough. One thing you might experiment with is using your rolling pin to open the dough to within about 2-inches (50-mm) of the desired finished diameter and then finishing the opening process by hand. When using the rolling pin in this manner the dough is still relatively thick so the coalescing of cells is not an issue and, as an asset benefit, you end up getting a much more uniform thickness across the entire diameter of the skin and finished crust. In short, it helps to address the problem of getting an overly thin center in the dough skin, a common problem experienced by most novices and some "old salts" too.

Tom Lehmann/The Dough Doctor

[Re: The difference of a rolling pin and hand shaping](#)

2590

Here's a little trick I used many years ago to increase the amount of garlic in the dough (as opposed to added to the finished/baked product), you will need to use dried minced garlic, blend it into some oil, the idea is for the garlic to absorb oil which will not be displaced by the water, this reduces the leaching of the garlic into the dough so you don't get as much dough softening from the garlic as you otherwise would, and the oil will help to retain more of the volatile compounds from the garlic thus creating a slightly more intense flavor in the baked crust.

Tom Lehmann/The Dough Doctor

[Re: mixing flavor into dough](#)

2591

I am a refugee from The American Institute of Baking (AIB) where I was employed for 50-years until my retirement 5-years ago. I ran the Experimental Baking Group for a good deal of that time and provided consulting services to the food industry world wide for over 20-years.

I developed the entire pizza program for AIB and authored a number of AIB Technical Bulletins on pizza related topics over the years. As a means of disseminating the knowledge we were learning about pizza from our research I developed the AIB Practical Pizza Seminar which I wrote the presentations for and lead the instruction for over 35-years (right up until my retirement 5-years ago). Yes, I'm implying that there "were" classes that you could sign up for. I don't know anything about the program anymore as I am no longer affiliated with AIB or its programs, but you might go to their web site at <www.aibonline.org> (unless they've changed it) and look at their education seminar offerings. The class was usually scheduled in October. I have no idea if they still offer it or not and I have no idea of the quality of instruction or course content. When Jeff Zeak and I did the seminar it was second to none...a seminar is not successful that long by not being good, we even took it on the road and did regional seminars around the U.S. for a number of years.

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2592

Actually, there was once a time in this country when flour was milled and shipped

directly to the baker for immediate use but it was soon discovered that freshly milled flour wasn't the best for use in baking as it gave softer, stickier doughs requiring a lower dough absorption to handle decently. This was found to be due to a lack of oxidation in freshly milled flour so bakers began addressing this by storing flour near their ovens (a warm place/ heat = oxidation) for up to 30-days prior to use. Eventually flour millers began adding oxidation to the flour so it could be used within hours of milling without any problems associated with fresh aka green flour.

As for the difference in nutrient content of white v/s whole grain flour, enriched white flour is enriched to the same nutrient content as its whole-grain counterpart, the only difference being that the fiber (bran) portion is missing.

While white wheat varieties are all the rage today (they can be milled to a higher extraction rate than hard red wheat varieties while retaining a whiter color in the flour which means a greater flour yield per CWT (100#) of grain milled, hard red wheat varieties have historically been the most common wheat varieties milled for making breads, soft red and white wheat varieties are typically reserved for making low protein cake and pastry flours. The main type of wheat grown in Australia is hard white wheat while the main type of wheat grown in the U.S. and Canada is hard red wheat, with Canada growing mostly hard red spring wheat aka DNS (dark northern spring) while the U.S. grows HRW (hard red winter) wheat as well as DNS, HWW (hard white wheat) and soft white wheat varieties which are used for making lower protein flours as well as breakfast cereals.

Tom Lehmann/The Dough Doctor

[Re: Freshness of flour](#)

2593

If you go to the PMQ web site <www.pmq.com> and go into the RECIPE BANK, use "dough" for your search word look for my home made pizza dough "recipe". I have used it for well over 30-years in all kinds of home pizza making applications and it works quite well. It'll get you started, then you can further refine it by getting a scale to weigh the ingredients which will allow you to modify the dough "formulation" to give you exactly what you are looking for and as you develop your expertise you will be able to modify the dough management procedure giving you even more control over the characteristics of the finished pizza.

Tom Lehmann/The Dough Doctor

[Re: Looking for a thin crust recipe](#)

2594

Thanks for the concern guys! :)

I was in Minnesota at the cabin taking an extended vacation during which time I make it a habit to only occasionally monitor my e-mail and never go onto any of the boards in which I participate. Back for now but busy writing and consulting.

Tom Lehmann/The Dough Doctor

[Re: Is Tom ok??](#)

2595

The most important temperature is that which is taken as soon as the dough is finished mixing (off the hook) as it sets the stage for all fermentation to follow (temperature is a major driver of fermentation as it has a significant impact upon the rate of fermentation). The rule that we follow in a pizzeria, and that which we used to teach our students, is to get the dough completely processed (scaled, balled, boxed and into the cooler/cross-stacked) within a 20-minute window of time. This is assuming you have not over shot your targeted finished dough temperature.

The reason for allowing this 20-minute window for processing the dough is that when we have a finished dough temperature within the 75 to 85F range and a total dough mixing time of 10-minutes or less, the yeast will typically exhibit a lag time of approximately 20-minutes, this is due to the yeast still acclimating to the environment of the dough as well as beginning to produce sugars to feed upon. The rate of fermentation is still very slow during this time so there is a minimal change in dough density during this 20-minute period which in turn is also important as dough density will have a significant influence upon the rate at which the dough is cooled. With all of that said, when we use a pre-ferment without any additional yeast being added to the dough the yeast is already actively feeding (fermenting) so that 20-minute window is cut in half to only 10-minutes.

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2596

Longer baking times can be employed with breads and rolls than can be used when making pizzas, additionally the type of sourdough starter and its strength (acidity) play a big part in the development of crust color.

Tom Lehmann/The Dough Doctor

[Re: Something Different Sourdough](#)

2597

That's the point I was making, even at temperatures of 750F we struggle to get much color from a true sourdough leavened product, specifically one that imparts a tart flavor to the finished product. I did not mean to infer that breads are baked at anything even remotely close to 750F.

Tom Lehmann/The Dough Doctor

[Re: Something Different Sourdough](#)

2598

The answer to #1 is....they don't. This is why sourdough breads and rolls are always so light in color unless they're baked at over 750F, and even that it's a struggle to get much color.

When you say "strengthen" please describe. Do you mean feed?

The type of yeast used can have an impact upon the finished crust flavor but flavor is a VERY COMPLEX thing and I have no idea of how volatile those aromas are.

Your best bet would be to try it and see what happens, remember all yeasts,

especially brewers yeasts do not ferment the same as bakers yeasts do so depending upon the strain you use it might not even perform in a dough system.

Tom Lehmann/The Dough Doctor

[Re: Something Different Sourdough](#)

2599

Neil;

In looking at the dough formulation I wish to comment on the following;

The dough absorption does not change (it is unaffected by the weather or humidity).

Cultured/commercial yeast and active sourdough starter do not play well together, especially in a CF dough. The yeast completely takes over as the dominant microflora so the only thing you are getting from the addition of the sourdough starter is the acid content of the starter which you can get a lot more easily by just purchasing a dry, white sour. There are available from any bakery ingredient supplier such as Puratos Corp. or Watson Foods. I think Red Star/Lesaffre Yeast also

now has one too. These are added to the dough as an ingredient at about 2% of the total flour weight and provide just what you have described flavor wise.

The acidity of the dough is what is inhibiting the bottom crust color development. If you want to get some color development you might experiment with adding some sweet dairy whey the dough formulation, I would suggest a starting level of 3% and work up from there. The whey contains roughly 71% lactose (milk sugar) which is the least sweet of all the sugars, only about 10% as sweet as sucrose, so it will not affect the crust flavor. No additional water will need to be added to the dough formulation when the dry whey is used.

Tom Lehmann/The Dough Doctor

Providing Consulting and Education Services to the Pizza Industry since 1967.

[Re: Something Different Sourdough](#)

2600

Since you already have a working mixer, if it were me, I'd be holding out for a new spiral mixer.

Tom Lehmann/The Dough Doctor

[Re: Magic Mill DLX 2000 or wait for spiral?](#)

2601

HBolte;

The conclusion that we came to confirmed what the baking industry has known for decades, humidity has no impact upon the immediate dough absorption when normal (relatively short) mixing times of 6 to 10-minutes are employed however, when long mixing times are employed, like when using a planetary mixer and mixing a dough for 20+ minutes at low speed, and in a low humidity environment (think El Centro, CA) the dough can dry out during the mixing process which usually requires that the dough absorption be increased by 2% to compensate for this but when we did a similar experiment in the Philippines (hot and very humid) we found that we did not need to reduce dough absorption for the same flour from that which we used at AIB (72F/50% R.H.). While I have not conducted these tests using a spiral mixer I would assume the results would be similar to that which we got using a planetary mixer. Where you do see a change though is when using a closed bowl mixer such as a commercial high capacity (800 to 2,000-pounds) dough mixer, in this case there is essentially no impact upon the dough due to exterior climatic conditions. This fact is well recognized in the commercial baking industry, the reason for this is due to controlled environment created within the closed mixing bowl. It should be noted though that the temperature and relative humidity (R.H.) can/will impact the moisture content of the flour over time which as expected will, in turn, affect the dough absorption when that flour is used.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2602

You bet it will. Depending upon a number of factors including the strength of the flour and amount of oil in question in can result in a softer, more sticky or tacky dough than normal. A number of years ago we set about to find out what was at the root of people declaring that the weather was impacting the absorption properties of their flour. We made 10 doughs all at the same time using the process which was in common use at the time, put water and oil in the mixing bowl followed by the salt, sugar and yeast, agitate (this serves no purpose) and then add the flour and mix. What we got were about four different variations of the same dough out of the ten replicates. We found that the oil always floated to the top of the water where it

was in direct contact with the flour, the oil would then begin to soak into the flour, since water cannot displace oil in the flour and gluten is only formed when the wheat proteins glutenin and gliadin are agitated in the presence of water, there was an unknown portion of the flour which was not capable of forming gluten, hence the unexplained variability in the dough which lead to Mother Nature being blamed the the variability. To make matters even worse bakers got into the habit of reducing the dough absorption when it was raining so now if a good portion of the flour did not form gluten the dough felt pretty normal but if only a small percentage of the flour became oil soaked more gluten was formed and the dough felt tighter/stiffer in the bowl so more water was added. In both of the above scenarios a less than stellar finished product was the end result. This all lead us to look at developing a mixing method where the oil was omitted from the dough until the flour had a chance to fully, or nearly fully absorb the water, this is what we now call the delayed oil addition mixing method. It works so well that is is in common use in most pizzerias and essentially all, if not all, commissary operations where dough is made for a number of stores in a region. Mind you, this was all done using only 2% oil, as the oil percentage rises the situation gets a lot worse resulting in excessive dough variability.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2603

More than likely it is due to the strength of your starter, it is not as active as the commercial yeast so the doughs are receiving less fermentation with your starter than they would receive using commercial yeasat in the same period of time.

Tom Lehmann/The Dough Doctor

[Re: Dough stiffness when using starter v. commercial yeast](#)

2604

Because a Roux is used to PREVENT gluten formation and we want to have gluten formation.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2605

That's an impossible question to answer as all sourdough starters are different. Once you have made the starter and allowed it to settle down for a week or so of feeding you can begin using it. Start at 5% and work up in 5% increments from there. Remember, your starter will be 50% water so whatever amount of starter you use reduce the dough absorption by half of the amount.

Tom Lehmann/The Dough Doctor

[Re: sour dough starter](#)

2606

My advice is to forget the kneading as you'll never achieve a homogeneous dough mass unless you put them into a mixer and remix back to a smooth dough consistency.

Why not just use the old dough to make some bread sticks?

Or, you could pin the dough out thin, cut into circles with a biscuit/cookie cutter and bake as mini-rounds, spread with some Ricotta cheese, add a basil leaf and a thin slice of ripe tomato and serve as an appetizer. Note: Be sure to dock them well and if they still pocket during baking just deflate immediately upon removal from the oven.

That way if they turn out decent you can surprise your friends but if they don't they'll never be any the wiser.

Tom Lehmann/The Dough Doctor

[Re: mixing 2 doughballs with different CF times](#)

2607

I'd use it right from the can, that's how it was intended to be used. For me though, since I have a special affinity for garlic and fresh basil, I'd sauce the skin (right out of the can), add some sliced fresh garlic and then add a few leaves of fresh basil, add some fresh mozzarella and a little shredded or shaved Parmesan cheese and into the oven and get ready to enjoy a great pizza. :)

Tom Lehmann/The Dough Doctor

[Re: Got some 7-11 now what??](#)

2608

Steve;

When we mix doughs with 20% or more shortening/butter/margarine we always mix the dough to essentially the full level of gluten development that we want for the product, the fat is then added and the dough mixed just enough to thoroughly incorporate the fat. This is necessary as the high levels of fat make gluten development almost impossible.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2609

The spiral is the agitator and while mixing speed is highly subjective my recommendation is to mix the dough at low speed JUST until you don't see any dry (white) flour in the bowl, then begin pouring in the oil, after all of the oil has been added continue mixing at low speed for about one additional minute, then switch to the next higher speed and continue mixing until the dough begins to take on a smooth appearance. Every mixer is different and there are many variations of the spiral mixer but on average, I have found that for best oil incorporation (over 5% oil) you need to have enough dough in the bowl to allow the agitator (spiral) to remain in CONSTANT contact with the dough as the bowl rotates. If this doesn't happen the dough tends to just get all wadded up and tossed around by the spinning spiral without good mixing action. With most spiral mixers you will need to approach about 75% of the bowl capacity to achieve this effect.

Are you confusing the ability of a spiral mixer to effectively mix doughs as small as 25% of bowl capacity with the topic here of trying to effectively incorporate high levels of oil into the dough? If you try to incorporate high levels of oil into a dough using a spiral mixer with a too small dough size when you add the oil the dough will just begin flopping around in the bowl like a dying carp. With a planetary mixer the dough just balls up and gets pushed around, and around, and around, and around, etc., by the agitator and never gets any mixing action, at least not until you've had a chance to read at least half way through the novel War and Peace, it'll take a while.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2610

The "Instant" part of IDY stands for instant hydrating (actually fast hydrating) and each one of those IDY cylinders is full of cracks and fissures which are what allows for the rapid hydration. If the IDY is put into cool water (below 95F) the water

enters into the yeast and exerts a flushing effect on the yeast where the glutathione (the plasma material within the yeast cell) is flushed out before the yeast cells can expand to stop the flushing action (the warm water is what causes the yeast cells to swell) as a result the yeast cells are significantly damaged and fermentation is affected plus the glutathione exerts a reducing action, much like that of L-cysteine, on the dough which results in a softer, weaker, more extensible dough. As for oiling the dough balls this is important for two reasons, one is that it prevents the dough balls from drying out and developing a dry skin and the second is to allow for easier separation of the dough balls, even if they touch, they will be easier to separate in lightly oiled. Oiling of the dough balls is important if the dough is either cold fermented or fermented at room temperature in the box. Believe it or not, a skin will form on the dough faster during room temperature fermentation than when the dough is being fermented in the cooler.

Tom Lehmann/The Dough Doctor

[Re: Dough Improvements](#)

2611

With a spiral mixer you should have the bowl filled to a capacity where there is a continuous strip of dough in the bottom of the bowl, in other words the agitator should be in continuous contact with the dough, for most mixers this will probably mean something close to 75% of the stated bowl capacity.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2612

And don't forget to do some research on the speed of the rollers (r.p.m.) that's an important aspect too, too fast and you shred the dough, too slow and the dough doesn't pull through the rolls as it should. Used dough sheeters are just too cheap to mess with. If you want to see something that is commercially made and somewhat similar to what you are describing check with National Manufacturing in Lincoln, Nebraska. They specialize in different types of small scale dough making and testing equipment and amongst their toys is a dough sheeter/moulder that is used when making small scale "pup" loaves in a baking lab. I had two of them at AIB.

Tom Lehmann/the dough Doctor

[Re: Making your own dough sheeter](#)

2613

Sure it's done but for the most part those days are gone, by about 15-years now. You need to be careful when adding onion and/or garlic to the dough as it will act as a reducing agent, making the dough softer and more extensible. There is a commercial product made from onion and garlic specifically for this application called Basic Natural from Cain Food Industries, Dallas, TX. The only difference is that in this application they are deodorized just like the Garlique Brand health supplement. Our research showed that this dough softening begins when the amount of dry onion and/or garlic exceed 0.15% of the total flour weight.

Little Lady Foods manufactures a type of crust referred to as a "dirty" crust. It's made using a blend of herbs, similar to the old PH herb crust. Cheese crusts can be made but they work better as a thick or pan style crust rather than a thin crust due to the propensity for burning. This is one reason why cheese dough has typically been reserved for bread sticks and rolls. Rather than using our regular cheese we found that using a white cheddar cheese powder at 5 to 10% of the flour weight made a much better product than when using wet cheese or grated/powdered

cheese.

Old World Spices and Flavorings, K.C. Kansas used to have a really good herb blend that they made specifically for pizza crust applications.

Tom Lehmann/The Dough Doctor

[Re: mixing flavor into dough](#)

2614

Actually, there is a commercial product that is designed specifically for this application called Pizza Crisp, it looks like bread crumbs but it really isn't. We use it in some wholesale, high speed, high volume pizza manufacturing facilities in much the same manner as dusting flour is used. Where we use in most is on sheet and die cut lines where we are making thick crust pizzas which require post cutting/forming proofing of the formed dough pieces on a tiered/waterfall type final proofer. The Pizza Crisp is used rather than corn meal or flour as it provides for a better release from the proofer belts as the dough skins are transferred from one level to the next. FAILURE OF THE DOUGH TO PROPERLY RELEASE FROM ANY OF THE PROOFER BELTS IS NOT AN OPTION. If the dough were to stick to a proofer belt it would start a cascade event of dough pieces getting stuck to the conveyors and falling out of the proofer, in no time at all you can have 500 or more pounds of dough piled up in/on the proofer which will require an hour or more of line down time to clean-up, sanitize, and put back into production. In the mean time you have over 1,000-pounds of dough already on the line to contend with. This is not something one wants to contend with so the added cost of the Pizza Crisp is cheap insurance.

Tom Lehmann/The Dough Doctor

[Re: opening dough with breadcrumbs?](#)

2615

Here are some places to begin.

1) DO NOT suspend IDY in cold water. Only suspend it in 95 to 100F water. In your case I'd put the cold water (60F) in the bowl first followed by all of the flour, add the salt and IDY right on top of the flour and begin mixing for at least 4-minutes at low speed, stop the mixer and allow the dough to rest for 15-minutes, begin mixing again just until the dough comes together and begins to smooth out, remove from the mixing bowl and begin your series of slap and folds.

2) I didn't see anything where you lightly oil the tops of the dough balls and left the dough box uncovered for at least 3-hours after placing it in the fridge. Failure to do this contributes to erratic fermentation rate as well as sweating of the dough balls in the box which can result in an overly soft, weak and sticky dough condition.

3) Four hours is a long time to remove the dough prior to opening, instead, leave the dough balls out of the fridge, at ambient temperature (still covered) ONLY until the internal temperature of the dough balls reaches 55 to 60F, then you can begin opening the dough balls into skins for your pizzas.

Tom Lehmann/The Dough Doctor

[Re: Dough Improvements](#)

2616

You're welcome Dustin, those great lookin' pizzas say it all! :chef:

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2617

Steve;

Yes, garlic induced gelling would help to counter the issue but extreme care must be taken so as not to over thicken the sauce or it will be like tomato jelly on the finished pizza. When I was in Guatemala I was consulting for a company making their own sauce for their local pizza chain. At the commissary they were using a large industrial immersion blender to make their sauce and it bled out so bad they were adding a starch paste to it to help stabilize the sauce so it would retain its water, that worked BUT the resulting sauce was more like tomato leather after the pizza was baked. We resolved the problem by going over to grinding the tomatoes instead and it worked fine for them, problem solved.

But the challenges faced by the home pizza maker are not the same as those faced by pizzeria and commissary operators so if you're satisfied with that the immersion blender is doing for you continue using it, just be aware of its limitations.

Tom Lehmann/The Dough Doctor

[Re: immersion blender?](#)

2618

The reason why there are so few answers to this question is because the true answer is....there isn't any. In the baking industry we depend upon the Farinograph or sometimes the Mixograph for the absorption of the flour but even this is just a standardized test for flour absorption as the baker ends up using what is called a Fariongraph factor for the "dough" absorption which is different from the flour absorption. One of the last projects I was working on before leaving AIB was with Dr. Rick Dempster on a concept for a fully automated bakery operation. Part of our work was to use NIR (near infrared) to control the mixing parameters of the dough. Since a commercial bakery pulls its flour from multiple flour silos with each silo containing flour from a different milling lot code and at some time another shipment of flour is put into each of the silos which combines with the remaining flour still in the silo for even greater variability in the flour being conveyed to each of the mixing stations within the bakery we had to develop a procedure where we could effectively determine the "actual dough absorption" through a real time measurement (about 15-seconds) so that the dough absorption at each mixer could be adjusted as necessary to accommodate the flour being delivered to the mixer for that specific dough. Rick was able to accomplish this using NIR at the flour weigh hopper located above each mixer. How accurately were we able to measure dough absorption based on this NIR measurement? Consistently well within 0.5% of the actual dough absorption as determined by a highly skilled baking technician. The ultimate test came when I challenged Rick to determine the actual dough absorption of a whole-wheat flour using his NIR measurement, after a full day at the bench doing multiple doughs and test bakes we had the answer, when this was presented to Rick his only question was "What took you so long?" His measurement gave a dough absorption that was again within 0.5% of what a skilled baking technician found AND it only took him 15-minutes, not a full day! We had been communicating with a number of the big pizza commissaries about installing the equipment for a field test but the project was scrapped when we left AIB :(

Tom Lehmann/The Dough Doctor

[Re: Maximum absorption vs Whoops](#)

2619

It's hard to be an arm chair quarter back but I'll take a SWAG at it. Is it possible the thicker stones are losing heat during baking but don't have sufficient time to recover their latent heat before the next pizza is placed on it so now you would see a lighter bottom bake on each subsequent pizza while the thinner stone without the ability to hold as much latent heat is literally just transferring heat directly from

the burner beneath it, as a result there would be no recover time for the thinner stone. This is much the same principal that deck ovens used for baking bakery products (not pizza) work on. When you have a thicker stone you need a larger (more BTU) burner to enable maintaining the heat in the stone. When the bakery type deck ovens are used to bake pizzas they fail miserably when the oven is fully loaded with pizzas as the burner cannot maintain the temperature of the deck with a full load, but with just one or two pizzas in the oven it bakes reasonably well, like I said, just a guess.

Tom Lehmann/The Dough Doctor

[Re: Different thickness stones get the same result?](#)

2620

Speaking of scales, if you Google Etekcity Digital Kitchen Scale you will find a bunch of low cost scales.

Tom Lehmann/The Dough Doctor

[Re: good deal on food scale](#)

2621

The mixing speed appears to be OK but for whatever reason the dough is not developing sufficiently to even pull off of the bottom of the bowl.

Is the clearance between the agitator and bowl excessive? If the clearance is excessive the dough will do as seen in the video. Is the flour protein content too low? It should be at least 12%.

As for the finished dough temperature there are two things you can do to get it lower.

1) Replace 20% of the dough water with ice (either shaves or chipped ice, never ice cubes or tube ice).

2) Place a large pan under the mixing bowl and fill it with ice, water and salt. Place something under the brine water bowl to hold it up as close to the bowl as possible, this will help to keep the dough colder during mixing.

Tom Lehmann/The Dough Doctor

[Re: Frozen dough balls - finished dough temperature](#)

2622

You don't see the tomatoes getting watery during the blending process but it's after the blending process when the that the syneresis becomes the issue, namely, when you sauce the pizza any water released from the sauce will go down into the dough where it contributes to the dreaded gum line and if, like me, you're in the habit of pre-saucing the skins during a multiple pizza bake, it just gets a whole lot worse. In a pizzeria you will easily know if the problem exists, the first of which is to observe your make people, if you see then stirring the sauce with the ladle, ask yourself why? The answer is because they saw separation of the sauce and they're just trying to recombine it. Again, if you're pre-prepping the skins for slam periods you're setting the stage for a gum line.

Tom Lehmann/The Dough Doctor

[Re: immersion blender?](#)

2623

When I have an amount that I cannot weigh on my scale I just double or triple the amount I need and then put it into say three ounces of water (95F) for IDY, I suspend the yeast in the water and then portion out 1-ounce of the water for my dough....presto! I just toss the rest out, call me wasteful if you want.

Tom Lehmann/The Dough Doctor

[Re: good deal on food scale](#)

2624

Be sure to get a pic of the dough balls as you remove them from the fridge for tempering prior to opening.

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2625

Not too bad at all :).

Experiment with your malt or sugar level if you want more color on the crust.

Tom Lehmann/The Dough Doctor

[Re: Dough too stretchy](#)

2626

Scott;

I'm not aware of any other economical alternatives either. If you place a spoon full of your sauce onto a flat china plate and wait 15-minutes do you see water being released from the sauce?

Tom Lehmann/The Dough Doctor

[Re: immersion blender?](#)

2627

Place a suitably sized container on the scale platform, zero the scale, add the IDY to the measured amount that you want to use, remove from scale and use as directed.

Tom Lehmann/The Dough Doctor

[Re: good deal on food scale](#)

2628

I use mine for a lot of chores around the kitchen even making myself an iced mixed drink occasionally but the one thing that I do not use it for in pureeing tomatoes unless I'm making tomato soup. It beats the tomatoes up too bad and ruptures many of the juice sacks contained in the tomato resulting in excessive syneresis of the sauce which ultimately leads to a "swamp" pizza.

Tom Lehmann/The Dough Doctor

[Re: immersion blender?](#)

2629

Yep, the bowl looks fine and that indeed is a reverse spiral dough arm.

To adjust the hook/agitator to bowl clearance on a Hobart planetary mixer there is a stainless steel cover on the pedestal just behind the bowl and below the bowl lifting arm, remove this cover and you will see a threaded rod with an adjusting nut. Don't forget to re-tighten the two locking nuts when you're finished.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2630

I think where you may have gotten confused from other posts is where we suggest allowing the pizza to steam off for a short time before cutting and boxing the pizza for carry out or delivery. The last thing you want to include in the pizza box is steam. In the restaurants that I've been in where the pizza is served in the pan we remove the baked pizza from the pan and allow it to set on a cooling screen for a

minute or so which allows it to steam off as well as set up a little, we then cut it using a rocker knife and place it back into the pan for serving. From a commercial (pizzeria) stand point this makes for additional work as the pans now need to be thoroughly washed, sanitized and dried before they can be put back into use again. When we serve the pizza without the pan we normally just wipe the hot pan out using a clean bar towel and either put it right back into service again or we place it into a container for the pans which are ready for use.

Tom Lehmann/The Dough Doctor

[Re: A little too much Moisture Issue](#)

2631

I've never heard of any benefit to letting the pizza sit in the pan for several minutes after baking as this allows the pizza to sweat in the pan and since the pan is cooling the moisture condenses onto the pan sides and bottom Hummmm? The next time you make your pizza try removing the pizza from the pan immediately after taking it out of the oven and placing it onto a wire cooling rack or pizza screen to steam off and set-up a couple minutes before cutting.

Tom Lehmann/The Dough Doctor

[Re: A little too much Moisture Issue](#)

2632

We do it all the time using as much as 16% oil addition to the dough. There are two tricks to doing this, one is to make sure you have a full size dough as this will ensure the best mixing action. The fact that you said the hook was just dragging the dough around in circles is an indication of a significantly under size dough for the bowl capacity/size. Second, you MUST be able to mix the dough at second or medium speed. One other thing to keep in mind is that it is absolutely critical that the oil be added at the correct stage of mixing. Put the water in the bowl first, add salt and sugar (no need to stir) followed by the flour and IDY, mix at low speed JUST UNTIL you don't see any dry flour in the bottom of the bowl, begin pouring the oil in over a 1-minute period of time and continue mixing for 1-minute at low speed after all of the oil has been added, then mix at second/medium speed just until the dough takes on a smooth appearance.

NOTE: If help to make sure the bowl to hook clearance is properly set before starting the dough mixing process. This is important for proper mixing of all doughs but it is doubly important with high oil content doughs. How to set the bowl to hook clearance? Place a nickel in the bottom center of the bowl, raise the bowl fully, if you can move the nickel you have excessive clearance, lower the bowl and adjust it just a turn or two into a higher position, continue this until the hook JUST contacts the nickel, remove the nickel, raise the bowl only partially, run the mixer at low speed, SLOWLY raise the bowl to its full up and locked position, do you hear at "tink, tink, tink"? if you do the hook is contacting the bowl and you will need to lower the bowl ever so slightly, if you don't, shut off the mixer, lower the bowl and CAREFULLY adjust the bowl a little higher and repeat the above process until you hear the "tinking", then lower the bowl JUST until the sound goes away and you have the clearance set to minimum gap, you are now ready to begin mixing. Mind you, this is all based on the premise that you have a reverse spiral dough hook, if you have a "J" hook the first order of the day is to get a reverse spiral dough hook for your mixer and then begin the above process.

One other thing, look at the bottom of your mixing bowl, if it's dented, now is a good time to remove those dents. If it's severely dented you can not achieve the correct bowl to hook clearance.

Tom Lehmann/The Dough Doctor

[Re: Incorporate high oil content into dough](#)

2633

I've never done a comparison as the dried sours are just too easy to use and they're readily available from most major bakery ingredient suppliers.

Tom Lehmann/The Dough Doctor

[Re: Sourdough starter worth it for pizza couple times a year?](#)

2634

No problem at all in using IDY instead of ADY, just make sure to use the correct amount. You might want to refer to one of the charts for the recommended amount to use for your fermentation schedule.

Tom Lehmann/The Dough Doctor

[Re: Dough recipe for oven that gets up to around 650F \(PizzaQue Oven\)](#)

2635

Dustin;

Try that first, then if that works for you see if you can begin incorporating some stretch & folds back into the process. Start with just one or two and increase the number gradually, and enjoy your pizzas along the way :chef:

Keep us posted on your progress.

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2636

Huh?

Remove the dough ball from the box, place bottom side down onto a floured surface, flip the dough ball over so the top is now down and proceed to open the dough ball into a skin. If the dough has correct absorption, and has been fermented properly it should open easily, with the proper technique the dough can be opened having a relatively uniform thickness across the entire center section. You might go to my web site <www.doughdoctor.com> to get some tips from my video on making dough (part-2). Place the opened skin onto a wood prep peel using a little peel dust under the skin to facilitate transfer to the oven deck. For peel dust I like to use equal portions of flour, fine corn meal and semolina flour, but use whatever works best for you. Peel the dressed pizza into the oven (I place it just inside the oven door or slightly off to one side or the other) Leave the pizza set undisturbed for about 1-minute, if you try to move it too soon it will adhere to the deck (this is similar to searing a steak), as the dough bakes into a crust it will shrink and pull up slightly from around the edge allowing plenty of space for a turning/spinning peel to get under the crust. If the dough is too flat against the deck to get a peel under it your dough absorption or fermentation time are most likely too high/too long.

Tom Lehmann/The Dough Doctor

[Re: Problems with uniform dough discs](#)

2637

And don't forget about surface tension too.

Tom Lehmann/The Dough Doctor

[Re: Flat squares instead of round balls](#)

2638

One piece of critical information is missing...the finished dough temperature.

You don't mention anything about cross-stacking or leaving the dough tray open for

at least 3-hours in a home fridge as you indicated that you put the dough balls into a covered tray. What this all means is that in all probability the dough was over fermented to the point where the dough had become bucky, super elastic and difficult to open....sound familiar?

My recommendation is to use water at a measured 65F when making the dough, then measure the temperature again just prior to placing in the fridge (this is the critical finished dough temperature) as you will be looking for something in the 70 to 75F range. Now, when using dough boxes it is critical that the boxes/box be left uncovered for at least 3-hours when first placed in the fridge as this is going to allow the dough to cool properly and consistently, after that you can cover the box for the remainder of the CF period. As for leaving the dough out of the fridge for 3-hours prior to opening, this might be a bit excessive, instead, try leaving it out just long enough for the internal temperature of the dough balls to reach 60F before you begin opening them into skins.

Just for grins, try this: After adding the oil continue mixing the dough just to a point where it is taking on a smooth appearance, measure the temperature, IMMEDIATELY scale and ball the dough, place into the dough box, oil the top of each dough ball and place in the fridge uncovered for 3-hours, or until the internal temperature of the dough reaches 50F (whichever comes first), then cover and CF. After the CF period, remove the dough box from the fridge and allow to warm AT/AT room temperature until the internal dough ball temperature reaches 60F before you begin opening the dough balls into skins.

Keep us posted on your findings.

By the way, 0.5% IDY is, by most, considered to be pretty high for a 48-hours CF dough. I'd suggest reducing it to 0.250 to 0.375%. Additionally, the salt level is quite low at only 1%, I'd suggest increasing it to something between 1.75 and 2.25%. Both of these, the high yeast level and low salt level are significant contributors to excessive fermentation.

Tom Lehmann/The Dough Doctor

[Re: Dough troubleshooting](#)

2639

You use 270-grams of dough for what size of pizza? 270-grams would be about right for a 12 to 13-inch diameter pizza.

If your starter is too strong the acidity will inhibit crust color development resulting in a lighter than desired finished crust but it will not result in raw dough in the crust after baking. Since your pizzas are lightly topped we can rule out excessive topping weight so we are left with too much dough weight for the size of pizza being made or the oven deck is not sufficiently hot. If the raw dough is in or close to the very center of the pizza there is a possibility that you are getting the dough too thin in the center section which would allow heat from the deck to pass through the dough and into the toppings (sauce) where the heat will be dissipated as steam without allowing the dough to reach sufficient temperature to fully bake it within the short baking time employed. Too much dough for a specific size pizza can require a longer baking time to allow the dough to fully bake but if the pizza is being baked as a larger size pizza employing the same dough weight it would be expected that the crust may not get fully baked. These issues are more prone to happen when short, hot bakes are used as opposed to longer bakes at a lower temperature.

Tom Lehmann/The Dough Doctor

[Re: Neapolitan Sourdough Pizza error](#)

2640

Kneading and "stretch and fold" are both considered to be the same however for some there is indeed a difference. Kneading a dough the old fashion way calls for grasping an edge of the dough and pulling it back over the main body of dough and using the heel of the hand to drive the dough down into the main body of dough, the bowl is turned slightly and this is repeated for any length of time. Stretching and folding on the other hand is more like the way we incorporate roll-in fat into a Danish dough. The dough is elongated, the two lateral ends are folded back to the center line of the elongated dough piece, we then fold the dough over onto itself (like closing a book), in the production of Danish dough this is referred to as a 4-fold or a "book" fold. The dough piece is then rotated 90-degrees and the process repeated until the dough either develops a smooth appearance or it becomes too tight to continue stretching and folding in which case the dough is set aside and allowed to rest until it is sufficiently extensible to allow the stretching and folding to be continued. Is there a difference between the two types of "kneading"? There can be, using the stretch and fold method results in more of the dough being exposed to the air for a longer period of time which can result in a drier dough and if the humidity is sufficiently low it can also promote a more open porous crumb structure in the finished crust with proper handling of the dough.

Tom Lehmann/The Dough Doctor

[Re: Difference between "knead" and "stretch and fold"?](#)

2641

Actually we don't look for great flavor/flavors in the dough but instead in the finished/baked product be it bread, pizza crust, etc. While enzymes do contribute to flavor development (in a round about way) they are not the major contributor. What do I mean by this? Enzymes present in yeast leavened doughs function by converting starch into sugars (amylase) and they also hydrolyze proteins (protease) which are then more easily denatured during the baking process which contributes to the flavor of the baked product, and then there is cellulase which breaks down cellulose into sugars much in the way the amylase works on the starch fraction of the flour but since there is so little cellulase present this is not a major contributor to any flavor development. In short, enzymes do not directly impact flavor, but they can do so by an indirect manner.

If you were to mix just flour and water together and allow it to rest for any period of time you would be making what a baker calls a "soaker". Soakers are extensively used to allow for complete hydration of whole-wheat and multi-grain type flours as well as grains which are only partially milled so they are in pieces rather than a fine or coarse flour. All of these are difficult to completely hydrate as they require some time for this to happen, hence a soaker is used which allows the flour/grain mixture to be fully hydrated without any fermentation taking place. In commercial practice this is usually limited to something less than 4-hours at room temperature due to food safety concerns but in some cases, due to scheduling, the soaker must be made and allowed to hydrate for much longer than this, in those cases the soaker is stored under refrigeration until needed to make the dough.

Additionally, very little gluten is actually developed during any kind of a hydration period regardless of how long it is carried out for, the biochemical gluten development will not begin in earnest until the yeast is added.

When a soaker is used we just add it back to the mixer along with the rest of the ingredients and begin the mixing process, no special handling is required.

By the way, many people also like to refer to a soaker as an autolyze which is commonly used in artisan bread and pizza production.

When it comes to flavor development the oven takes first prize for being the most significant contributor which is followed by fermentation and all the good things

which happen during and as a result of fermentation.

Tom Lehmann/The Dough Doctor

[Re: Enzymes and yeast](#)

2642

Most of the dried sourdough "starters" are not starters at all, they are just dried sourdough that is inert as far as providing fermentation is concerned, this is why many call for the addition of yeast. Using these products will not adversely affect the yeast or gluten development but because they are acidic they will have a slight potential softening effect upon the dough as well as provide the "tang" you're looking for in the finished crust. Properly stored, (tightly sealed container in a cool place) these dried sourdough flavorings will last forever. We use these products commercially in many frozen pizzas as well as frozen pizza dough to add another dimension of flavor. In most cases the use level will be about 2%.

Tom Lehmann/The Dough Doctor

[Re: Sourdough starter worth it for pizza couple times a year?](#)

2643

Yes,

1) The dough will be both sticky and slack (overly extensible).

2) The dough will not exhibit much, if any, oven spring during baking.

Tom Lehmann/The Dough Doctor

[Re: Frozen dough balls - finished dough temperature](#)

2644

Let's just hope it's not a "cracker" crust pizza! ;D

Tom Lehmann/The Dough Doctor

[Re: A new pizza box design](#)

2645

If you're lucky, really lucky, those dough balls will have a frozen shelf life of 10 to 15-days at the very best.

Tom Lehmann/The Dough Doctor

[Re: Frozen dough balls - finished dough temperature](#)

2646

From the looks of the pizzas in your pictures I'm guessing that your dough weight might be too much for the size of pizza you're making (raw dough is a good indicator of this). If that doesn't address the issue you might try adding not more than 1% DIASTATIC malt to the dough for better crust color development during baking.

Tom Lehmann/The Dough Doctor

[Re: Neapolitan Sourdough Pizza error](#)

2647

Amen! ^^ ^

Tom Lehmann/The Dough Doctor

[Re: Differences in preparing pizza dough](#)

2648

Mo;

When par-baking those crusts be sure to bake at a lower temperature than you do for pizza, 400 to 450F is a good temperature. Also DO NOT bake right on the oven

deck, instead, bake on a screen (the heat transfer is too fast on the deck and you will end up making pita every time). Bake just until the dough is COMPLETELY set.....no more. If the dough is not completely set you will see what appear to be oil spots on the crust as it cools, these are NOT oil spots, instead, they're areas where the dough was not completely baked and has collapsed (if you make a pizza from a crust like this those collapsed areas will become hard and "flinty". What is "flinty"? Think about eating a Chinot Plate.

When you see these characteristics the crust just needs to be baked a little longer. Immediately after baking invert the par-baked crusts onto a cooling rack. After thorough cooling par-baked crusts can be wrapped and stored at room temperature for up to 3-days. To use a par-baked crust first brush on a very thin coat of oil on the crust, then dress in the normal manner. If you plan on using the par-baked crust right away the approach is a little different, apply about 1/2 of the normal amount of sauce to the dough skin and then par-bake as directed above, As soon as the crust begins to show some color it is fully baked (you might need to experiment a little but in this case color is a pretty good indicator as to when the crust is fully baked). Remove the crust from the oven and place it on a cooling rack or pizza screen to cool for about 5-minutes, then apply the other 1/2 of the sauce and dress as desired, really heavily topped pizzas are best baked at 475 to 500F. Depending upon the amount of toppings used you might want to experiment baking both on the deck and on a pizza screen as the longer bake can result in excessive bottom crust color development when baked on the deck.

Tom Lehmann/The Dough Doctor

[Re: Dough Formula for Heavy Topped Pizza](#)

2649

How are you determining that the dough is over fermented?

The only real way to make this determination is by observing the way the dough looks, handles and feels. Over fermented dough will collapse at the mere thought of being touched if it doesn't collapse on its own (this is not to be confused with the first full rise of a large bulk fermented dough which occurs several hours after the dough is mixed. When making BREAD the FFR is usually a pretty good indicator that roughly 75 to 80% of the full fermentation time for the dough has been achieved, but it has little significance in pizza dough since they receive considerably more total fermentation). The things to look for as indicators of an over fermented dough are as follows:

- 1) The dough feels lifeless with no elasticity.
- 2) The dough deflates easily during opening of the dough ball.
- 3) The dough will typically have a rough appearance to it.
- 4) It will feel sticky or tacky to the touch.
- 5) Little or no oven spring during baking.
- 6) The baked crust will have a light or mottled crust color.

Tom Lehmann/The Dough Doctor

[Re: Additions to Your Dough](#)

2650

No, I would:

Put my ingredients in the mixing bowl and stir to combine, then turn out of the bowl onto a floured surface, lightly oil my hands and knead (stretch and fold the dough) until it becomes cohesive, lightly oil the bowl and place the dough back into it for 15 to 20-minutes, then turn the dough out of the bowl onto a floured work surface and begin kneading the dough again until the dough begins to look somewhat smooth. After that I cut it into desired weight pieces, ball, lightly oil,

plastic bag and CF for 24 to 46-hours (occasionally longer). After the CF period, remove from fridge, allow to warm AT room temperature until the INTERNAL temperature of the dough reaches 50 to 60F (anything in that temperature range will work well), then roll the bag down around the dough ball, invert the bag allowing the dough ball to fall onto a floured surface and begin opening the ball into a skin for immediate dressing and baking.

If I'm making a pan pizza, after the CF period and warming of the dough I open it to fit the pan, set the pan aside to proof for at least 30-minutes or more, then go back to it once again and carefully fit the dough to the pan so it completely fits the pan, I then set it aside to proof about 20-minutes more (occasionally longer) before dressing the proofed dough and baking the pizza.

Tom Lehmann/The Dough Doctor

[Re: How many times can I let dough warm-proof?](#)

2651

When the dough gets too thin in the middle the heat isn't absorbed into the dough during baking, instead it just passes right on through the dough where it is dissipates as steam when it reaches the sauce and toppings which are roughly 90% water. In almost every case this overly thin center section will be excessively tough and chewy....maybe that's what you are finding objectionable?

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2652

Here are the proportions for a "typical" generic pizza crust in bakers percent.

Flour: 100% (typical bread type flour with 12 to 13% protein content)

Salt: 2%

Yeast: 0.3% IDY

Water: 62%

Sugar: 2% (variable/optional)

Oil: 2% (variable/optional)

Tom Lehmann/The Dough Doctor

[Re: Proportions](#)

2653

The "00" flour is not well suited to baking at the low temperature at which you are baking your pizza so I would suggest changing to a common bread type flour with about 13% protein content which has been malted. You should be able to find this flour in the baking section at just about any supermarket. Here is what I think might be a better dough formulation for you to begin with.

Flour: 100%.....1100-grams.

Salt: 2%.....22-grams.

Water: 63%.....693-grams. 70F/21.1C

Yeast:(ADY) 0.18%...2-grams. (be sure to hydrate/activate the ADY in a small portion of water at 100 to 105F/37.7 to 40.5C.

Target a finished dough temperature in the 70 to 75F/21.1 to 23.8C range.

You're going to be hard pressed to get much charring at your present baking temperature unless you include some sugar in the dough formula. I would suggest making the pizza first without any added sugar and then if you feel you need more crust color add 2% (22-grams) of sugar for the next pizza. You can then fine tune the sugar level as necessary.

Tom Lehmann/The Dough Doctor

[Re: Dough recipe for oven that gets up to around 650F \(PizzaQue Oven\)](#)

2654

Toughness is highly subjective so it'll be hard to specifically address that attribute but the direction needed to achieve a crust that is crispy on the outside and soft on the inside is to bake the pizzas at a higher temperature and to include some oil in the dough formulation if it is not already being used. The amount I'd suggest for you to begin with is 3%, this can be olive oil or any type of vegetable oil you might have on hand (you can always experiment with using different oils if it works). The crust itself really doesn't look too bad so I don't think the bubbling issue is in the dough but instead with the way the skin is being opened/formed. It seems that you are leaving a lot of dough out on the edge of the skin which is resulting in that large edge crust where the bubble formation is. Getting that part of the crust thinner will also reduce the perceived toughness of the finished crust. Also, what is the total weight of the dough ball and the diameter of the skin you are opening it up to?

In the meantime, you might want to go to my web site <www.doughdoctor.com> and view Part 3 of my video on making pizza dough, in this segment we show how to open the dough so the center of the skin is not too thin nor is the rim too thick/heavy.

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2655

Pictures of the top and bottom of the pizza would help but to me it sounds like the deck is not heating or getting fully heated for whatever reason. Have you confirmed gas pressure? Correct hook-up? Have you contacted their support group yet?

Tom Lehmann/The Dough Doctor

[Re: Base of my pizza won't char](#)

2656

For the way you're managing the dough I would suggest targeting a finished dough temperature of 70 to 75F, you can always change it if necessary later on. Use a dial/stem type thermometer to take the temperature of the dough both immediately after the mixing/kneading stage and again when you're ready to begin opening the dough balls into skins (here you're looking for a temperature between 50 and 60F. Pick a temperature and try to be consistent. Again, to measure the dough temperature at this point just insert the thermometer into the dough ball and record the temperature indicated.

When hydrating/activating ADY use a small amount of water at 100 to 105F (again, use the thermometer here too).

You don't say how you're CF the dough but my preference is to put the dough into a plastic bag (NOT A ZIP-LOCK BAG), lightly oil the dough ball, drop it into a plastic Food Bag (like a bread bag), twist the open end to form a pony tail and tuck the pony tail under the dough ball as you place it in the fridge. To remove the dough ball from the bag, just roll the bag down around the dough ball, invert the bag allowing the dough ball to fall out onto a floured surface. With this method there is no need to leave the dough container uncovered for several hours prior to putting the lid on it. Any problems with the dough sweating in the container are also eliminated when using the bags. As for a scale, there was just a number of posts on a pretty neat scale that might work well for you and the price point was around

\$10.00....sorry guys, I didn't make a note of it or commit it to memory....feel free to jump in regarding this or any other scale.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Dough too stretchy](#)

2657

Every bit of that, that's why I'm questioning the color represented in the photograph. If the crust is indeed that color it is most likely not thoroughly baked which would result in a "different" flavor as well as a more chewy mastication characteristic.

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2658

I have a question regarding the picture, is the crust really that light in color or is it just the lighting? What does the bottom of the crust like? Pizzas are baked from the bottom up so looking at the bottom of the crust might give a better idea of the bake the pizza is getting.

Also, you are saying dry but then you are saying that your jaws get tired of chewing (I know the feeling first hand), which would indicate toughness in the crust.

Keep hanging in there, you'll master it :chef:

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2659

It all depends upon the type of wheat that the all-purpose flour was milled from, if it was milled from a good quality hard red or white wheat variety you could get some of the characteristics of All Trumps flour from the ap flour through the addition of VWG BUT when supplementing flour of a lower protein content with VWG the resulting blend while having the same protein content as All Trumps (14% +/-) will always tend to produce a tougher, more elastic dough. The reason for this is because what you are supplementing with is all gluten forming protein while a portion of the 14+% protein in All Trumps is not gluten forming protein. Also, since the VWG is already fully developed gluten the doughs containing VWG usually exhibit a slightly tougher, more elastic characteristic.

Tom Lehmann/The Dough Doctor

[Re: Vital Wheat Gluten](#)

2660

A couple of questions to ask:

- 1) What was the finished dough temperature (after kneading)?
- 2) Why so much ADY? 0.5% would have been plenty.
- 3) Did you hydrate/activate the ADY prior to addition to the dough? If so what was the water temperature?
- 4) Why leave the dough at room temperature for 7-hours prior to opening? The dough will handle much better for you if you just allow it to warm to 50 to 60F (internal temperature) prior to opening.

The condition which you described for the dough soon after kneading is completely normal as biochemical gluten development will do the gluten development for you as kneading is a pretty poor way to develop gluten.

Tom Lehmann/The Dough Doctor

[Re: Dough too stretchy](#)

2661

I'd be looking at the one with 13% protein content (Cuoco) as my first choice.

Tom Lehmann/The Dough Doctor

[Re: Flour question for Detroit style pizza](#)

2662

Dough formulation won't have a great impact upon the strength (resistance to collapse) with a par-baked crust, but here is a dough formula that might fit your needs:

Flour: 100% (strong bread type flour)

Salt: 1.75%

Sugar: 1.5%

Oil: 2%

IDY: 0.375%

Water: 62%

By using a dough ball weight of 12-ounces for a 12" pizza you will have a dough loading of 0.106-ounces (very close to what you asked for) per square inch of surface area.

Tom Lehmann/The Dough Doctor

[Re: Dough Formula for Heavy Topped Pizza](#)

2663

How are you milling the tomatoes?

Tom Lehmann/The Dough Doctor

[Re: Watery tomato sauce](#)

2664

JPB;

My opinion is that it's pure, unadulterated nonsense. They are partially right in that the water can/will impact the flavor of beverages, we all know that, but from there on it's hogwash. The video tells it all. The system replicates the molecular structure of New York City water. Most of us know what the molecular structure of NYC water is, it comprised of two hydrogen molecules and one oxygen molecule, anything else is not water!

That's my story, and I'm stickin' to it! :-D

Tom Lehmann/The Dough Doctor

[Re: Watermarker?](#)

2665

Just be careful to mind the water temperature, once you reach 140F you are in the enzyme deactivation temperature range and by 180F you essentially have non-diastatic malt syrup as all of the amylase will have been destroyed.

Tom Lehmann/The Dough Doctor

[Re: Ok to freeze low diastatic malt](#)

2666

JKB;

Just don't hold the garlic butter over from one day to the next and you'll be fine. I usually prepare my garlic butter while the dough is proofing so it's rarely made more than 90-minutes prior to use. If you are just putting garlic butter onto a

commercially made bread make the garlic butter about an hour, or so, prior to meal time then dispose of any remaining product (I never have any remaining product as it gets divied-up between all of the slices).

Tom Lehmann/The Dough Doctor

[Re: Flavored and Infused Oils](#)

2667

Those large bubbles are due to the very short fermentation time you used. They will go away once you begin giving the dough normal fermentation. If you can, allow the dough CF for a little longer than 24-hours, I'd suggest going for 30-hours or a little more for your first pizza and then begin experimenting with increasing the CF time in 12-hour increments to find what works best for YOU under YOUR specific conditions. Once you've done this and you have developed your skills and confidence to a level where you are making good pizzas (this actually comes pretty quickly) you can begin experimenting with other aspects of your pizza. Be aware though that there are some potential ramifications to experimenting with pizza.....potential weight gain, and finding new friends weekly are but two of them :-D

And remember, when experimenting with pizza, even the mistakes will taste pretty good! :)

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2668

Malt Products Corporation is also a major supplier of malt to the industry

<www.maltproducts.com>

Tom Lehmann/The Dough Doctor

[Re: Ok to freeze low diastatic malt](#)

2669

Mike;

If you go to the PMQ web site <www.pmq.com> and go into the RECIPE BANK, use "pizza" for your search word and look for my home made pizza dough "recipe". It might help you get started making pizzas. That alcohol aroma is a good thing....you only smell it in the dough. Alcohol is a byproduct of the fermentation process and it's part of the flavor development process vital to a good crust. Also, I DO NOT recommend using a glazed tile, instead, get an un-glazed tile (they're used on floors), or you can also go with a baking steel or a biscuit stone.

Tom Lehmann/The Dough Doctor

[Re: dough recipes](#)

2670

My preference is 11-ounces (312-grams) but some like to use 10-ounces (284-grams), the heaviest I use is 12-ounces (340-grams).

Tom Lehmann/The Dough Doctor

[Re: dough ball size for 12 inch pizza](#)

2671

They both provide sugar for the yeast to feed upon during fermentation with any residual sugars helping to promote crust color but if you use too much sugar the dough just ferments slowly, the crust tastes sweet and it will have excessive crust color. If you use too much diastatic malt the dough will become sticky with no way to correct it. With excessive diastatic malt the crust can develop a "malt" flavor,

much like that of a malted milk ball (candy). If you have a flour with a high level of damaged starch sugar will have little or no impact upon the dough but diastatic malt, at just about any level, will essentially liquefy the dough within an hour or so of mixing.

Tom Lehmann/The Dough Doctor

[Re: diastatic malt vs sugar](#)

2672

The biggest problem with malt powder is that it's dog gone hygroscopic. My advise is to repackage into smaller bags so you're not opening the large bag continually which will just lead to one large lump of malt powder. I DO NOT recommend freezing it, not that it'll hurt it but when cold meets warm condensation is formed which is what you DON'T want.

In summary:

3 to 5# bags (double bag).

store at room temperature.

Remove what you need and IMMEDIATELY reseal the bag.

Tom Lehmann/The Dough Doctor

[Re: Ok to freeze low diastatic malt](#)

2673

I took this to mean that upon the second pass through the sheeter (we usually use two or three passes through the sheeter, turning the dough 90 degrees between passes) but if the dough is indeed being re-balled at any time just prior to sheeting the dough will tighten up and the sheeting rolls will end up destroying the dough as Yael has stated.

Treefetty can you please clarify this for us?

Tom Lehmann/The Dough Doctor

[Re: Why is my dough doing this?](#)

2674

POD;

If your dough continues to be sticky even after weighing all of your ingredients here is something to try;

- 1) Mix the dough ingredients together as you have been.
- 2) Drape a damp towel or piece of plastic over the mixing bowl and allow the dough to ferment for 2-hours.
- 3) After the 2-hour fermentation period scrape the dough out of the bowl onto a floured surface.
- 4) Very lightly oil your hands and begin kneading the dough using a series of stretch and folds.
- 5) Continue the stretch and folds until the dough begins to look smooth.
- 6) Immediately scale into desired weight pieces and form into balls.
- 7) Lightly oil each dough ball and place into individual plastic bags (bread bags), twist the open end of the bag into a pony tail and tuck it under the dough ball.
- 8) Place dough balls into the fridge to CF (cold ferment) for 24 to 48-hours.
- 9) Remove dough balls from fridge and allow to warm AT room temperature for at least 1-hour.
- 10) Remove dough ball from bag by rolling the bag down around the dough ball and then inverting the bag allowing the dough ball to fall out of the bag onto a floured surface.
- 11) Begin opening the dough into a pizza skin.
- 12) Dress the skin and bake.

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2675

The reason why I asked is because a walk-in cooler performs differently than a reach-in when it comes to dough fermentation. The walk-in is going to be MUCH more efficient at cooling the dough so with all things equal you may find the dough lacking in fermentation when you begin using the walk-in cooler. To compensate for this we typically recommend increasing the finished dough temperature by 5F when going from a reach-in to a walk-in cooler.

Tom Lehmann/The Dough Doctor

[Re: Why is my dough doing this?](#)

2676

You have nothing else to do? It seldom ever takes me more than 10-minutes and that includes scaling the ingredients and cleaning up (not much to clean-up).

Tom Lehmann/The Dough Doctor

[Re: Please tell me why?](#)

2677

If you're going to bulk ferment it is always best to do so in a container which presents the smallest top surface like a tall cylindrical container. By immediately subdividing the dough into individual pieces and balling, then boxing and oiling the top of the dough balls then cross-stacking for 2 to 3-hours (time varies with the type of cooler and dough ball weight) then down-stacking and cold fermenting for a period of time (usually 2 to 3-days) you completely avoid the sweating issue and you get a much more consistently performing dough yielding more consistent quality pizzas which is the name of the game in commercial pizza production where failure or variability is not an option.

Tom Lehmann/The Dough Doctor

[Re: problem with large air bubbles/blisters in the cornice](#)

2678

Welcome! You came to the right place. Just to bring us up to speed can you share with us what you have at hand for making Neo. pizzas? How will you mix the dough? Tell us about your oven. Do you have a specific flour in mind? Over here TMI (too much information) is seldom an issue. :)

Tom Lehmann/The Dough Doctor

[Re: Need Neapolitan pizze at home](#)

2679

I don't know your dough so this is just an educated SWAG.

While the dough was actively fermenting when you balled it I think the smaller dough balls (as opposed to bulk) will cool a little better, though not as well due to the gassy nature of the dough, so they will continue to ferment more than normal even while in the fridge. It's not the 1-hour extra time up front, it's the condition that it created that is problematic, (gassy dough is difficult/impossible to cool properly), so with this said, I think if you handle the dough as LITTLE as possible and open it carefully you will probably be OK. Take a look at the dough in the afternoon if you can, this will tell the story, if the dough balls have even a remote resemblance to normal all is good, but if they are flattening out/collapsing or blowing the news is not good, but even then a skilled pizza maker can do wonders to salvage a dinner party.

Good luck, let us know how the pizzas come out.

Tom Lehmann/The Dough Doctor

[Re: Advice- dough for tonight](#)

2680

While flour strength and protein content are not always synonymous for the most part (at least in the U.S.) it is so for that reason I will say yes, as I pointed out in my initial response protein content/flour strength impacts the "potential" crispiness. This means that ultimately you can get a crispier crust from a higher protein content flour than a lower protein content flour, but to achieve maximum crust crispiness with any flour you must do your part to get that crispiness, that's the challenge.

Tom Lehmann/The Dough Doctor

[Re: How to get crispier crust?](#)

2681

Yael;

I'm going to pay you the same compliment a professor once paid to me.

"You're getting to be one smart cookie!" :).

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2682

The "sweating" of the dough might be what is causing the problem. When you put a large bulk dough in the cooler it really doesn't cool down very much due to the inefficiency of trying to cool a single large dough mass which is actually increasing in temperature with time due to heat of metabolism. The warm dough and the cold air in the cooler result in condensation forming on the dough. Since the condensation only forms where there is head space the idea is to eliminate any free head space. This is easily done by lightly oiling the top of the dough and then covering it with a sheet of plastic/polyethylene pressed tight to the surface of the dough. Try this and see if it addresses the problem.

Tom Lehmann/The Dough Doctor

[Re: problem with large air bubbles/blisters in the cornice](#)

2683

Not including the flour that was used in the starter (that flour is pretty well shot), how much flour are you putting into the mixing bowl?

Tom Lehmann/The Dough Doctor

[Re: problem with large air bubbles/blisters in the cornice](#)

2684

The dough should be dense when you're kneading it. In some cases I will knead the dough for a couple of minutes and then allow it to rest for 15 to 30-minutes (this is to allow for flour hydration) and then continue kneading it for a few more minutes. I never try to knead a dough to develop the gluten, just enough to get a somewhat smooth dough and then I let biochemical gluten development do the gluten development for me.

Tom Lehmann/The Dough Doctor

[Re: How many times can I let dough warm-proof?](#)

2685

Where to begin?

Here goes.....

Dry yeast is hydrated/activated in water at between 95F (for IDY) and 100 to 105F (for ADY). Don't know where that 120F came from but it is TOO HOT.

The temperature of the remainder of the water (after a small portion has been used for hydration/activation of the yeast) is adjusted to whatever temperature is necessary to achieve the desired/targeted finished dough temperature (normally something between 75 and 85F).

Most tap water from a municipal supply is adjusted to a pH of 6.9 to 7.0, if you have sulfur water it will be more alkaline and need to be adjusted to 7.0 through humidification (vinegar or MCP/mono calcium phosphate).

Distilled water is not preferred to hard water (this has been discussed in these pages a number of times). The minerals in hard water are good for the dough and actually serve to help strengthen it.

The most economical way to measure water pH is through the use of pH test strips. These are available on-line as well as at most pharmacies and pool supply stores.

When making no-time/emergency doughs 2% of the water is sometimes replaced with an equal amount of 50-grain strength white vinegar to help speed up the fermentation rate but this serves no practical purpose when not making no-time/short-time doughs. Adding baking soda to very acid water would indeed neutralize the acid BUT if there is any un-reacted soda it will serve to make the water alkaline which will, without question put the brakes on fermentation.

Are you having a water issue?

Tom Lehmann/The Dough Doctor

[Re: Safest PH level and temperature for water?](#)

2686

Ted; There is a plethora of things which impact the crispiness of the crust. The protein content affects the potential crispiness of the finished crust. The main things that affect crispiness are:

Dough absorption: Higher is better (within reason)

Fermentation: Longer fermentation times promote more crispiness.

Baking: A longer, slower bake promotes more crispiness.

Hand forming the skin: Hand formed skins typically produce a crispier finished crust than those opened by machine or rolling pin (only applies to full diameter opening).

Less toppings is better: The fewer the toppings the easier it is to get a crispy crust.

Par-baked crusts: Par-baked crust will almost always give a crispier finished crust than one that is baked from raw dough.

Tom Lehmann/The Dough Doctor

[Re: How to get crispier crust?](#)

2687

Additionally, how are you mixing the dough and what is your dough management procedure?

Tom Lehmann/The Dough Doctor

[Re: Dough comes out too sticky at 60% hydration :\(](#)

2688

The answer to your question is : French Bread, Vienna Bread, Italian Bread, Bagels, Pretzels.

A typical formulation for pizza doughs would cover the formulation for all of the above. One year when we did our pizza seminar we had our students make pizza from commercially made frozen dough for each of these products to prove the point

and the resulting pizzas were all very similar.

Tom Lehmann/The Dough Doctor

[Re: How does pizza dough differ from dough intended for rolls/sandwiches?](#)

2689

Very carefully dissect a few of the balls to see if somewhere within the ball you can find/see a small particle of your garlic. You might also do a "positive" test by simply making another sauce without the garlic to see if the balls develop in the sauce without the garlic, if they don't you've got both the answer and solution.

Tom Lehmann/The Dough Doctor

[Re: Is this that garlic-caused pectin gel that Tom Lehman has talked about?](#)

2690

What is your total flour weight?

Tom Lehmann/The Dough Doctor

[Re: problem with large air bubbles/blisters in the cornice](#)

2691

JKB;

That was my first thought too, they look like the grape tomatoes that I grew a couple years ago...about the same size too.

Tom Lehmann/The Dough Doctor

[Re: Is this that garlic-caused pectin gel that Tom Lehman has talked about?](#)

2692

June;

Malt (powder or syrup/diastatic or non-diastatic) = sugar. In some dough formulations malt may provide a slightly different finished crust flavor than regular sugar but in my humble opinion this is more important in bread making than pizza making due to the toppings masking crust flavors. Take your pick, sugar or malt, or use both if you want but keep in mind that if you use both at 2% you have just increased your total sugar level to 4%, twice of what it was originally and you will get more crust browning, maybe a little inhibition of yeast activity (depending upon the yeast level) and possibly a little sweetness in the finished crust. If you are familiar with Papa Murphy's Pizza crust you know what 5% total sugar tastes like.

Tom Lehmann/The Dough Doctor

[Re: Need some input on how much IDY yeast is correct amount for a 24 hr CF](#)

2693

Plan on placing the dough balls 2 to 2.5-inches apart which is a pretty standard spacing to allow for expansion of the dough balls. But do keep in mind that expansion of the dough balls is something that I cannot predict as it is influenced by a number of factors such as dough temperature, dough absorption, dough viscosity, amount of yeast used in the formulation, dough management procedure being employed, and how tightly the dough balls are rounded.

Tom Lehmann/The Dough Doctor

[Re: Dimensions for a wood proofing box?](#)

2694

The size of your dough fermentation box will need to be based on the spacing of the shelf rails in the wine cooler. If it doesn't have shelf rails then we typically size the boxes to be 25mm narrower and 50mm shorter than the inside dimension of the cooler box. As for height I'd suggest something about 75mm in height.

Tom Lehmann/The Dough Doctor
[Re: Dimensions for a wood proofing box?](#)

2695

Typically, the entire mass just thickens usually to the point where spreading the sauce becomes problematic unless lots of extra water is added to thin it back out again to spreading consistency. I've never seen anything like those little "jelly balls" form but if I had to take a guess it would be that within the core of each of those balls is a small piece of garlic....something to take a close look at.

Tom Lehmann/The Dough Doctor

[Re: Is this that garlic-caused pectin gel that Tom Lehman has talked about?](#)

2696

OK, you've convinced me, I'll just admire them and dream of those great tasting steaks. Believe it or not, it wasn't too long ago when they were considered a nuisance, like deer in New Zealand (South Island). They taste good too! :drool:

Tom Lehmann/The Dough Doctor

[Re: water buffalo ribeyes!](#)

2697

Jerry;

Easy one to answer, leave the lid off of the container for about 3-hours after placing it into the fridge then apply the lid and forget about the dough until you're ready to use it (keeps this way up to at least 3-days. This should address the wet dough and big bubbles. The wetness is due to condensation forming inside the container and the bubbles are due both to the wetness and the heat build-up in the dough due to covering it right away. This issue is exacerbated when you have a high finished dough temperature (above 85F). One good way to get around the problem is to use plastic "food" bags (not ZIP-LOCK bags). This has been discussed in detail fairly recently here.

Tom Lehmann/The Dough Doctor

[Re: Dough Mangement](#)

2698

Thank you for the report. It looks like it would be a great little scale for anyone who doesn't have one or who is short on cash or storage space. It would be nice if we could post this to an equipment page for future reference.

Tom Lehmann/The Dough Doctor

[Re: good deal on food scale](#)

2699

I've got a .375 Ruger that would put three of them in the freezer. :D

Tom Lehmann/The Dough Doctor

[Re: water buffalo ribeyes!](#)

2700

What kind of cooler are you working with tight now, a reach-in cooler?

Tom Lehmann/The Dough Doctor

[Re: Why is my dough doing this?](#)

2701

While on the topic, the second most common cause of the bubble that you're seeing is when baking the pizzas on a solid deck, especially a hot one. To test this theory

try placing a screen under the pan for the first half of the bake. What happens in this case is the dough is expanded too quickly resulting in coalescing of the gas cells in the dough which creates one large bubble which is trapped under the crust. Where we had no choice in reducing the baking temperature a screen can help by slowing the heat transfer to the bottom of the pizza or if you want to take a reformulation approach reducing the dough absorption can also help, in this case the amount will be variable depending upon what the present dough absorption and dough viscosity are but usually a 3 to 5% reduction helps.

Tom Lehmann/The Dough Doctor

[Re: detroit style in a convection?](#)

2702

Just a few drops is all it takes, if you can see a shine on the inside of the container you have enough oil. Don't worry about extra oil, the pizzas coning out of the big box chains are made from dough balls that are brushed liberally with oil, it actually contributes to the crust color.

You pizzas look great!

Tom Lehmann/The Dough Doctor

[Re: Too much oil in dough ball container](#)

2703

I had some of those when I was in Australia....very good indeed but as I remember the meat is a ruby red making the steaks look like they were taken from an animal that had been beat to death with a bat. But still very good!

Tom Lehmann/The Dough Doctor

[Re: water buffalo ribeyes!](#)

2704

In our research we saw this bottom characteristic more often when the doughs were not sufficiently fermented so you might try giving a couple of your dough balls an extra day of fermentation to see if that is indeed the issue in your case. Let me know what you see. I see no reason why you couldn't do canned vegetables for catering as well as chicken and just about anything else in a Garland Air Deck oven, you might need to place some of these items on a double sheet pan and cover the pot/tray that they're being heated in (this will protect them from the airflow thus turning your oven into something more like a convection or "hot box" oven.

My "partner in crime" Jeff Zeak used to work the XLT booth at Pizza Expo and make just about anything you could imagine in their air impingement ovens using just a regular pizza top and bottom finger profile. You might contact XLT Ovens in Wichita, KS and ask them about the different things that Jeff made in their ovens. I mention this because the air deck oven is just like any other air impingement oven except that it has a stationary grid for a deck as opposed to a moving conveyor which gives the operator the ability to bake items for whatever length of time they wish as the oven is operated/tended just like any other deck oven.

Tom Lehmann/The Dough Doctor

[Re: detroit style in a convection?](#)

2705

Db1;

Thank you for clearing that up. We have tried and tried to make decent pizzas in those kinds of ovens but were never truly successful. Best to leave that oven to its intended purpose in my opinion.

Tom Lehmann/The Dough Doctor

[Re: detroit style in a convection?](#)

2706

Doughball;

Everything has to be baked in a pan or on a disk or screen in the Garland Air Deck Oven. It is essentially an air impingement oven without a moving conveyor.

Just to clarify: When you say "convection" do you really mean convection or do you mean air impingement? Huge difference between the two. If you mean "air impingement" then Shuboyje is absolutely correct in his response. I've worked in a number of pizzerias making Detroit style pizzas using air impingement ovens. If you are not familiar with air impingement ovens I would HIGHLY encourage you to learn as much about their operation as possible before buying one. If buying new you can have the oven set up with a top and bottom finger profile specific to your SPECIFIC needs. XLT and EDGE both do a very good job of this.

Tom Lehmann/The Dough Doctor

[Re: detroit style in a convection?](#)

2707

I've not tried it but from the specs it falls in the General Mills Remarkable to All Trumps range so it should work quite well for a N.Y. style of pizza.

Tom Lehmann/The Dough Doctor

[Re: Sam's Club Bread and Pizza Flour](#)

2708

How big of an oven are we talking about here? If "big" is the answer how about a Garland Air Deck oven? No recovery time.

Tom Lehmann/The Dough Doctor

[Re: detroit style in a convection?](#)

2709

Pizza Garage;

You and I are of the same mind! ^^^

Cold dough can even do that. Impossible to say which one is responsible without the details.

Tom Lehmann/The Dough Doctor

[Re: Why is my dough doing this?](#)

2710

Brent;

It sounds like the dough is over fermented and has developed the "bucky" characteristics of an over fermented dough.

Tom Lehmann/The Dough Doctor

[Re: too elastic](#)

2711

Without knowing what the pH and TTA of the dough and SD started were I can only take a SWAG. I'm guessing that the amount of SD added lowered the pH of the dough to a point which was more favorable for the fermentation progress which was why you observed what might have been more rapid fermentation. Also, remember that with more SD the dough typically shows more softening (mellowing) due to the affects of the acid on the gluten forming proteins and dough softening can easily mimic the effects of over fermentation because in a way they are very similar in that an over fermented dough is more acid too, in this case

you're just adding the additional acid in the form of the SD starter. I don't know if that bucket holds water or not, like I said....it's just an educated SWAG.

Tom Lehmann/The Dough Doctor

[Re: Sourdough fermentation with hybrid dough..a question](#)

2712

As pizza continues to morph we are seeing something of a trend for "free form" pizzas. The big box store chains will continue with the "cookie cutter" approach as it's somewhat necessary for portion control, and training, not to mention consistency of bake through a conveyor oven but for the independents with deck and stone hearth ovens we are beginning to break out of the round pizza mold. The most common departure appears to be an oval shaped pizza which still lends itself to cutting into relatively equal size pieces. I seldom ever strive for the perfectly shaped "round" pizza when I'm making pizza at home and I've not yet had a single person refuse it because it wasn't round, square or rectangular. :chef:

Tom Lehmann/The Dough Doctor

[Re: Flat squares instead of round balls](#)

2713

It would help a lot to know your dough formulation as well as dough mixing and and dough management procedures. How you bake the pizza can have a significant impact too, but for starters I'm guessing that you might be opening the dough skins too thin as this will result in a tough and chewy crust almost every time. Make another dough and when opening the dough into a skin experiment with different (thicker) skins. Thin cracker doughs are made much like a pie dough and as such I really wouldn't call the dough "soft" by any stretch of the imagination, this is why it's important to know your dough formulation as well as procedures used in making and baking it.

Tom Lehmann/The Dough Doctor

[Re: My tough Dough](#)

2714

Place the basil leaves on IMMEDIATELY after removing the pizza from the oven, the heat will wilt the basil and release the flavor with no chance of charring it.

Tom Lehmann/The Dough Doctor

[Re: Slightly under-proofed?](#)

2715

1) Was there any sugar, eggs, milk, etc. in the dough formula?

2) Were you baking just undressed dough skins into par-baked crusts?

Typically what happens is that the thicker stone holds more latent heat thus not giving up as much of its heat to the pizza during baking so the bottom temperature remains more constant during baking thus providing a stronger bottom bake and the real test is when you place a second pizza on the same spot right after baking the first pizza.

If those were just crusts as they appear to be you most likely were not pulling much heat out of the stone so thickness wasn't as critical.

Tom Lehmann/The Dough Doctor

[Re: Different thickness stones get the same result?](#)

2716

Both PJ's and Domino's use air impingement ovens to bake their pizzas. The disks will NOT bake the same, or anything close, in any type of a deck oven as they do in

an air impingement oven. I'm in agreement that your best bet might be to begin the baking process on a silicone baking sheet and then remove it after a couple minutes to finish baking right on the steel deck.

Tom Lehmann/The Dough Doctor

[Re: Pizza baking sheet on top of steel](#)

2717

SG;

Temperatures in the 90's as well as high humidity won't hurt the dough at all as it is essentially a no-time/short time dough process. I would recommend using cold water (50F) to make the dough as this will prevent getting a finished dough temperature above 90F which should be avoided if at all possible.

Once mixed allow the dough to ferment for a minimum of 2.5-hours (can easily go as long as 6-hours at room temperature under your conditions) before opening the dough balls into skins.

Tom Lehmann/The Dough Doctor

[Re: Same Day Dough](#)

2718

Due to the fact that you are using a sourdough starter at a high level, that's about par for the course.

Tom Lehmann/The Dough Doctor

[Re: Flat squares instead of round balls](#)

2719

Actually, 0.1-ounce = roughly 2.84-grams, not good for small dough sizes but OK for larger doughs, however in reading through some of the questions/answers I see a comment that it won't respond to less than 4-grams on the pan. I don't know if that means you need at least 4-grams on the pan to get it to respond or not. If so the tare of a container should take care of that. Would sure like to see a report back on this scale if anyone has one yet.

Tom Lehmann/The Dough Doctor

[Re: good deal on food scale](#)

2720

That would be correct, just so long as it's food grade.

Tom Lehmann/The Dough Doctor

[Re: Salt crumbs in the dough](#)

2721

I'm not overly fond of the vertical viewing of the display screen but for the price I'd be willing to overlook that one objection. Look mom! No more excuses for not weighing the ingredients! :)

Tom Lehmann/The Dough Doctor

[Re: good deal on food scale](#)

2722

That sounds more like rock salt. Why not just use a finer grade of sea salt?

Tom Lehmann/The Dough Doctor

[Re: Salt crumbs in the dough](#)

2723

I also like to tear it apart (I liken it to peeling an orange) as this gives me the

necessary thin pieces.

Tom Lehmann/The Dough Doctor

[Re: Beginner mozzarella cheese question](#)

2724

Just remember that CY has a limited shelf life (about 3-weeks) for home use and 2-weeks for pizzeria use, after that time it will begin to deteriorate showing progressively poorer fermentation properties and depending upon storage conditions, softer, weaker, more extensible doughs. CY must be held under constant refrigeration especially in warm climates (remove from fridge, weigh amount needed and immediately place back into the fridge). Keep in mind that depending upon your source/supplier, the CY may be anything from a few days old to well over a week old already so if you see deterioration in the yeast or in your doughs you will need to adjust the shelf life (time you can store the CY) accordingly.

Tom Lehmann/The Dough Doctor

[Re: Activation of the CY and temperature targeting](#)

2725

Here's the easy way to work with VWG;

1) Determine how much you want to increase the protein content of your existing flour.

2) Divide that number by 0.6 and that is the percent VWG you will need to add to whatever amount of flour you are using to bring the protein content up to whatever percent you wanted.

Example:

Your existing flour has 11% protein content and you want to increase it to 12.5% protein content. $12.5 - 11 = 1.5\%$ protein increase is desired. 1.5 divided by $0.6 = 2.5\%$ VWG will need to be added to your flour to bring it up to the targeted 12.5% protein content.

NOTE: For each 1% VWG added to the dough you will also need to increase the dough absorption by 1.75%.

To add the VWG be sure to dry blend it into the flour using a whisk, just a few stirs with the whisk will be sufficient to disperse the VWG into the flour.

One other cautionary note:

There are different types of gluten, there is vital wheat gluten (VWG) and devitalized wheat gluten (DVWG), THEY ARE NOT THE SAME AND PERFORM VERY DIFFERENTLY.

There is also corn gluten which is NOT the same as VWG, in this case the word "gluten" is synonymous with protein so corn gluten is nothing more than corn protein and since there is NO glutenin or gliadin in corn protein it will not perform as VWG.

Tom Lehmann/The Dough Doctor

[Re: High Gluten Flour](#)

2726

With regard to rate of fermentation it doesn't make any difference if the salt goes into the dough early or late in the mixing stage, all it's affecting at the mixer is the speed at which the gluten develops but since in pizza dough production we are not trying to achieve much gluten development it's a moot issue.

Tom Lehmann/The Dough Doctor

[Re: Salt crumbs in the dough](#)

2727

Why are you trying to activate yeast that is already activated? If you are machine mixing just crumble it into the flour and begin mixing, if you are hand mixing just place it into the dough water, regardless of temperature (within reason of course) and whisk it to achieve a yeast suspension, just takes a few seconds, then pour the yeast suspension into the mixing bowl and you're good to go.

Tom Lehmann/The Dough Doctor

[Re: Activation of the CY and temperature targeting](#)

2728

The salt will most likely dissolve in the water that it will pull from the dough and subsequent handling of the dough will take care of the dispersion of the salt. The worst thing that might happen is that you could get pronounced salty flavors if the dispersion is poor. When we use the delayed salt addition mixing method the salt is added right at the beginning of the last four minutes of the mixing cycle BUT the salt used in this application is a very fine salt (small particle size) which aids in both distribution and dissolving of the salt in the dough.

Tom Lehmann/The Dough Doctor

[Re: Salt crumbs in the dough](#)

2729

The answer is "osmotic pressure".

Yeast feeds through osmosis and when you have much more than about 2% sugar in the dough it upsets the osmotic pressure around each yeast cell thus hindering the cells ability to draw nutrient through the cell wall membrane. If you were to place CY and sugar together (in direct contact with each other) the osmotic pressure exerted by the sugar (or salt) would be so great as to plasmalize the yeast by pulling the plasma (glutathione) out of the cells and giving you a brown sticky syrup. This is why we increase the yeast level in sweet doughs containing high levels of sugar (18 to 25%), if we didn't it would take forever to ferment and proof the dough.

Tom Lehmann/The Dough Doctor

[Re: A question about sugar saturation](#)

2730

Oh my, sooo many things to consider;

Can you ferment the dough longer?

Can you use a lower protein content flour? Remember, N.Y. pizzas are made using All Trumps flour (14+% protein content) to achieve that chewy mastication property).

Make the dough skin a little thicker (use more dough to make the same size pizza). Consider using oil in the dough.

Reduce or eliminate sugar fro the dough formula.

Bake longer at a lower temperature.

Use less sauce (try using thin slices of fresh, ripe tomato instead of your regular sauce as a test but be sure to VERY LIGHTLY brush the skin with oil before application of the tomato slices).

Dough absorption should be maximized for the flour being used (softer dough = crispier crust).

Depending upon oven spring characteristics of your dough, a SLIGHT increase in yeast level might provide more oven spring resulting in a better overall bake =

reduced toughness and crispier crust characteristics.

If hand opening make sure not to get thin spots in the dough skin.

This is a good starting point for things to consider. All of them probably won't apply to your dough so you might be able to eliminate some right from the start, any not eliminated will need to be explored through testing. I see more pizza parties in your future :chef:

Tom Lehmann/the Dough Doctor

[Re: Chewy dough](#)

2731

A cold dough going into the fridge will experience significantly less fermentation before it drops to 40 to 45F where yeast is relatively dormant than a warmer dough. There seems to be a point which appears to be at around 70F where, with a correctly functioning cooler, the dough will exhibit little gain in volume over the CF period. A dough of this type, unless exposed to CF for over 3-days or given a lot of post refrigeration proofing prior to opening, would be tougher than a "normally" fermented dough. Temperature is the number one driver of fermentation.

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2732

Just be sure to use metal utensils, not wood or plastic.

Tom Lehmann/The Dough Doctor

[Re: Avoiding cross contamination between starters?](#)

2733

The process you have outlined is very similar to what I've seen done commercially. The par-baked crusts can be stored for a full day or more without any issues, just store at room temperature, not under refrigeration. once you have an inventory built up you will be working from that inventory and making more par-baked crusts during the day. My advice is to work against a fixed daily inventory.

Tom Lehmann/The Dough Doctor

[Re: Help with forming pan pizzas with high hydration dough](#)

2734

So, let me see, you're proposing to add the garlic after baking? Why not just add it to the pizza, on top of the dough just prior to application of the sauce or as an ingredient when dressing the pizza?

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2735

Commercial pizzerias accomplish it through the application of a special starch wash to the crust prior to baking. This starch is available from National Starch Company (Decatur, Illinois?). You can get another form of this but to a MUCH lesser magnitude and without the color from a cold dough, this is why we see it on crusts made from frozen dough.

Tom Lehmann/The Dough Doctor

[Re: What causes dough to do this, and how to replicate](#)

2736

#4 is only performed after the dough has been fermented for a period of time and it works much better on as large dough than a small one such as is typically made

by home pizza makers. The purpose of punching the dough is as follows:

- 1) To keep the dough in the container.
- 2) To help equilibrate the dough temperature.
- 3) To provide additional nutrient to the yeast.

Tom Lehmann/The Dough Doctor

[Re: The importance of mixing](#)

2737

Here is a little tip;

When buying a dial/stem bi-metal type thermometer look for one with a hex nut located on the underside of the dial. This is the calibration adjustment. If it doesn't have one, save your money to buy one that has it. To calibrate use an oral thermometer (calibrated for 98.6F) then place into a bowl of water and adjust the temperature until you get a reading close to 98.6F, compare this temperature against your shop thermometer and adjust as necessary. This method is much better than using ice water since the calibration temperature will be closer to the actual working temperature of the thermometer making for more accurate readings.

Tom Lehmann/The Dough Doctor

[Re: A man with 1 thermometer knows what temperature it is....](#)

2738

I always put just a very thin coating of oil in the container and the dough ball just plops right out. When you "flour" the dough ball and place it into a container the flour just hydrates and becomes one with the dough, serving no useful purpose unless you have a very low absorption dough. As for the "window pane" test for gluten development, pizzas doughs are not mixed to full gluten development, they are mixed JUST to a point there the dough takes on a smooth appearance....no need to mix any more, so the gluten test is best left for the bread bakers who need to develop their bread dough to a much greater level of gluten development.

Tom Lehmann/The Dough Doctor

[Re: Oiling/flowering dough balls surface & gluten test?](#)

2739

QJ;

Now you know why I always say to "record" the finished dough temperature for each and every dough :).

Don't worry, that's how we learn our most important lessons.

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2740

Yes.

Tom Lehmann/The Dough Doctor

[Re: Why is my dough doing this?](#)

2741

Remember that the garlic powder is also weakening the dough in addition to the fermentation so unless the fermentation chart is designed around YOUR specific dough formula and YOUR specific flour you should only use it as a guide, nothing more. Different flours exhibit a different tolerance to fermentation (a characteristic of the variety of wheats (grist) the flour is milled from). This is where YOUR fun begins!

Experiment with different dough temperatures (colder doughs ferment slower than warmer doughs) as well as different yeast levels (less effects of fermentation on the dough with lower yeast levels), and don't forget about the dough absorption too, while you might get an initially firmer dough with lower absorption it will exhibit greater strength characteristics and be easier to handle after the fermentation period. :chef:

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2742

Remember how GOOD McDonalds French fries USED to taste? That's because they WERE fried in beef tallow, but now since tallow is not consumer friendly they are frying their French fries in a different fat (I believe it used to be a blend containing a good portion of palm but I don't know what they use today).

I find it amusing how good people find the food to taste when they make it like it used to be made back in the good old days when food was good...yes, it has changed.

Tom Lehmann/The Dough Doctor

[Re: Beef Fallow](#)

2743

First of all, oil does not make the dough more "elastic" (create more "snap-back") but to an extent it does contribute to the extensibility of the dough. This is due to the oil's ability to lubricate the gluten allowing for easier stretching of the gluten/dough especially during the critical phase of oven spring. As for elasticity and extensibility, you are correct in that they cannot be used as synonyms as you have correctly stated:

Elastic/elasticity: The ability of the dough to pull back (snap-back) to regain its original shape after being pulled or deflected in shape.

Extensible/extensibility: The ability of the dough to retain its new shape after being pulled or deflected into a new/different shape.

The under fermented dough exhibited a very elastic characteristic while the over fermented dough was too extensible to handle easily.

Tom Lehmann/The Dough Doctor

[Re: Why does oil make dough elastic?](#)

2744

Place your hand into the flour with your fingers spread apart and rake your hand through the flour, after capturing and clumps in your hand bounce your hand up and down, if the clumps break apart and just filter out between your fingers, all is good, if they appear to bridge the gap between your fingers and the flour appears to be stringy you have an infestation problem with Indian meal moths. If any question send us some pics.

Additionally, if you sift the flour and it all goes through the screen you're good but if it builds up on the screen the flour is infested as the flour particles are adhering to the moths web.

Tom Lehmann/The Dough Doctor

[Re: GM Gold Neapolitan Flour](#)

2745

I'm not sure I understand your question but if it is in regard to needing to use a

short fermentation time to achieve an open, porous crumb structure, just the opposite is true. To achieve a very open crumb structure a long fermentation time is used. Compared to bread doughs, typical pizza doughs receive considerably more fermentation.

Tom Lehmann/The Dough Doctor

[Re: Additions to Your Dough](#)

2746

OK, now that the "whole" story has come out, the Thai dragon peppers/Thai chili flakes will probably be your best bet as it will provide the type of flavor your customers will be able to relate to.

Tom Lehmann/The Dough Doctor

[Re: How would you go about making a very spicy sauce?](#)

2747

In reading the attached link one of the problems that I see is that they are continually vacillating back and forth between bread dough and pizza dough. The technology employed in making bread dough is significantly different from that used to make pizza doughs. I had to chuckle when I read the amount of ascorbic acid recommended.....it's measured in parts per million (ppm). A typical dose of A.A. is in the 30-ppm to 90-ppm range with maximum doses running at or close to 200-ppm. Granted, there is no Federal maximum use level for the baker to add (there is a limit to how much a flour miller can add) but there is a point of diminishing returns which comes in at around 200-ppm.

Lecithin, whether it comes from soy or eggs (yolk) is not a recommended ingredient in pizza dough as it is an emulsifier (binds water and fat together) so when lecithin is used in the dough the water is more difficult to bake out but more importantly the fat in the dough now binds the water rather than repulsing it which can be a major contributor to the development of "the dreaded gum line".

Tom Lehmann/The Dough Doctor

[Re: Additions to Your Dough](#)

2748

Red chili pepper flakes and if you want more try using jalapeno, serano, anaheim, Thai dragon peppers are also good (Thai chili flakes), and there's always habaneros.

Put whatever chilis you opt to use into a bowl, add a little oil and nuke to heat the oil thus extracting the good stuff from the seeds, then blend into your sauce.

Tom Lehmann/The Dough Doctor

[Re: How would you go about making a very spicy sauce?](#)

2749

I try to slice mine between 1/16 and 1/8-inch thick. Being precise at cheese slicing is not my forte.

Tom Lehmann/The Dough Doctor

[Re: Cheese for Deep Dish](#)

2750

If the dough formula came from a local retail baker it was more likely than not something pretty close to that of a French bread dough formula (100% flour; 2% salt; 55% water; 1% compressed yeast; and maybe 1 or 2% oil). Nothing special as you can see, but if this all took place many years ago (30 or 40) there is a good possibility that he was using a direct dough process where he would mix the dough

in the morning, allow it to ferment at room temperature all day, knocking it down if necessary, and then around 7:00 p.m. grab a hand full of dough, cut it free using a knife, flour the dough piece (DO NOT BALL), pass it through a dough sheeter two or three times, trim it to desired diameter, dress and bake. The trim scrap was saver for use later in the day/evening if necessary, if it wasn't needed it was added to the next new dough as scrap and the process repeated.

Can you provide a time frame as to when they opened?

Tom Lehmann/The Dough Doctor

[Re: Pizza Dough](#)

2751

This is essentially the same procedure that we taught all of our seminar students to use. It is, by far, the best procedure to use when dividing a large dough (think pizzeria). What you do is cut the first piece and weigh it, then based on the actual weight cut the next piece longer or shorter and weigh again, when you have the correct length to give you the desired weight "fire for effect" meaning that you can cut a number of pieces and have them at or very close to the target weight. We used to make a contest out of it to see how many pieces each of us could cut that were "spot-on" weight wise. My personal best was eight (8) pieces. By using this method one person can divide 80+ pounds of dough into individual pieces weighing 9 to 12-ounces each, in 20-minutes or less. No other hand cutting method will allow for this speed.

By the way, remember those delicious bagels you used to buy? All of the bagel formers are fed dough which is mechanically divided by the exact same procedure, an operator cuts the dough into "ropes" of about 3-feet in length and places it onto a narrow conveyor, then a cutter automatically cuts the dough to a length which provides the correct dough weight for the type of bagel being made. The dough pieces in this case are referred to as "plugs". Something to watch for the next time you're in a bagel shop. :)

Tom Lehmann/The Dough Doctor

[Re: Dividing Dough - New method \(for me\)](#)

2752

I totally agree with Steve's approach. A few things to keep in mind; With an ash content of 0.78% (not 78%) the amount of whole grain is quite high. The bran content of the whole-wheat portion exerts a cutting effect upon the gluten as it is forming which weakens it significantly, this is why vital wheat gluten is commonly added to doughs of this type as it provides the needed strength to be able to handle the dough after fermentation. Under the best of conditions I seriously doubt that you will be able to get more than 48-hours usable life from a dough made entirely with this flour. Due to the acidity of a sourdough there is additional weakening of the gluten so the dough strength is again being compromised.

Steve's suggestion is a good one, first learn to make decent dough using that flour without the addition of any sourdough starter, then after you have accomplished that, begin introducing increasing levels of sourdough starter (5% increments?) to see if the dough retains its integrity with your improved dough handling experience.

Also remember that dough made from a flour of this type will typically require a higher absorption than a dough made using white flour. This is due to the hydration properties of the bran which is present in greater quantity in your specific flour. Remember too that bran hydrates much more S L O W L Y than the protein and damaged starch in the flour so it is not uncommon to see a dough which feels great when mixed become hard or firm and difficult to handle after 30 to 60-minutes. If

you go back through the archives here you will find discussion in which I outlined the procedure for finding the correct dough absorption to use with flours of the type which you are using.

Tom Lehmann/The Dough Doctor

[Re: Sourdough dough too friable](#)

2753

QJ;

If you want to make a dedicated 3 to 4-day dough try this:

Reduce the finished dough temperature to between 65 and 70F.

Use normal yeast level (I use 0.375% IDY)

Manage the dough as per my printed procedure.

The dough will NOT be ready to use before 48-hours but it will be good at 72 and 96-hours.

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2754

I'm guessing that your IDY level was too low as 0.58-ounce per 50# of flour weight calculates out at only 0.0725% while a typical IDY level would be between 0.25 and 0.4% (2 to 3.2-ounces).

Tom Lehmann/The Dough Doctor

[Re: Instant yeast vs. Compressed yeast](#)

2755

My oldest son is half owner of a large landscaping company in Olathe, KS and he owns a farm where they work out of, because of all the nursery stock he has an interest in keeping the insect population in check and to do that he encourages birds and bats to take up residence on the property. My part of this scheme is to keep him supplied in bird houses, bat houses, and bird feeders. One of his contractors installs a lot of privacy fencing and he saves his cut-off scraps for me to use in building the houses and feeders. With all of his vehicles he has a regular supply of license plates for me to use for roofing materials on many of the houses. A quick trip over to the local resale store always provides materials to use from chain to wire, to drawer pulls for perches, to small hardware such as hooks and eye bolts for next to nothing, then when I'm not building them I'm repairing them. If anyone wants to see pictures of these just P.M. me with your e-mail and I'll be glad to forward them to you from my phone.

Tom Lehmann/The Dough Doctor

[Re: Clear birdfeeder for window](#)

2756

How much of what kind of yeast were you using?

Tom Lehmann/The Dough Doctor

[Re: Instant yeast vs. Compressed yeast](#)

2757

My experience is that a well managed CF dough will have a maximum use life of 3-days with 4-days on the outside. The yeast seems to deplete its nutrient between the 3rd and 4th day. This results in the yeast beginning to cannibalize itself thus releasing glutathione into the dough which weakens the dough as well as making it feel tacky and lack the desired amount of oven spring. With an added 2% sugar to the dough formula it's possible to stretch this out to a maximum of seven days.

Whey can be included in a dough formulation for the purpose of providing crust browning even with long fermentation times (whey is 70% lactose sugar which is not fermentable by bakers yeast).

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2758

There was once a place actually called "Cold Pizza". Just ask any college student what the "other" name for cold pizza is....BREAKFAST.

Sure cold pizza is different from fresh pizza but never enough to cause me to turn my nose up at it...it's still good! If I'm going to reheat my pizza I've found that just "nuking" it for 30-seconds and then placing it in a hot frying pan to reheat and crisp up the bottom works well for me, sometimes I just nuke it for 45-seconds and eat it like it is, yes, the crust will be soft, but the whole thing will be acceptably warm and still "not bad".

I guess I'm just not a Pizza Snob"....I like it all, granted some more than others.

Like I always say "I've never had a pizza that I couldn't learn to like". ;D

Tom Lehmann/The Dough Doctor

[Re: A question about reheated pizza.](#)

2759

The only difference between Crisco, lard and beef tallow is the flavor imparted by each. NOTE: Essentially all lard sold outside of a specialty food shop will be deodorized lard, this means all of the flavors associated with lard have been removed by a distillation process which renders the lard essentially flavorless as compared to that which you get in Mexico or a specialty food shop selling non-steam distilled lard. Beef tallow imparts its own unique flavor as long as it hasn't been steam distilled. Crisco, made from vegetable oils is designed to have a neutral flavor (that's another way of saying it's flavorless). By the way, tallow, because of its high melting point (about 135F) needs to be melted and slowly added or it will crystallize as it contacts the cooler dough/ingredients thus forming lumps of hard tallow that cannot be mixed out of the dough.

Tom Lehmann/The dough Doctor

[Re: Beef Fallow](#)

2760

You might want to run your question across George Mills over at the PMQ Think Tank <www.pmq.com>. George is the resident expert on ovens over there.

Tom Lehmann/The Dough Doctor

[Re: Blodgett 1000 Aftermarket parts/mods?](#)

2761

The seller of your pan gave you excellent advice to "season" your pan prior to use. Remember, DO NOT wash a seasoned pan, and NEVER allow it to soak in soapy water, NEVER, NEVER. If you do the seasoning will begin to peel off like a bad sunburn and you will need to strip all of the remaining seasoning off of the pan and start all over again :(. Don't worry about the dough "smelling bad" that's probably just the aroma of fermentation (a good thing). If your dough is fermenting too fast you will need to reduce the amount of yeast used in your dough formulation.

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2762

Wood prep peels are much better than most metal peels. Metal peels should always be used to remove the pizzas from the oven.

Tom Lehmann/The Dough Doctor

[Re: Anyone use parchment paper like this?](#)

2763

A couple of questions come to mind;

1) What type of surface are you baking your pizza on?

2) What color is your aluminum pan? Bright, dark anodized, or dark seasoned?

3) Why not allow the dough to warm to at least 50F/10C prior to opening?

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2764

Now that looks good enough to eat! :)

Tom Lehmann/The Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2765

Your common tap water, just so long as it doesn't smell like sulfur, should be just fine. Those minerals are good for the dough just as they're good for us. The most important aspect of the water you use is the temperature of the water, that's how the finished (mixed) dough temperature is regulated. For the most part, CF doughs will require a finished dough temperature in the 70 to 75F/21.1 to 23.8C range while RT doughs may perform best with a finished dough temperature in the 80 to 85F/26.6 to 29.4C range. As you will soon find out as you begin experimenting just about everything is variable to a degree when making pizzas, this is why we call them "rules" of formula balance not "laws" of formula balance. When it comes to dough management there are also great differences in how the dough is managed, some with good results, some with not so good results, this is something that you will need to work out for your SPECIFIC dough formulation and desired end results (that's the fun part) :chef:

By the way, I believe Peter has the function of ingredients cataloged, he should be able to direct you to them with his magic wand, he's the best of the best when it comes to searching for something here.

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2766

Is it possible that your oven, as you said is so well insulated that it reached set temperature where the thermostat probe is located but the stone had still not fully come to temperature, the burner would then shut off but the stone would continue sinking heat from the oven chamber thus dropping its temperature?

Just a "SWAG".

Tom Lehmann/The Dough Doctor

[Re: Home oven. Stone dropped in temp after setpoint was reached](#)

2767

QJ;

Keep us posted.

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2768

Good point! A long mixing time can result in a tougher than normal eating characteristic. It's not a big deal where the salt is added when making pizza dough as the salt delays the gluten development, this is why large commercial bakeries almost universally use the delayed salt mixing method (the idea being to reduce total dough mixing time as much as possible). By this method the dough is mixed normally and at a point approximately 4-minutes before the dough is completely mixed, the salt is added and incorporated during the final four minutes of mixing.

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2769

They didn't provide a dough formula for you to work with?

Here is one to get you started:

Flour: Bread flour (11% protein content) 100%

Salt: 2%

sugar: 3%

IDY: 1%

Water: 58% (variable)

Hard fat flakes: 10% If you cannot source hard fat flakes use butter, margarine or shortening, place it into the freezer until THOROUGHLY frozen, then shave it and place the shaved pieces back into the freezer for about 30-minutes, then chop the shaved pieces into flakes with the largest being about 8-mm in width. Place the shortening back into the freezer until you're ready to use it for making the dough. The shortening can be prepared well in advance and stored in the freezer. The reason for doing this is to achieve a desirable open, course (porous) crumb structure.

Procedure:

Place water in mixing bowl (70F/21.1C) followed by salt and sugar then the flour and the IDY. Mix the dough at low speed for 2-minutes then at medium speed just until the dough begins to look smooth, change back to mixing at low speed and add the frozen fat flakes and continue mixing JUST until they are thoroughly incorporated, take the dough to the bench for scaling and balling. place the dough balls on lightly oiled sheet pans and cover with a sheet of plastic, allow to proof at room temperature until the dough forms smoothly without tearing or fracturing. If the dough needs to be softer/firmer adjust this by adding more or less water. Normal fermentation time for the dough balls is about an hour.

NOTE:

If you do not want to have the more open, porous crumb structure you can use and high quality shortening, butter or margarine to replace the fat flakes.

When building the cone put a small amount of sauce in first, then the meat and/or vegetable toppings with the cheese on top. DO NOT OVER FILL. You will also need to have a form for holding the cones upright for baking.

Tom Lehmann/The Dough Doctor

[Re: pizza dough recipe for cone pizza machine](#)

2770

If they are making an emergency dough as you've described the garlic powder would make perfect sense as it would provide the necessary extensibility normally provided by fermentation for opening the dough into skins. As for the yeast level, 12.5-grams per kilo of flour would be a good starting point for such a dough. Mix the dough to a smooth consistency/appearance plus 3 additional minutes at

medium speed or 5 minutes at low speed. The idea here is to achieve more gluten development through mechanical mixing as it will not be achieved through biochemical gluten development as there will be no fermentation period. Immediately after mixing scale, ball, and lightly oil the dough balls, set aside and cover with a sheet of plastic and allow the dough to rest at room temperature until ready for use (60 to 90-minutes). One other thing, be sure to adjust the dough water temperature so as to achieve a finished dough temperature in the 90 to 95F range. Remember, this dough is going to be moving FAST, when it's ready for opening it's time to get busy...it will NOT wait for you.

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2771

QJ;

Assuming the oven is properly set-up for the gas that you are using, the Marsal ovens just don't have a recovery issue (huge burner capacity and thick decking). But is the dough is being over fermented resulting in collapse of the center section of the pizza due to the weight of the toppings the pizza WILL NOT bake properly resulting in a guaranteed tough, chewy finished crust with about as much crisp as a wet noodle. 550F is a good baking temperature for what you are trying to achieve. The oven will take about 2-hours to come up to full baking temperature from cold (that thicker deck takes some time to completely heat up).

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2772

If you are using 2-ounces of CY (compressed yeast) you would replace it with 16.47-grams of IDY (instant dry yeast) or 1-ounce (28.4-grams of ADY (active dry yeast). Your math is correct :).

Regardless of the type of yeast being used, the dough should be scaled, balled and into the fridge within 20-minutes of completion of dough mixing. Remember to adjust the water temperature to give you a finished (mixed) dough temperature in the 75 to 80F range. Most of the time this will require water at 65 to 70F. Don't forget to cross-stack for at least 2.5-hours, then down-stack for the remainder of the cold fermentation time.

This will give you the most consistent dough possible for use in a pizzeria over a three day period.

Tom Lehmann/The Dough Doctor

[Re: Instant yeast vs. Compressed yeast](#)

2773

QJ;

By chance, do you have an external gas pressure regulator installed in the gas line just prior to the oven?

Tom Lehmann/The Dough Doctor

[Re: tough dough question](#)

2774

Yeast that is actively feeding (fermenting) does not tolerate freezing as well as yeast that has either not yet begun to ferment or has been fermenting for a shorter time. In essence, the sooner you can freeze the dough after mixing the better it will be. Studies have shown if you can freeze the dough before it has received 4-hours of fermentation you can expect to get up to 10 to 14-days of frozen shelf life, if you

are only wanting to freeze the dough for a few days to a week on the outside you can freeze it at any point while the dough is still in good condition and the yeast is still actively fermenting. The best way to freeze the dough is to make flattened out dough balls (pucks), lightly oil the dough, wrap only once in stretch wrap and place into the freezer until solidly frozen (this will take 4 to 6-hours depending upon dough temperature and size) once thoroughly frozen the dough puck can be wrapped more securely with stretch wrap. To use your frozen dough, remove from the wrapping while still frozen, place into a suitable container and put into the fridge for at least 16-hours to slack-out (thaw), then bring out of the fridge and allow to warm for use or if you wish you can allow the dough to warm to 50F and then place it back into the fridge to cold ferment for whatever time you wish, just be sure to remove the dough from the fridge and allow it to warm to 55 to 60F before opening it into a skin.

Tom Lehmann/The Dough Doctor

[Re: When to freeze?](#)

2775

That's quite some dough formulation.

I would suggest reducing the IDY by 50% (use only half of what you're presently using. Then I would highly recommend eliminating the garlic powder since it is a reducing agent, meaning that it causes the dough to become soft, weaker and more extensible.

Start with those two changes and let us know how it works for you.

Tom Lehmann/The Dough Doctor

[Re: Don't know what i'm doing wrong at the moment](#)

2776

A uniform golden hue on the crust is usually due to brushing the skin with olive oil immediately prior to baking...sorta like using an egg wash on a pastry dough to achieve the same effect on crust color. If semolina flour was used the crumb will also have somewhat of a yellowish tint to it.

Tom Lehmann/The Dough Doctor

[Re: High gluten flours to try for NYC style pizza?](#)

2777

I don't like using oil to get the sesame seeds to adhere as they do not adhere well using the oil and just end up falling off unless handled very carefully. For home use it's probably OK but in a pizzeria application the water works better.

Tom Lehmann/The Dough Doctor

[Re: Sesame seeds](#)

2778

I love to use sesame seeds on the bottom pf the pan when making any pan style pizza for the toasted sesame flavor they provide. If you lightly brush the edge of the crust with water immediately before baking you can sprinkle sesame seeds onto the edge crust where they will be toasted lending the same effect to any pizza. We have also carefully ground toasted sesame seeds using a food processor and blended the meal into the flour for a unique flavor in the finished crust (Note: when used in this manner the seeds must be toasted or a bitter flavor will be your only reward).

Tom Lehmann/The Dough Doctor

[Re: Sesame seeds](#)

2779

Do you have the Konos machine?
Tom Lehmann/The Dough Doctor
[Re: pizza dough recipe for cone pizza machine](#)
2780

Black pudding and eggs! My favorite!! :)
Tom Lehmann/The Dough Doctor
[Re: This evenings attempts](#)
2781

Assuming equal times the dough with room temperature fermentation will receive significantly more fermentation than the same dough cold fermented for the same period of time. With the greater amount of fermentation it would make sense that the room temperature fermented dough might have more of the aromatic compounds formed during fermentation, hence your observation of a different aroma. Taste on the other hand, is a result of acids formed during the fermentation process as well as sensitivity to specific tastes (we all taste things differently). This is why we talk about "flavor" a combination of taste and aroma, as opposed to just taste.

As for the difference in crispiness, it is well recognized that there is a link between increased crispiness and fermentation, but like everything else, it has its limitations, just like there is a link between increased dough absorption and increased crispiness.

As for a dough subjected to a 48 to 72-hour CF it has been my observation that our doughs (remember all doughs are different) are at their prime for producing great finished crusts at 48-hours and are still quite good but are beginning to exhibit some handling issues after 72-hours CF, mind you, this is based on a pizzeria environment, using my dough management procedure, bough boxes, a walk-in cooler and opening the dough balls into skins by hand.

Tom Lehmann/The Dough Doctor

[Re: RT ferment Question](#)
2782

Why salad oil instead of "20Xvirgin" olive oil? You can use olive oil if you wish, I just like to save my good olive oil for use on the pizza immediately after baking where you will get a significant flavor contribution so I use the cheapest stuff I have on hand to oil the dough balls and/or the dough container, call me cheap, call me practical, just DON'T call me late for pizza! ;D

Tom Lehmann/The Dough Doctor

[Re: Tough Dough](#)
2783

When it comes to sourdough starters it's all about trial and error. All sourdough starters, unless inoculated with a known starter, and meticulously maintained, will vary in strength and composition. Once you have your sourdough made and you're successfully maintaining it you will need to experiment with the amount to use to make the pizza you are trying to achieve using YOUR specific dough management procedure. There are MANY posts here from individuals who have mastered the cultivation of a sourdough starter but have found like other things in life, it seems to have a mind of its own when it comes to amount to use. While one source might say to use 5% with your starter you need to use 20%, that's just the way it is. Then

too we hear about someone who has had their starter going for some time and now it seems different, like I said...mind of its own. In some cases the microflora of the starter can change resulting in a totally different, and unexpected outcome. In cases like this sometimes it can be recovered or you may just need to start all over again and because it is the luck of the draw as to what the microflora will consist of the flavor may not be exactly the same, ditto for the use level.

Tom Lehmann/The Dough Doctor

[Re: Poolish vs. Biga vs. Criscito](#)

2784

The correct direct substitution of IDY for CY is 29%. This means that the amount of IDY needed to replace any specific amount of CY will be 29% of the weight of the CY.

As you are asking about a dough based on 50# of flour weight I'm assuming you're asking in reference to use in a commercial/pizzeria application. In this type of application allowing the dough balls to proof at room temperature prior to placing them in the cooler is not a preferred method as it can significantly contribute to inconsistencies in the dough which can result in dough failure (failure is not an option in a pizzeria) or variation in the finished pizzas (good or bad) which will be recognized by your customers with less than desirable results.

If you have specific questions or if you can provide more details I'm sure we can help you.

Tom Lehmann/The Dough Doctor

[Re: Instant yeast vs. Compressed yeast](#)

2785

Jon;

What can you tell us about your dough formula, how you're mixing it (sounds like your hand mixing but we need the details) and how you're managing the dough. Caputo "00" flours are significantly lower in protein content and are not as strong, gluten wise, as All Trumps flour which has a typical protein content of just over 14%. More than likely dough absorption will need to be increased, mixing changed as well as some changes possibly in dough management to get more fermentation on the dough to address the stronger gluten characteristics of the A.T. flour.

Tom Lehmann/The Dough Doctor

[Re: Tough Dough](#)

2786

Good grief! We have discussed this topic at great length, all one needs to do is to spend a little time looking through some of the recent posts. By the way, those discussions were excellent and should help anyone not familiar with all of the different types of "pre-ferments" and how they impact dough rheology and finished product characteristics including flavor and aroma become better versed on aspects of making them, using them and how they will impact the finished crusts.

Tom Lehmann/The Dough Doctor

[Re: Poolish vs. Biga vs. Criscito](#)

2787

Yeast is not typically used in the autolyse but it is used in the poolish and biga. The poolish is used to great extent in the commercial baking industry where it is known by a different name "brew" or "liquid ferment" or "liquid sponge". Brew is the most common term for it. In this application the brew is fermented for 2 to 6-hours under highly controlled conditions, it is then passed through a heat exchanger and

brought down to 40F or a little less and maintained under these conditions with sweep agitation (1 r.p.m.) to prevent settling and used over the course of several hours of production with a specific amount metered into each dough at the time it's mixed.

Tom Lehmann/The Dough Doctor

[Re: Autolysis](#)

2788

RPF;

The typical use level for a "typical" dough formula is 1% compressed yeast. This works well when using up to 3-days CF (dough actually is in its prime at 2-days/48-hours). While some may argue that there is a difference in finished product flavor resulting from the type of yeast used our research has shown that there is no difference in flavor PROVIDING the dry forms of yeast are used correctly AND it is used at the CORRECT substitution level. I think this is why some people think there is a difference in flavor.....it is used at the wrong substitution level which results in a different fermentation rate resulting in a different flavor profile in the baked product.

Tom Lehmann/The Dough Doctor

[Re: Fresh yeast?](#)

2789

Hey man! My brains get scrambled better than my breakfast eggs after a long day in the saddle too :-D.

Tim won't be doing anymore videos as he has retired from General Mills but Bill Weekly will be carrying the torch for him.

Tom Lehmann/The Dough Doctor

[Re: Baker percentages](#)

2790

Actually, it has little to nothing to do with the gluten, it's all about getting the flour hydrated. If the flour is hydrated during the mixing process it adds about an additional 2-minutes to the mixing time (important in a commercial bakery). Gluten is formed when the flour proteins (flour) are agitated in the presence of water, in order for the gluten to be formed those proteins (glutenin and gliadin) have to be hydrated. This is where the autolyse is incorrectly said to develop gluten, it aids rapid gluten development but it does not specifically develop gluten. Salt and sugar will compete for the water and exhibit more osmotic pressure than the wheat proteins so either of these ingredients will slow the migration of water into the wheat proteins. This is the very same reason why in a commercial baking application a mixing procedure called the delayed salt mixing procedure is almost universally used today, it is also why when making pastry doughs such as sweet dough and Danish dough the sugar and salt are never added right up front, they are held back until the gluten has reached the desired stage of development. An autolyse will also improve the dough handling properties of a high absorption dough as it allows the use of a higher dough absorption than what could be used if just adding all of the water at the time of mixing.

Tom Lehmann/The Dough Doctor

[Re: Autolysis](#)

2791

In referencing "reduce the dough absorption" means to reduce the amount of water added to the dough/use less water when making the dough. Try LIGHTLY oiling the

bowl and I think you will find that the dough comes out a lot easier.

Tom Lehmann/The Dough Doctor

[Re: Help with Ankarsrum kneading, please! My Neapolitan dough won't relax.](#)

2792

Saturation? I think he may have said "absorption" which is a common term for the amount of water added to a dough. The amount of dough absorption used will vary with the type of pizza/dough you're making, for example, it can be as low as 35 to 45% for some cracker type crust doughs and in the high 60's to low 70's for Neapolitan pizza doughs to be baked in a very hot oven. On average, most pizza doughs will come in at about 62% dough absorption. The amount of yeast given is in line with compressed yeast (CY) for an average pizza dough. This is why it is important to ALWAYS know what type of yeast is being used or recommended. While many pizza dough formulations don't contain any oil or not much more than 1%, 2 to 3% oil is not out of line with what many like to refer to as an American style pizza. Again, when discussing dough formulations one has to know what type of dough/pizza is being discussed.

Tom Lehmann/The Dough Doctor

[Re: Baker percentages](#)

2793

Well, let's go with the 4-hour food safety rule. Following this you can bake your pizzas and hold them for up to a total of 4-hours at a temperature under 140F and above 40F. So you can bake the pizzas and store in an insulated cabinet then transfer to the temperature/humidity controlled cabinet for display and warming as needed.

Tom Lehmann/The Dough Doctor

[Re: Reheating slices in a food truck](#)

2794

Agreed, just plug in the unbromated flour and go on with life. No need to mix any differently, absorption stays the same (assuming the same flour just unbromated). The only place where you "might" see a slight difference is over at five days or so, but I don't think there are many pizzerias holding their dough that long (yes, the big box chains do but they manage their dough using excellent temperature control as well as a very effective dough management procedure that is built around the use of unbromated flour). For a typical pizzeria using a bromated flour and managing the dough out to 3, 4-days max, and changing over to an unbromated flour it is basically a "plug and play" proposition.

Tom Lehmann/The Dough Doctor

[Re: Unbromated flour](#)

2795

Reduce the dough absorption to control dough flow during the fermentation process. Flouring the bowls will not work as the flour will just pull moisture from the dough turning it into "school paste".....not exactly a release agent. Oiling the container is still going to be your best bet. You don't need more oil than what is necessary to put a shine on the bowl. Do you have any specific reason for not wanting to use ANY oil?

Tom Lehmann/The Dough Doctor

[Re: Help with Ankarsrum kneading, please! My Neapolitan dough won't relax.](#)

2796

JPB;

When the center section of the skin is too thin it does not provide the necessary insulating value between the hot deck and the sauce and other toppings....in short, heat from the deck passes right through the dough and is dissipated as steam during baking, this results in the crust never getting hot enough to provide maximum crispness. I would be looking at either of two options, 1) open to the same diameter but used more dough (test increasing dough weights), 2) open the same dough weight to a smaller diameter skin (test by opening the dough ball into skins of decreasing diameter (1-inch increments). This is the same reason why most super thin Neo pizzas do not retain their crispy bottom crust for more than a couple of minutes...if you're lucky.

Tom Lehmann/the Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2797

It looks to be a stamped steel pan about 1-inch deep with a well seasoned finish. You might look on the Internet for a rectangular baking sheet pan or check with Lloyd Pans at <lloydpan.com> for a similar pan with a non-stick black finish.

Tom Lehmann/The Dough Doctor

[Re: Pizza Pan](#)

2798

When looking at the picture of the slice it appears that the center of the crust is very dense while the edge/rim is open and porous. A dense crumb structure can result in tougher, more chewy mastication properties. If your dough formula doesn't include any oil you might see if the inclusion of 2% oil gives you something closer to what you're looking for....that dense crumb structure in the center of the pizza still concerns me though.

Tom Lehmann/The Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2799

When I make deep-dish pizzas I like to use a stone but I also place a screen on the stone upon which I place the pizza for baking. I've found it to be somewhat problematic controlling the bottom crust color when I bake deep-dish pizzas directly on a stone or steel due to the heat transfer properties when the pan is in direct contact with the stone/steel. My usual baking temperature for deep-dish pizza is 450F. I've found that when I bake the pizzas in this manner the top and bottom are done at the same time, when I used to bake directly on the stone/steel I got a charred bottom crust all too often.

Tom Lehmann/The Dough Doctor

[Re: Steel Vs. Stone on A Deep Dish](#)

2800

That would be my starting point for the base.

Tom Lehmann/The Dough Doctor

[Re: Sauce](#)

2801

A small counter top oven like a small air impingement oven, or a small deck oven or possibly even a toaster oven would work well in this application. For display of the pizzas think of using something like a Hatco Pizza Display Cabinet with both temperature and humidity controls, and some good pictures too. Recon time will be

around 1-minute or so.. If you want, you can also add a small amount of additional, fresh cheese to the top of the slice immediately before it goes into the oven for reheating.

Tom Lehmann/The Dough Doctor

[Re: Reheating slices in a food truck](#)

2802

I have a hard time seeing where you can make and sell enough pizzas from this to make much of a profit BUT if you load the truck with ready made pizzas and re-freshen/reheat/re-crisp the slices using a small deck oven (about all that will fit in there) you might have yourself a little gold mine.

Tom Lehmann/The Dough Doctor

[Re: Reheating slices in a food truck](#)

2803

It'll give you a good flavored, slightly thick sauce base to build upon. The 7/11 will provide flavor while the Full Red Puree will provide extra body to the sauce, great for a deep-dish as is but will most likely need to be thinned a little for most other pizza applications.

Tom Lehmann/The Dough Doctor

[Re: Sauce](#)

2804

I'm assuming we're talking about Saporito Super Heavy Pizza Sauce and Full Red Pizza Sauce as opposed to Full Red Extra Heavy Tomato Puree? That being the case I would probably consider going a little higher on the Full Red to restore some of the more pronounced flavor that will be lost from the Saporito, but all cards would be "off of the table" if you're adding any water to this the sauce. If you're adding any water go ahead and make the substitution and add less water (Full Red Sauce will be thinner than Saporito) so you will want to adjust the amount of water being added to give you a similar viscosity as you got with the 7/11 and Saporito blend.

Tom Lehmann/The Dough Doctor

[Re: Sauce](#)

2805

If you use a "bulk" fermentation and then ball you will need to allow the dough balls to ferment again until the balls are sufficiently soft and extensible to be easily opened into skins. This could easily take 6-hours or more. Truth is, when making pizzas at home there is no difference between fermenting the dough in bulk or in individual balls, for this reason I firmly believe that it is much easier to just ball the dough right after mixing, place the dough balls into plastic bags or suitable containers (both methods previously discussed in great detail here) and then allow the dough to ferment for the desired length of time, then when you're ready to make your pizzas just turn the dough out of the bag or container onto a floured surface and immediately open the dough into a skin, dress and bake.

Tom Lehmann/The Dough Doctor

[Re: Beginner dough question](#)

2806

Hummm, I always thought lasagna was a pasta dish??? Have I been wrong all these years?

There are some arguments/disagreements that are just not worth the effort to

participate in, in my books this is one of them. He is free to believe whatever he wants, I'd just leave it at that.

Tom Lehmann/The Dough Doctor

[Re: Deep dish not pizza?](#)

2807

To summarize, we need to know specifically what issue you're having or seeing with your dough/pizza, your dough formula, flour brand/type/bag name, dough management procedure, type of oven, baking platform (screen, pan, disk, oven deck/hearth) and lastly what kind of cooler do you have (walk-in or reach-in). With this information we should be able to either identify the cause of the problem or give you some good direction to finding a resolution.

Tom Lehmann/The Dough Doctor

[Re: A year and half in pizza business. Need help.](#)

2808

My formula is almost identical to GumbaWill's, after mixing I scale, round into balls, and allow to ferment at room temperature for at least 6-hours but occasionally it may go as long as 8-hours, or whenever we're ready to eat. Then I just plop it out of the bag onto a floured surface, open it into a skin, dress it and bake it at 500F. Nothing special, nothing to call the photographers in for, just fresh, hot pizza that everyone eats without any complaints, at least none that I can hear.

Tom Lehmann/The Dough Doctor

[Re: Same Day Dough](#)

2809

When you prepare the dough for baking as Norcoscia outlines the crumb structure can be much more open and porous "airy" , it will bake out better and it will eat like cotton candy. Here's a little trick you might want to try. Use a plastic shortening in the pan initially, it grips the dough making fitting the dough to the pan MUCH EASIER, then AFTER par-baking the crust, immediately remove it from the pan, wipe out the pan with a clean paper towel, add about an ounce or so of oil (I personally like to use peanut oil) to the pan and immediately place the crust back into the still warm pan, dress as desired and place back into the oven to finish baking. That oil will give the pizza a fried bottom crust which is significantly different from that of the crust you get when using a plastic fat to grease the pan. You COULD use oil in the pan right from the get go but then the dough is more problematic to fit to initially fit to the pan. This gives you the best of both worlds.

Tom Lehmann/The Dough Doctor

[Re: My first pan pizza!](#)

2810

You probably don't want to use lecithin in a pizza dough. Lecithin is an emulsifier, it binds water and oil together. With an emulsifier added to the dough, the dough will exhibit a propensity to allow water released from the sauce and toppings during baking to enter into the dough where it can be difficult to bake out AND it also sets the stage for the development of a "dreaded gum line" just under the sauce.

Without an emulsifier present the oil creates a barrier to water/moisture penetration/migration but with an emulsifier present you might say it exhibits an affinity to moisture.

Tom Lehmann/The Dough Doctor

[Re: High rate of oil in the dough](#)

2811

Reduced fermentation tolerance means that the gluten forming proteins in a particular flour are not as resistant to the byproducts of fermentation (primarily acid attack) as other flours. A dough made using flour with a genetic characteristic of reduced fermentation tolerance will exhibit softer, more extensible and weaker characteristics with extended fermentation times than a dough made using a flour with good to excellent fermentation tolerance. Most, if not all U.S. flours intended for bakery application are milled from wheat varieties specifically selected for exhibiting better than average tolerance to fermentation. All of the "00" flours that I've worked with over the years seem to do pretty well at 24-hours CF fermentation but begin to get "squirrely" at 48-hours CF. It's just the nature of the beast.

Tom Lehmann/The Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2812

QJ;

You're absolutely right...you've been reading too many of my posts. :)

I just recommended what I did as it represented a more minimal change from that what he was already doing but doing as you suggest would without a doubt solve any open issues and he would still have the option of allowing the dough to CF for 24 or more hours.

Tom Lehmann/The Dough Doctor

[Re: Dough was like a rubber band!](#)

2813

All of the Stanislaus tomatoes are grown immediately around Modesto, California with but a single harvest for their entire yearly inventory. I had the honor of being invited to view their tomato harvest and processing a few years ago, it's quite an operation. Between gearing up, for the harvest, processing, and sanitation they then shut down the entire processing facility for maintenance and up-grading which takes about 3-months bringing them right back to the cusp of the next harvest.

Tom Lehmann/The Dough Doctor

[Re: 7/11, Stanislaus problems?](#)

2814

I like that, my kinda humor ;D

After all, he was sorry for her "loss" :-D :-D

I've got to remember that.

Tom Lehmann/The Dough Doctor

[Re: Safety First](#)

2815

Russ, you're not taking it....I'm bestowing it upon you! :chef: You pull this off, and I don't think you will have any problems in doing so, and you'll have rightfully earned it. I did it for 6 to 10 people, never 50 out in the woods.

For the toppings I just use a few cheap Styrofoam coolers with the ingredients packed on the bottom and a pound, or so, of dry ice on the top, be sure to place some crumpled paper between the dry ice and the ingredients and again over the top of the dry ice. Use one cooler for each days ingredients and tape closed to seal tightly, I have gotten up to 4-days of decent refrigeration in an unopened cooler, this is why you don't want to put everything into one single cooler.

While you're at it, make some extra dough, open it into skins, brush with melted

butter and bake until very lightly browned, sprinkle with cinnamon and sugar mixture and put back into the oven for a few seconds, bring out and set aside to cool for a few minutes, while still warm drizzle with a powdered sugar-water icing, cut it and call it "dessert". For variety you can add streusel, chopped pecans, thin sliced apples (cored but not peeled), grapes cut in half, sliced strawberries or a few dabs of Ricotta cheese, any or all work well.....put those kids to work, they'll love the opportunity to help put the toppings on the pizzas! :)

Tom Lehmann/The Dough Doctor

[Re: camping pizza](#)

2816

A dough/pizza skin is what keeps the sauce and toppings off of the oven deck, it's what, when baked, becomes the crust. When you round the dough you tighten the gluten structure, this is very evident after the dough has been allowed to ferment a period of time (like 72-hours), when you do this 3 to 4-hours is not enough time for the gluten structure to fully relax, that is why you are experiencing so much dough memory/snap-back when trying to open the dough into skins. We just recently had some discussion on this very topic here at Pizza Making.

Tom Lehmann/The Dough Doctor

[Re: Dough was like a rubber band!](#)

2817

I used to do a presentation on "healthy pizza" where we did a 50% wheat crust, with no added fat, just regular white bread flour, whole wheat flour, salt, yeast, and water. For cheese we did a 50/50 blend of a tofu based cheese from Galaxy Nutritional Foods and regular low fat, part skim mozzarella cheese which gave us a 50% reduction in cholesterol without a reduction in the actual amount of "cheese" added. Toppings were poultry pepperoni, bison pepperoni, chicken, meat and fish analogs and vegetable toppings. This was a very "passable" pizza and an excellent alternative for those who couldn't otherwise eat a slice of pizza due to dietary restrictions.

Tom Lehmann/The Dough Doctor

[Re: High rate of oil in the dough](#)

2818

What happened is that you balled it up 3 to 4-hours before "TRYING" to open the dough balls into skins. Let's change your procedure to a more user friendly one. After the 72-hour CF scale and ball the dough, place it back into the fridge to CF until the next day when you are ready to make your pizzas. Remove the dough balls from the fridge and allow to warm AT room temperature until the internal temperature of the dough reaches 60F, then with minimal handling, begin opening the dough into skins.

Let us know how this works for you.

Tom Lehmann/The Dough Doctor

[Re: Dough was like a rubber band!](#)

2819

We did an analysis on commercial frozen pizzas a good number of years ago and we found that fat content of commercially made pizzas was quite a bit higher than that found in many chain and independent pizzerias.

Why you ask?

PEOPLE LIKE FAT, people buy things that appeal to them and satisfy them, frozen pizza companies are in the business of selling pizzas to make a profit, more pizzas

sold = more \$\$\$\$.

How much fat did we find in those commercial crusts? The lowest was I believe 16% and all the way up to about 25% if I remember correctly. To put this in perspective, this is about the same fat content as found in many rich sweet doughs and is even in the realm of a croissant. Tell me people don't like sweet rolls and croissants :-D. I don't remember who it was anymore but someone was even making pizzas on what they called a "croissant" crust.

Granted, it does make a different type of crust, it makes for a very tender eating crust and if made as a thin crispy crust it will not be heavy, or dense at all, just consider a pie crust, about the same fat content, dry and crispy. And don't forget that your favorite club crackers will contain upwards of 8 to 10% fat, thin and crispy but made using only about 35% dough absorption.

As for healthy eating, that's a personal thing. For a lot of families pizza is the main entree of a meal and calories count for them, granted, they may not all be good calories, but calories are calories (9-calories per gram of fat, regardless of the type). For me, Yes, I do try to eat healthy so I find a crust that I like and then control the calories by specifying what toppings I want on my pizza, makes it taste better that way too. :)

Tom Lehmann/The Dough Doctor

[Re: High rate of oil in the dough](#)

2820

Why sift the flour?

- 1) To remove flour beetles.
- 2) Remove flour beetle larvae (wormy flour).
- 3) Clumpy flour (Indian meal moth infestation in your flour, sifting removes the larvae and the clumps)
- 4) Flour got wet and has clumped, sifting will remove the clumps but probably not a good idea to use the flour due to the potential for presence of aflatoxins due to fugi now growing in the flour.

If your flour is clean and relatively fresh there is no need to sift it unless the "recipe" being followed calls for volumetric portioning "sifted" flour.

Sifting of the flour will not impact air nuclei formation.

A dough docker is used to CONTROL bubbling on the top surface of a dough skin during baking, it is not used to aerate the dough in any manner. I've never seen a dough docker used on a finished (baked) crust of any kind.

Tom Lehmann/The Dough Doctor

[Re: To what point is the optimum for kneading pizza dough?](#)

2821

Bamajj;

And they used to call me "Camp Mama", my friend, you put me to shame! :-D

I would make some dough balls, place in plastic bags, and freeze without any prior fermentation. First day at camp site is set-up day, so no pizza. That night remove frozen dough balls from the cooler and place in an empty cooler where they will cold ferment over night and into the next day, remove from the cooler as needed to make the skins and dress for pizza (the skins, not the attire as this will be an informal affair) :-D. That night make a dough using a dry mix that you made at home (all ingredients except oil and water). Add the mix to a suitably sized bowl (large plastic bucket can work quite well, and it already has a fitted lid and is easy to transport and you can keep your pizza tools in it when it isn't filled with fermenting dough). Make a dish in the center of the dry mix and begin adding water while hand mixing, when the dough is completely formed stop mixing, lightly

oil the sides of the bucket, loosely lid the bucket and set aside to ferment over night. After breakfast on the following day remove the dough from the bucket and knead on a lightly oiled plastic table cloth/covering (about \$3.00 at Walmart), pick a suitable color if you're so inclined, mine is red. Spring clamps work well to affix it to a table. Knead the dough a few times (don't get carried away), divide it into desired size pieces (eyeball it) this is a CAMPING TRIP, not a formal pizza party. Lightly oil each dough ball and get a few kids to help placing them into individual plastic bags, twist the open end into a pony tail and tuck it under the dough ball as you place it onto a sheet pan or other flat surface, mine is a piece of 1/2-inch Melmine laminate that serves double duty as a pizza cutting and serving table as the dough balls are removed. A 2 X 4-foot piece will cost you about \$10.00 at Menards. Allow the dough balls to ferment at ambient (hopefully in the shade), until you're ready to open them into skins, open the skins on that piece of Melmine laminate, dress and bake. Don't forget to bring extra dusting flour!

Dough Formula:

Flour: 100% (KABF or equivalent)

Salt: 2%

Sugar: 2%

IDY: 0.2%

Oil: 2% (this is portioned out using a measuring cup at the camp site)

Water: 60% (this is portioned out at the camp site)

Weigh all ingredients except for the oil and water together to make a single day's worth of dough..whatever that amount is.

Using a hand whisk blend together. You don't need to get carried away here either as this will be for a single dough.

Transfer to a plastic bag and close with a twist tie.

Repeat for as many days as you feel you might want to make pizzas on.

I bestow upon you my crown as "Camp Mama"....you will have truly earned the title! ;D

Have fun and send us some pics!

Tom Lehmann/The Dough Doctor

[Re: camping pizza](#)

2822

Norcoscia is "spot-on" with his advice.

A par-baked crust is a crust that is baked either with or without sauce (typically about 1/2 of the sauce) and then removed from the pan and either held at room temperature for later use or immediately dressed and placed back into the oven to complete the baking process.

A pre-baked pizza is one which is completely baked on a raw dough, removed from the pan and allowed to cool for use at a later time but more commonly placed into a temperature/humidity controlled cabinet (like a Hatco cabinet) for use/sale by the slice. Pre-baked deep-dish pizzas DO NOT reheat very well at all, this is why they are almost always held in some type of a temperature/humidity controlled cabinet to keep them at serving (legal serving) temperature (minimum 140F).

All baked pizzas should be removed from the pan as quickly as possible after baking, failure to do so will result in moisture being trapped under the pizza resulting in a wet, soggy bottom crust...yummy!

Tom Lehmann/The Dough Doctor

[Re: My first pan pizza!](#)

2823

Yes and no....allow me to explain. Yeast by itself cannot effectively leaven a dough, it must have a small air nuclei which is thus expanded into the cell structure we are accustomed to seeing in yeast leavened doughs. You are correct in that mixing and/or kneading the dough does incorporate air into the dough but it is not this air which creates the necessary nuclei, instead it is the air in the ingredients in the mixing bowl that provides the nuclei. Just make a dough sometime by just gently stirring the ingredients together without any kneading at all and you will see the development of the familiar cell structure. The ONLY way to mix a dough without this nuclei is to mix it under a strong vacuum which will pull all of the air out of the dough. There is a commercial mixing system that does this to some extent for making a finer crumb structure in pan bread, it's called the Tweedy Mixer or the Chorleywood Bread Making Process. Without the air nuclei the dough will just sit there as if it didn't contain any yeast at all, in the above mentioned bread making process a small amount of measured air is incorporated into the dough to develop a very small, fine cell structure desired by consumers in the U.K.

Tom Lehmann/The Dough Doctor

[Re: To what point is the optimum for kneading pizza dough?](#)

2824

JPB;

Before doing anything else I would suggest incrementally increasing the dough absorption as this will allow the dough to open more during oven spring allowing for better bake-out. See, the issue here is that we don't know if we have achieved maximum bake-out yet or not. So what's recommended is for you to do some more test bakes (I know how much you hate to do that by the look of your great pizzas!) using both maybe 700F as your long, low temperature bake and 800F as your high temperature bake, see if you can achieve what you are looking for at either of these temperatures along with the increasing absorption. If you find that at some point the finished crust starts going the other way, getting softer and more chewy go back to just before where this started and that will be your optimum (not to be confused with maximum) dough absorption and baking conditions for that SPECIFIC dough formulation and dough management procedure. Now you are ready to start all over again using a new/different dough formula or I would suggest just a different flour blend. In this case I think I would favor going with more of a weaker flour like the "00" flour in the flour blend. Reasoning being that the more extensible gluten structure will tend to promote more oven spring BUT keep in mind that "00" flours typically do not exhibit good fermentation tolerance and it will require a lower dough absorption so you will need to be looking at both of these aspects of your new dough during testing.

Now you're getting a taste of what the pizza side of my career has been like. It's like a never ending pizza party where you keep meeting new friends who you never knew you had. :chef:

Tom Lehmann/The Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2825

PB wheels;

IDY provides approximately 25% greater activity than ADY when used at equal levels. When substituting IDY for ADY just remember to reduce the amount of IDY by 25% for the same level of yeast performance that you got using the ADY.

Tom Lehmann/The Dough Doctor

[Re: My first pan pizza!](#)

We would need to know more about the dough, like the finished (mixed) dough temperature and the type of yeast you're using. The amount calculates out to 0.8% (very high for IDY, a bit high for ADY and a bit low for CY) With a high yeast level and a finished dough temperature much over 80F fermentation could progress at a pretty lively pace. Maybe that's what you were seeing? As for placing a pan on top of the proofed dough to keep it from over proofing or getting too thick during the baking process, it is possible but I don't recommend it and it will take some pretty serious holding force to keep a run away dough in check during the oven spring stage of baking. After par-baking the crust be sure to de-pan the crust and invert it onto a cooling screen/rack immediately upon removal from the oven. Inverting the crust helps to flatten the top out.

Tom Lehmann/The Dough Doctor

[Re: My first pan pizza!](#)

2827

One that I remember which was related to pizza was a lady with long hair in a pony tail as she was preparing something in a bench top mixer her hair became entangled in the spinning agitator...you can paint the rest of the picture. Another one happened in a wholesale bakery back in the 1950's, a large dough (most likely about 1,500-pounds in weight) was being ejected "kicked out" of the mixer by the mixer operator, the mixer helper saw that the dough was beginning to be pulled back into the mixer (this is common with horizontal mixers aka barrel mixers) so he stood in front of the dough trough positioned in front of the mixer to receive the dough, as he grabbed the dough to hold it from being pulled back in, the gluten won the fight and quickly pulled the dough back into the running mixer, with the dough being somewhat sticky/tacky the helper was unable to free himself from the grip of the dough and was pulled into the running mixer along with the dough. The outcome was fatal. Then in the early 70's, same scenario, but this time a person was standing in front of the mixer as the dough was being kicked-out, the dough was successfully discharged into the dough trough but a large piece of dough that was clinging to one of the agitator bars was flung out of the mixer and seriously hurt the individual when it struck him in the head. I've seen my fair share of them first hand too, and they're never pretty. One that we all need to be highly aware of happened to one of my technicians, while mixing dough in a Hobart A-200 mixer she was standing next to the mixer watching the dough being developed, then for no apparent reason she simply put her hand into the mixer...OUCH! Investigation showed that when a person watches a dough being mixed (probably anything spinning) you develop what is called the "strobe" effect, this is where you see the dough and the hook but don't visualize the movement. I had to test it for myself, yes it can and does happen! Bet you never saw that on a warning label on your dough mixer. I used to tell my group that every piece of equipment is like a predator, just waiting for you to make a single mistake, then it jumps out and grabs you, sometimes with dire consequences.

Moral of the story.....BE CAREFUL!

Tom Lehmann/The Dough Doctor

[Re: Safety First](#)

2828

One of the things we used to do with our students was to make the dough one day (the dough was well under mixed and all but impossible to open into a skin) then the dough balls were cold fermented for 24-hours, brought to 50F and we opened

the dough balls into skins so thin you could actually read through it...a beautiful example of full gluten development. It was a strong gluten film too as we would have five or six students form a circle with each grasping a part of the dough skin, they would gradually pull on the dough to continue opening it to see just how big they could get it. We were usually able to finesse the dough out to 30-inches or more...that was for a 12-ounce dough ball. Biochemical gluten development and fermentation do go hand in hand as it is the by products of the fermentation process which result in the biochemical gluten development. If you add a sourdough to the dough and then mix it to full gluten development we always got an extensible but sticky dough for our efforts.

Early on in our research we used to make a dough and divide it into individual dough balls and place them into the cooler in individual plastic bags, then we would begin removing dough balls at 8-hour intervals and opening them into skins taking care to open them all in a similar manner, we would note how the dough handles as well as the quality of the gluten film that we got from each dough ball. In the end we were able to watch the progression of biochemical gluten development and find the best time to achieve optimum gluten development for the product being made (normally either bread or pizza). Anything which impacts the fermentation rate of the dough will affect the time necessary to achieve a specific level of gluten development so the time will be specific to each dough formulation as well as dough management procedure employed. It's interesting to note that the dough will achieve full gluten development (this is where the gluten film is VERY THIN and CLEAR without any significant visual webbing seen in the film, once this has been achieved the gluten will start to become softer and more extensible (this can be a good thing when making pizza) until the dough finally becomes so soft and extensible (it is said to open itself) that it is difficult to handle. It was during these tests that we discovered that while the best bread is usually made when the gluten shows full development, the best pizzas are usually made after this point and closer to where the dough is becoming excessively soft and extensible. We also found out the hard way that dough which will be opened using a dough sheeter/roller should be closer to the full gluten development point than those which will be opened by hand or using a dough press/hot press, it has to do with the way the dough flows through the sheeting/reduction rolls, not enough development and the sheeter spits out chunks of dough rather than a sheeted dough mass, too much development and the dough is inconsistent in thickness or better yet it sticks to the sheeting/reduction rolls :(.

Tom Lehmann/The Dough Doctor

[Re: To what point is the optimum for kneading pizza dough?](#)

2829

I agree that this is the best forum to discuss everything pizza and pizza related but every once in a while someone gets too worked up over whatever or is just having a bad day. I can and do appreciate the burning desire we all have to make a better or different kind of pizza or just learn more about it but at the same time whether asking or answering a question or contributing in any manner it's important to consider how your communication will be perceived by others. I for one find it offensive when someone uses foul or offensive language/words in any context, even if it's part of their vernacular as you just know someone is going to take it wrong and think it's a personal attack or wrongly feel a level of hostility (especially with members who might have just recently joined us). In these rare instances I think a personal warning should be sent to the offender, then if after a couple of reminders they continue the offense this is when some kind of action would be justified.

Tom Lehmann/The Dough Doctor

[Re: Members opinion / feedback on how banning is currently implemented](#)

2830

Wood bagel boards were banned a number of years ago but you can still find them occasionally and they would make a great liner for a plastic dough box.

There has been a fair amount of research done over the past few years on the anti microbial properties of wood (dough boxes, dough troughs, bagel boards, bench tops, etc.) and yes, it has been found to be safer than plastic which develops deep scratches and is all but impossible to clean/sanitize. Wood has the same problem but because of the anti microbial properties and because any microbes present tend to be the most predominant in the food/dough being made (typically some form of lactobacillus) there really isn't any problem....now, try to convince the food safety people of that.

Tom Lehmann/The Dough Doctor

[Re: Pizzeria Da Attilio dough in wooden boxes](#)

2831

Looks good enough to eat! ^^^

Tom Lehmann/The Dough Doctor

[Re: I try and i Try.... And i Try!](#)

2832

There are three ways to develop gluten, hand kneading, machine mixing and biochemically.

What Bill is referring to is basically biochemical gluten development where we combine the ingredients together just until we get a smooth dough but not to develop the gluten to any extent, then we allow the dough to ferment for a period of time (usually 24-hours or more) during which time the gluten is developed biochemically resulting in a very extensible gluten film, it is then folded (kneaded) a couple of times to redistribute the gas cells within the dough and mixing is considered to be completed. Unless you're making bread or just want to have arms like the village blacksmith kneading the dough by hand in an attempt to develop the gluten structure is not needed or even desirable in pizza dough production. In fact, after a world wide trip back in the 1970's during which I documented how bread was being made in developing countries I reassessed my whole view of hand kneading the dough for making bread too and instead of extensive hand kneading I developed a method where the dough was made by literally stirring the ingredients together and fermented for 4-hours, the dough was then turned out of the fermentation container and kneaded a few times until a smooth dough was achieved. Because of the biochemical gluten development this was very fast and easy to accomplish (like Bill said), we could then mould the dough into the desired shape(s) and finish by proofing and baking. I saw this procedure being followed almost exactly as shown when I visited a very large bakery in Romania. Mixing bowls were about 4-feet across and 3-feet deep, water went into the bowl, then salt, sugar and yeast (I know, bad idea), followed by the flour (90kg.), this was mixed by two men with what looked to be boat oars each about 4-feet in length, they mixed/stirred until the "dough" had the consistency of thick oatmeal, then they went to the next one and repeated the process (there were 60 bowls in all in that bakery), when they were finished "stirring" they removed the dough from the mixing bowl and loaded it onto a wagon that was transported to the kneading area where several men would cut the dough into smaller size pieces, knead the dough for a few times and set it aside, then move on to another table and repeat the process. After they had chunked and kneaded the dough on five tables they

returned to the first table, cut the dough into pieces for making beehive loaves, the pieces were loosely rounded and placed into prepared beehive baskets for final proofing, after proofing the dough was turned out from the baskets onto an oiled baking sheet and baked to a rich dark brown color. This was a continual process with truck loads of bagged flour arriving several times during the day. By the way, those two guys stirring the ingredients together.....not an ounce of fat between them, just muscle and sinew. Remember, this was communist Romania and everybody had a job....but not all jobs were easy. Point is, biochemical gluten development has been around for a very long time and it works quite well, especially if you want to have a well developed gluten film which is still very extensible and easy to work with. When the same level of gluten development is achieved through machine mixing you end up with a very tough, elastic gluten structure that is more difficult to work with unless long fermentation times are employed and you get something in between the two with hand kneading to full gluten development but like I said, you get quite a work out doing so.

Tom Lehmann/The Dough Doctor

[Re: To what point is the optimum for kneading pizza dough?](#)

2833

Going to miss your posts but glad to see that you're sticking around. Keep us posted on what you're up to.

Tom Lehmann/The Dough Doctor

[Re: Norma](#)

2834

Wooden dough boxes are wonderful for inoculating the dough with good bacteria. They were used in cracker production up until the early 60's then we had to get rid of the wood dough troughs and use steel troughs, when we did this the flavor of the crackers changed. We discovered the inoculation that was unknowingly taking place, replicated/cultured the bacteria and added it back to the dough as an ingredient, problem solved. Gotta love those wood dough boxes!

Tom Lehmann/The Dough Doctor

[Re: Pizzeria Da Attilio dough in wooden boxes](#)

2835

three to four days on the outside, then you'll begin to detect some sourness...not a good thing :(when stored at refrigerated temperatures. Best to freeze as single use portions. This is not the best but it beats a sour sauce and it's about the best we can do to hold surplus sauce for an extended period of time. You do realize that the garlic you're adding to the sauce will catalyze the pectin in the tomato causing it to gel making tomato jelly? Best to add both garlic and onion (they both do this) directly to the pizza or if you want to add it to the sauce put it into a little water and microwave it until the water just begins to boil, this will denature the enzymes in the garlic/onion responsible for this dastardly deed and you won't need to worry about making tomato jelly.

Tom Lehmann/The Dough Doctor

[Re: Safe sauce storage](#)

2836

I forgot to answer your last question, "How will the rolls baked in a pizza oven compare to those made in a commercial bakers oven?" If you're not a baker by skill level there will be a learning curve for you to learn how to make the rolls, but once mastered you will be able to make something acceptable which is probably OK for

your application where a little individuality in the rolls, like our pizzas is accepted, and expected, by our customers. When the baker makes them he strives to have them all look alike and be as perfect as possible.

Tom Lehmann/The Dough Doctor

[Re: Baking sub rolls in a stone deck pizza oven?](#)

2837

When I say to "bake off of the deck" I mean do not place the pans containing the dough directly onto the deck/hearth of the oven, instead, place a few steel rods between 8 and 12.5mm in diameter on top of the oven deck/hearth. Then place the pan of dough on top of the steel rods which will hold the pan up off of the deck creating an air gap/space between the oven deck/hearth and the bottom of the pan. This will allow the rolls to bake more uniformly. Breads and rolls bake differently from pizza. Pizza bakes from the bottom up, this is why we place the pizza directly onto the oven deck/hearth but breads and rolls bake more from the top down so we must keep the bottom of the pan up, off of the oven deck/hearth, if this is not done the rolls will be over baked on the bottom.

Tom Lehmann/The Dough Doctor

[Re: Baking sub rolls in a stone deck pizza oven?](#)

2838

Because a par-baked crust will be re-freshened, means the same as baked a second time, you can use it up to 4-days after making it. Just store then at room temperature, I recommend penny stacking them in a suitable plastic bag and placing them into a dough box for storage. I do not recommend holding them more than four days due to the probability of mold growth on the crusts.

While some might advocate refrigerating the crusts I do not as refrigerated temperatures accelerate the rate at which the crusts stale at and you are going to need to make sure the crusts are ALL uniformly at room temperature when you go to use them. If you cannot use the crusts that you've made in four days you're probably being a bit overly optimistic as to how many you're going to be selling.

:-D

Tom Lehmann/The Dough Doctor

[Re: Pan pizza](#)

2839

After mixing the dough allow it to ferment for 1-hour, then scale into 7-ounce/200-gram pieces, form each piece into a hot dog shape, place about 2-inches/50mm apart on an oiled/greased sheet pan, proof as directed, dock, spray with water, bake OFF OF THE DECK to get a more uniform bake. We used to place a few 3/8-inch diameter steel rods on the deck to hold the sheet pans off of the deck.

Tom Lehmann/The Dough Doctor

[Re: Baking sub rolls in a stone deck pizza oven?](#)

2840

I know we have discussed at length the effects of the various dough ingredients on both the dough and

the finished crust but here it is in a nutshell:

Oil/fat/ shortening/lard/butter/margarine, etc.

They lubricate the dough for improved expansion properties during baking.

It helps to seal the cell structure to better retain leavening gas and water vapor for improved oven spring

It helps to reduce the migration of moisture from the top of the pizza into the crust.

It can provide a flavor.

It will help to retain those aromas lost during baking to provide a more rounded flavor in the finished crust.

It is known as a "tenderizer" as such it promotes a more tender eating finished crust (less chewy). Compare regular and fat free tortillas to see this first hand).

It can help to promote crust color too, not so much as a true color shift but a change in the hue of the crust.

It can also affect the mastication properties of the crust which can have a great impact upon how much or why someone likes a product.

It satisfies the "human fat gene"...people like FAT. This is why processed foods are high in fat. This is also why "fat free" was never popular.

There are two "optional" ingredients in pizza dough, they are: fat and sugar. Do you need them in a pizza dough, of course not, flour, water, salt and leavening are all that's needed, but sometimes we need to modify the dough for specific purposes so we use fat or sugar. Sugar is used for crust color development, flavor and crumb color (depending upon the type of sugar used), and as a nutrient for the yeast. Any residual sugar remaining in the dough will be concentrated and act as a humectant to pull moisture out of the air and from the top of the pizza potentially impacting the crispiness of the finished crust.

Tom Lehmann/The Dough Doctor

[Re: making dough without oil?](#)

2841

After proofing the rolls (you will need some type of temperature/humidity controlled cabinet (80% R.H. and 95F) the rolls are given three to four French cuts (diagonal cuts) across the top as a form of docking (they're actually called "docking cuts") which allows the individual rolls to expand during baking without tearing apart or bursting. Steam in the oven keeps the crust cool to allow for expansion (oven spring) but you can address this by spraying the rolls with water just prior to baking. Bake at 425 to 450F for about 12-minutes +/- . Immediately after baking remove the rolls from the pan and place onto a cooling rack, then while the rolls are still hot brush with melted butter. Rolls are ready to use when cool. They are best kept in a sealed plastic bag at room temperature. They will keep for up to 4-days. NOTE: If you will not be re-freshening the rolls at the time of use I suggest using them on the same day they're baked. Hoagie buns will typically contain 6 to 8% fat. The reason for the high fat level is to prevent moisture migration into the roll when it is made into a sandwich and also to provide the desired tenderness. If you want to have a more chewy roll reduce the total fat to 2%.

As you can see, these are a lot of work and might require equipment which you don't have or have room for, this is why so many stores opt to have them made for them by a local bakery.

Tom Lehmann/The Dough Doctor

[Re: Baking sub rolls in a stone deck pizza oven?](#)

2842

When making a pan pizza here is the basic procedure that I like to use;

Use your favorite dough formula but increase the yeast level to 0.4% IDY as this will significantly reduce the time required to fit the dough to the pan as well as the final proofing time.

Use the dough at 48-hours for best results.

I like to use a dough loading factor of 0.124 for my dough ball weights.

After removing the dough balls from the fridge allow them to warm to 60 to 65F.

Prepare the pan by either greasing with butter, lard, Crisco or butter flavored Crisco. The procedure is a little different if you want to use oil.

Place the dough ball into the pan and using your fingers push the dough out to fit the pan. If you want a flatter crust use a rolling/pastry pin to open the dough ball so it JUST fits into the pan.

Cover the pan and allow the dough to rise in the pan for 45-minutes, then press it out again, trying to keep it even. If you want to have a thin vertical edge (similar to a Chicago style pan pizza) pull the dough up onto the sides of the pan.

Allow the dough to rise in the pan a second time for about 70-minutes (time will vary depending upon how thick you want the finished crust to be)

You are then ready to dress the dough and bake (450 to 475F) until crust is browned.

If you want to par-bake the crusts open the dough balls using a rolling/pastry pin and carefully place it into the pan, set aside to proof for 45-minutes, then press out to completely fit the dough to the pan if necessary.

Allow the dough to rise in the pan again for 30 to 45-minutes, then bake at 400F JUST until the dough is completely set....DO NOT OVER BAKE.

Immediately upon removal from the oven de-pan the crust and cool it inverted on a wire rack or pizza screen.

To use your par-baked crust, lightly brush with oil, place back into the baking pan with a little oil in the pan, dress the crust and bake at 475F just until the top of the pizza is done (baking on a rack or screen is preferable to baking on a stone/steel).

If you want to use oil in the pan for a fresh baked thick crust pan pizza you will need to open the dough ball using a rolling/pastry pin to a size just a little larger than the pan and then place the skin into the pan. It should completely fit the pan. Set the panned dough aside to proof for 30 to 45-minutes and re-fit the dough to the pan if necessary by gently pushing the dough with your fingers, allow to proof for another 45-minutes before dressing and baking.

If you want to fit the dough to the pan using your hands with an oiled pan place the dough ball on a work surface and open to fit the pan, place the opened skin into the pan and set aside to rest for 1-hour, then re-fit the dough to the pan, set aside to proof again but this time for 30 to 45-minutes, re-fit the dough to the pan if necessary, then dress and bake as directed above.

Done right the crust will be 1/2-inch or more in thickness and have a light, tender eating characteristic. I've found that the best flour for this type of pizza is one with about 12 to 12.8% protein content and 58 to 60% absorption. Your deep-dish pans should be dark colored and at least 1.5-inches deep.

Tom Lehmann/The Dough Doctor

[Re: Pan pizza](#)

2843

Yep, 120F is too hot.

Tom Lehmann/The Dough Doctor

[Re: Can someone toss me a recipe with a 1/4" thick base for 16"](#)

2844

Like I said...."talking point"

The Dough Doctor

[Re: PMQ Article: Favorite Pizza Styles/Crusts](#)

2845

Nick;

That's a lot of 100L diastatic malt powder, but to your question, malt powder has a decided tendency to want to "pill" when it contacts water, because of this the best way to add it is to simply dry blend it into the flour with a few strokes of a hand whisk.

Tom Lehmann/The Dough Doctor

[Re: Another stupid question from Nick At Nite..er I mean Nick57.](#)

2846

We covered a lot of this in some recent posts here but in general, if your "bulk" dough is for only two or three pizzas there is little if any difference between bulk and ball cold fermentation...totally different story if we are talking about bulk dough weight of over 1Kg.

Bulk CF, then scale, ball and CF = just more CF.

Bulk CF, then allow to warm to at least 50F, scale, ball and CF = reactivation of fermentation process so dough will receive more fermentation in the end.

Tom Lehmann/The Dough Doctor

[Re: CF bulk and CF balls](#)

2847

Since you are using ADY you must pre activate it by suspending it in about 5 times its weight of warm (100 to 105F) water for about 10-minutes, then add the activated yeast suspension to the dough water and begin mixing. Amount of ADY to use will be between 0.5 and 0.6%.

Tom Lehmann/The Dough Doctor

[Re: Can someone toss me a recipe with a 1/4" thick base for 16"](#)

2848

Within reason, the thicker the stone the better. A thicker stone allows for a more consistent bake. On the down side it takes longer to preheat. Some of the best commercial wood and coal fired ovens I've worked with have stones as much as 6-inches (15cm) thick. While some of the best commercial deck ovens have decks that are 1 to 1.5-inches thick (2.5 to 4cm approx.) thick.

Tom Lehmann/The Dough Doctor

[Re: Have you ever used stones thicker than 1½ ?](#)

2849

If you're machine mixing the IDY should be about 0.375 to 0.4% and it should be added dry right to the flour. If you're hand mixing suspend it in a small amount of 95F (use a thermometer) water and activated for about 5-minutes prior to addition to the dough water. As for scaling weight for a 16-inch pizza approximately what are you looking for in crust thickness? Most of the time I'm looking for a crust with a finished thickness of about 3/16-inch thick which equates to a dough loading of about 0.106 (ounces of dough per square inch of surface area) or 21.3-ounces/605-grams. Your present 770-gram weight should be plenty to provide a good, thick finished crust if properly handled. As indicated your yeast/IDY level is much too low for this type of crust and I would also suggest that you consider baking the pizza on a solid, dark colored pan and allowing the dough to rise for a period of time prior to dressing and baking. I can't say how long to allow the dough to proof/rise for as there are just too many yet unknown variables but I would suggest starting with 30-minutes and then again at 45 and 60-minutes. This should give you the direction needed to zero in on the best time needed to achieve your end goal.

Tom Lehmann/The Dough Doctor

[Re: Can someone toss me a recipe with a 1/4" thick base for 16"](#)

2850

Letting the dough warm to at least 50F helps a lot with opening the dough into skins.

Tom Lehmann/The Dough Doctor

[Re: CF bulk and CF balls](#)

2851

Rutgers is a staple here in KS for us, we grow it every year. Not big (about the size of a baseball), but good yields and firm flesh with a great flavor if picked ripe. We also grow some Jet Star too but it doesn't yield as well for us.

Tom Lehmann/The Dough Doctor

[Re: Tomato choice: Rutgers or celebrity?](#)

2852

Try using a stronger bread type flour such as Pillsbury Bread Flour (available at many supermarkets) or KABF, adjust the yeast level to 0.05% IDY and go up from there if necessary.

Tom Lehmann/The Dough Doctor

[Re: I am trying to achieve a 24 hr. RTF and something's wrong.](#)

2853

Your taste buds? :-D

The only REAL test would be for you to evaluate both side by side under a fully prepared pizza using a triangular test where two like and one unlike sample are presented and the subject is asked to identify the odd (unlike) sample. This is repeated three times. If the unlike sample is accurately identified each time we say that there is a decided difference between the samples but if it is identified accurately two of the three times we say that there is potentially a difference and if it is identified accurately only once there is no significant difference. This is how we used to sort out ingredients with a potential impact upon flavor or aroma.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2854

The trend with whole-wheat flour today is to mill the bran to a finer particle size before adding it back to the flour stream. The good news is that it speeds up the rate of hydration a bit but the bad news is that people complain that it doesn't look like whole-wheat flour as they're accustomed to the coarser particle size associated with stone-ground whole-wheat flour (not actually stone ground, just a particle size reference). Whole white wheat flour are following this same trend, in fact, most commercial premium whole-wheat breads are made using a fine ground whole white wheat flour as it provides an improved flavor over the more common whole-wheat flours made from hard red wheat varieties.

Tom Lehmann/The Dough Doctor

[Re: Percentages of Flour added to white?](#)

2855

Using the bran flakes is indeed a good way to get an idea of how much whole wheat flour is being used.

Tom Lehmann/The Dough Doctor

[Re: Percentages of Flour added to white?](#)

2856

15-minutes is a long mixing time unless you are doing all of the mixing in low/1st. speed. Please let me know all you can about your mixer and how you are mixing the dough. A video would help greatly.

Tom Lehmann/The Dough Doctor

[Re: Advice.](#)

2857

It sure does but the total mixing time is only in the 60 to 75-seconds range. A similar type of mixer that you might know of is the Robot Coupe mixer.

Tom Lehmann/The Dough Doctor

[Re: Why does my fresh dough do not bubble ?](#)

2858

Mixing is not the issue here, it's fermentation. When using the Caputo Blue 00 flour I've used 60% absorption and 24-hours room temperature (70F) fermentation all in ball form and the dough just about opens by itself, maybe a little easier than I like, so if you find that to be an issue just begin working with lower dough absorption values. I've also used 36-hours cold fermentation with about 90-minutes at room temperature prior to opening, again all in ball form, no bulk.

Tom Lehmann/The Dough Doctor

[Re: Help with Ankarsrum kneading, please! My Neapolitan dough won't relax.](#)

2859

They really don't reheat very well in a commercial application because everything is enveloped in dough which is an excellent insulator and by law you're going to need to reheat to an internal temperature of 160F minimum (165F actual). We have done calzones where they are fresh bake and held under a warmer to allow them to be served over a longer period of time and then given a quick pass through the oven to dry the crust prior to serving if that helps any. We did this for a store in Newark, N.J. where we did a killer business serving breakfast calzones to commuters (rail station literally right across the street). These were fresh made, held under a heat lamp to keep them warm, and placed into a paper sleeve and sold with a cup of coffee as a breakfast special. These were smaller individual serving calzones and while I hate to say this, overall quality had to take a back seat to convenience (sorta like delivery pizza). How successful was it? They had to purchase a 70-inch XLT air impingement oven just to keep up with the demand. I suppose you could hold the larger dinner size calzones in a temperature/humidity controlled box (Hatco) at 150F (145F is the minimum serving temperature IF the product has not cooled under 145F) and then refreshen it with a pass through the oven just before serving. This should expand the window for sales to around 2-hours, or so. The same would hold true for stromboli.

[Re: Stromboli and/or Calzones](#)

2860

Peter;

You're absolutely correct. Tests performed back in the 1960's showed that it took a minimum of 4-minutes of machine mixing time to thoroughly disperse the IDY (5-minutes is usually recommended as a precautionary measure). Even when using the VCM (vertical cutter mixer) with a mixing speed of 1750 r.p.m. (variable with different models, but all at or above 1700 r.p.m.) it was found necessary to first suspend the IDY prior to addition to the mixer.

Tom Lehmann/The Dough Doctor

[Re: Why does my fresh dough do not bubble ?](#)

2861

He who holds the pizza holds all the aces when it comes to kids. Try to get them involved in making the pizzas too, we used to make it a family effort when the kids were small and they absolutely loved it. Their best part was that we let them each make their own pizza with their favorite toppings. Our youngest son is now 48 and the oldest is 53 and dad still makes pizza for them...it's their favorite treat, but now the order has grown from three pizzas to a minimum of five plus calzones (both boys think of calzones as an appetizer....go figure!) and desert pizzas too, or if we don't have desert pizza we will have one of my specialty cakes :chef: it's really not much work though as the grand kids like to roll up their sleeves and practice their pizza making skills too, that is until the pizzas begin coming out of the oven, at which point I'm on my own. Best part of it? Both boys still talk about some of our more memorable cooking and baking episodes.

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2862

Yes, that is the recommended procedure when doughs are mixed by hand. The temperature of the water in which the IDY is dispersed should be a measured 95F. Temperatures that are as little as 5F off in either direction will impact the way the yeast ferments.

Tom Lehmann/The Dough Doctor

[Re: Why does my fresh dough do not bubble ?](#)

2863

Another thing to keep in mind is that P.H. used to use a lot of tomato paste in their sauce which is why it had that very dark color.

Tom Lehmann/The Dough Doctor

[Re: Help with making a better sauce?](#)

2864

Considering the high dough absorption I don't think the dough is over fermented yet, slack doughs do collapse under their own weight a lot sooner than a lower absorption dough will, From the looks of the dough I would estimate that it is at the first full rise, this is the point in dough fermentation there the dough rises and then begins to drop (first full rise), the time required for the first full rise is typically about 80% of the total dough fermentation for making bread or about 50% when making pizza, assuming a good, strong flour is being used which would be the case for a N.Y. style pizza, but then we all know about that word "ASSUME". In any case, a dough which has been fermented to anything close to first full rise will exhibit sticky characteristics when first removed from the bowl.

Tom Lehmann/The Dough Doctor

[Re: very sticky dough](#)

2865

Actually, fresh yeast/compressed yeast/CY does not need to be activated/hydrated, plus the addition of the honey and sugar is most likely suppressing the yeast activity for a period of time (assuming your yeast is fresh and in good condition, which a lot of times is a great unknown when using CY as it is highly perishable). Like bigMoose said, IDY is by far the best and easiest yeast to use, no need to

activate, just add it right along with the dry flour and you're good to go.

Tom Lehmann/The Dough Doctor

[Re: Why does my fresh dough do not bubble ?](#)

2866

Two things:

1) Your dough absorption is 70% which is probably pushing the upper limits for your flour so I'd suggest reducing it to 62% (682-grams).

2) What your picture shows is a fully fermented dough. Without much more information on how you are handling the dough as well as temperatures employed I can't say if the amount of fermentation is excessive or not but it doesn't appear to have turned into "soup" so I'm assuming fermentation is OK. With that said, fermented dough as shown is always going to be sticky...it's the nature of the beast. Here's what to do. First, lightly oil the bowl that you are fermenting the dough in (this will make it easier to turn the dough out of the container). Turn the dough out of the container and very lightly dust the dough and then divide it into desired weight pieces, form each piece into a ball and handle normally from there. Remember, it will take at least 6-hours of additional fermentation time before the dough balls will be ready to be opened into skins.

Tom Lehmann/The Dough Doctor

[Re: very sticky dough](#)

2867

Power flour comes in at 13.5% protein content while the Mondako is at 12% protein content. As N.Y. type pizzas are typically made using high protein flours such as All Trumps (14.5% protein content) I would go with the Power flour. When deep-dish pizzas are made from excessively high protein flour the result is usually a very tough, chewy eating characteristic unless very long dough fermentation times are employed. When we did the AIB pizza seminars we found that flour with 12 to 12.6% protein content was a very good and acceptable "all around" flour for making both thin crust (including N.Y. style) and thick crust/deep-dish pizzas without the need to inventory two different flours.

Tom Lehmann/The Dough Doctor

[Re: Grain Craft - Power Flour vs Mondako](#)

2868

The 24-hour fermentation period at room temperature will effectively build acid content of the dough which will effectively mellow the flour protein making the dough quite soft and extensible.

Tom Lehmann/The Dough Doctor

[Re: Percentages of Flour added to white?](#)

2869

Surveys, like polls should ALWAYS be taken with a grain of salt. The results of either can be manipulated (on purpose or unintentionally) by the questions asked when conducting the poll/survey and the very people selected to participate in the poll/survey can have a tremendous impact upon the outcome too. Polls and surveys are useful when done with a specific objective (done by a major frozen pizza manufacturer to determine the most popular frozen pizza in Houston, TX...for example), but aside from that, in my opinion they make for talking points, that's all, and it's my guess that that's what PMQ was trying to achieve.

Tom Lehmann/The Dough Doctor

[Re: PMQ Article: Favorite Pizza Styles/Crusts](#)

The only reason for wanting the dough balls to retain their "ball" shape is when placing them into plastic dough boxes for storage in the cooler (think pizzeria), aside from that there is no valid reason why the dough has to retain a ball like shape. So what if it flattens out a bit? You're going to do more of the same when you form it into a skin. If the dough is properly fermented the dough will be sufficiently extensible so that even if it is a little out of round it will still be very easy to form a round skin from it. We do it every day at pizzerias across the country where we need to dig/scrape a dough ball out of a dough box (which results in a mis-shapen dough ball) and then open it into a round pizza skin.

Placing the dough into a larger container will allow for significant head space between the dough and the top of the container which can lead to condensation forming in the container resulting in a wet or sticky dough...there is no head space when a plastic bag is used and you don't need to place the dough in the fridge uncovered for several hours to allow for consistent cooling of the dough prior to lidding the container.

How to handle the kids: Look kids, we all like pizza...right? In order to make pizza daddy needs to make his dough and if you put something on top of the dough balls he may not be able to make the pizza crusts from his dough and without the crusts there can be no pizza, so be careful around the bags of pizza dough. Case solved. Just moving the dough balls won't hurt them, neither will pushing anything up against them cause any harm either. If you ABSOLUTELY must put the bagged dough balls into something, after they have been in the fridge for at least 3-hours place them into plastic tubs (we use the plastic tubs that whipped topping comes in) but DO NOT apply the lid. When we go to a friend's home to make pizza this is how we transport the dough balls....works great. :)

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2871

When you buy a dough docker just make sure you get one with flat/blunt docking pins. The Heavy Duty Plastic Roller Docker # DD5274 or DD5705 at American Metalcraft <www.amnow.com> are good examples of dough dockers that really work well. You might be able to find them at a local restaurant supply store or on-line too.

Tom Lehmann/The Dough Doctor

[Re: Dough not very smooth, small bubbles everywhere](#)

2872

It all depends upon how much fermentation the dough will be getting.

Tom Lehmann/The Dough Doctor

[Re: Percentages of Flour added to white?](#)

2873

That being the case there might be more rye flour in the dough than what the pictures showed. I would reverse the percentages of rye and whole-wheat flour from my original recommendation. With 20% rye flour there are three issues to contend with regarding dough absorption. One is that rye flour has a high absorption value by itself (70% on average) and second, it has little gluten forming protein so it dilutes the gluten forming protein in your white flour making for a weaker dough structure and three, rye flour produces a sticky dough characteristic (an inherent characteristic of rye flour), this is why getting the dough absorption

correct on a rye based dough is a bit tricky...HECK! It's the most difficult of all the doughs to hit the absorption correctly on. In the baking industry we use VWG to improve the handling properties of doughs with rye flour (15% of the weight of the rye flour is a good starting point if you want to add VWG to the dough). If you opt not to add VWG I would suggest starting at 72% absorption and cautiously working up from there if deemed necessary. Table stretching the dough might be a better option in this case than hand tossing or hand slapping when opening the dough balls.

Tom Lehmann/The Dough Doctor

[Re: Percentages of Flour added to white?](#)

2874

JPB;

You bring up a good point there. I've seen a lot of pizzerias where the "bubble popper" is the tool of the day. Additionally, correct docking of the dough can go a long ways in addressing unwanted bubbles.

Tom Lehmann/The Dough Doctor

[Re: Dough not very smooth, small bubbles everywhere](#)

2875

0.5% ADY is equivalent to 1% compressed yeast (CY) which is wwaayy too much yeast for a 24-hour room temperature fermentation period especially with Caputo "00" flour which isn't especially fond of long fermentation times. Using Caputo "00" flour the longest I have been able to ferment it is 24-hours CF, at 48-hours it was deemed to be marginally usable. I would suggest starting at 0.1% and work up from there. You can always give a dough extra fermentation time but it's difficult to take it away.

No yeast? Sure no "added" yeast. A sourdough leavened dough might be said to have no yeast, no added yeast that is, but within the sourdough itself you have both yeast and bacterial fermentation taking place which will leaven the dough quite nicely. I only wish I had a dime for every time someone said we don't use any sugar in our dough, but strangely, there is honey in it....guess honey doesn't qualify as a form of "sugar" even though its constituent ingredients are fructose and dextrose. As for your question on mixing, the optimum mixing time for most pizza doughs appears to be JUST enough mixing to allow the dough to be balled without the skin tearing as the ball is formed, this is assuming you're not trying to make your dough balls tighter than a golf ball is wound. You can see the change in the mixing bowl during mixing as the dough will begin to stretch (sheet is the correct term) thus reflecting light creating what appears to be a brighter colored dough with a satiny appearance. If your mixer has a "J" hook you may never be able to see this due to the poor mixing action of the "J" hook.

Tom Lehmann/The Dough Doctor

[Re: Dough FAIL!!!!](#)

2876

Scott;

You have never smelled a fresh baked, still hot angel food cake right out of the oven. Egg albumen takes no back seat to VWG, but both change considerably upon cooling when used in correct context. When I worked in production I ran a cake line for several months and I can still smell those things, but once they're cooled.....it's "game-on" ! ;D

Denaturing of proteins can create some pretty disgusting aromatic fragrances.

Tom Lehmann/The Dough Doctor

[Re: Results of my Diastatic Malt Powder Enzyme Tests](#)

2877

I would suggest replacing 30% of the total white flour with a blend of 20% whole wheat flour and 10% dark rye flour and bench mark from there. Rye flour doesn't contribute much of a brown color to the dough or finished crust, instead it is best described as a "muddy" grayish brown color, this is why caramel coloring is so widely used in rye breads, now you know the "real" reason why rye bread/dough has a brown color. Most of the color you're seeing is most likely from the whole wheat flour, hence the greater amount of whole wheat flour. There appears to be particles in the dough which could be from the use of a "stone ground" (an expression used today to describe a coarse ground flour) whole-wheat flour or it might be due to the use of a pumpernickel rye flour but I can't tell from a photograph which one it might be.

Remember that the use of these flours will INCREASE the dough absorption. If the dough is not tacky when removed from the mixer your absorption is most likely too low.

Tom Lehmann/The Dough Doctor

[Re: Percentages of Flour added to white?](#)

2878

Not a bad start! Not bad at all! ^^^

Develop your proficiency by tuning the dough and toppings and you'll be ready to rock and roll when you get your oven back!

Try my favorite sauce...nothing more than a lightly oiled skin to which thin slices of fresh, ripe tomato are added, flavor with fresh basil leaves and top with some fresh mozzarella cheese. If you can't get the fresh, ripe tomatoes just open a can of stewed plum tomatoes, tear apart by hand, drain well and place pieces over the lightly oiled skin along with the fresh basil leaves then add the mozzarella and a sprinkling of Parmesan cheese.

OK, so why the generic stewed plum tomatoes? Saving the good stuff for when you get your oven back. :chef:

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2879

You can get some very good oven spring with a high absorption dough IF you have the oven temperature to support it. I think lowering the temperature might be the wrong direction to go. Lower temperature = less and slower steam generation during those first few critical seconds in the oven which equates to less oven spring which in turn results in a less porous crumb structure whichwell you see where this is going :-D

Keep us posted on your progress.

tom Lehmann/The Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2880

Judith;

In addition to what Qwerty Juan pointed out regarding your dough weights the following should be added to the previous formulation which I converted into bakers percent for you.

Yeast (IDY): 1.56%

Salt: 1.56%

Sugar: 1.56%

OK, let's look at it now.

The total dough absorption is 48.82% which is about right for a thin crispy type of crust which has a dough loading of about 0.08845-ounces per square inch of surface area. By this calculation your 14-inch pizzas are heavy for a formulation of this type. Your 14-inch pizza should have a dough weight of 13.6-ounces (13.5-ounces) and the 16-inch should have a dough weight of 17.7-ounces (17.5-ounces). The amount of IDY is pretty high at 1.56% especially in view of the 5-day CF. More typically I would expect to see it down around 0.1 to 0.2% assuming a finished dough temperature in the 70 to 75F range (what is your finished dough temperature?) (what is your dough management procedure?). Knowing these would help me to nail down the yeast level a little better.

The sugar level at 1.56% is OK but normally for this type of dough we don't use any sugar which allows the pizza to be baked longer to help develop the crispy characteristic this type of dough is formulated for, but depending upon the finished dough temperature and how the dough is managed it might be an important aspect in yeast survival over the 5-day CF period?

Assuming you're opening the dough balls using a dough sheeter/roller and docking the opened skins?

Just out of curiosity, is the 14-inch pizza more of a "problem child" than the 16-inch pizza? I ask this because it is the 14-inch pizza that is heavy for its size while the 16-inch pizza is about right.

Tom Lehmann/The Dough Doctor

[Re: NEED HELP WITH MY PIZZA DOUGH](#)

2881

Some of the added ingredients in our flours are measured in "ppm" (parts per million). These include such things as potassium bromate, ascorbic acid and azodicarbonamide.

Tom Lehmann/The Dough Doctor

[Re: Results of my Diastatic Malt Powder Enzyme Tests](#)

2882

JPB;

I'm guessing that when you reduced the dough absorption the dough became less fluid during those first few critical seconds in the oven when oven spring occurs. Before getting too far out on the limb I'd suggest going in just the opposite direction...go up in dough absorption, that should give you an improvement in oven spring which in turn will result in greater crust porosity resulting in a crispier finished crust characteristic. How much should you increase the dough absorption to? I'd suggest increasing it as high as you can while still retaining ability to handle the dough. This judgement should be passed only at the time you are actually opening the dough into a skin. You may also find that making an autolyse using all of the flour and all of the water may help with high absorption while retaining handling properties of the dough. It wouldn't surprise me if you are able to reach 70% absorption. Let me know where this direction takes you.

Tom Lehmann/The Dough Doctor

[Re: Swimming upstream with NP hybrid dough?](#)

2883

The amount of ADY is higher than what I personally use too. It calculates out at

0.92% which is equivalent to almost 2% compressed yeast. Unless I'm making an emergency dough for my pizzas I seldom ever use more than 0.5% ADY, comparable to 1% CY. Combined with dough temperature? this could also contribute to a somewhat gassy dough with large bubbles.

Now I'm two cents poorer.

Tom Lehmann/The Dough Doctor

[Re: Dough not very smooth, small bubbles everywhere](#)

2884

Craig is "spot-on". The acid in the SD weakens/breaks down the gluten forming proteins in the flour much like marinating a tough cut of beef in beer or wine will help to tenderize it. If you look very carefully at the IDY label you may find ascorbic acid as an added ingredient to the IDY. While AA is used in the baking industry as an oxidant to strengthen dough in this specific case it is added to the dough in an amount calculated to address only the small amount of dough softening which MIGHT be noticed with the IDY. This slight dough softening results from the presence of dead yeast cells within the IDY (yes, some of the yeast cells are killed during normal processing) and these dead yeast cells release their glutathione into the dough (glutathione is very much like L-cysteine hydrochloride/PZ-44). The AA added negates this slight softening effect. Dead yeast is also used in products where a cleaner label is desired than which is possible with L-cysteine, this is because since all yeast ends up dead (thanks to the oven) it is allowed to be lumped right in with the live yeast on the label, in short, you can add a reducing agent without the need to show it individually on the label whereas L-cysteine must be individually shown on the label. By the way, both glutathione and L-cysteine are amino acids (protein building blocks), there is nothing to fear from either but the name.....kinda scary to some.

Tom Lehmann

[Re: IDY vs Sourdough](#)

2885

By law, all flour sold in the United States must be labeled with the constituent ingredients, malted flour will typically show "malted barley flour" or "fungal amylase" as an ingredient. The Falling Number value of unmalted flour is carefully controlled through the selection of the wheat used in milling the flour. Wheat that has sprouted in the field will have a very low FN value (over malted), since you can't get the amylase activity out of the flour a sprouted flour is normally used for what is referred to as an "industrial flour", well drilling paste is a good example of this, but in some cases it can be blended with good, sound wheat to provide a flour with the desired FN value so what you end up with is a flour which is "natural" but with no additives and it still has decent baking performance characteristics for the baker desiring such a flour. When we buy organic flour this is a little different in that the wheat has to be certified as organic and no additives are typically added, in this case the flour will be completely unmalted and have a high FN value, but it can be malted if the sprouted barley flour is certified as "organic", in which case the malted barley flour will be shown as a constituent ingredient. With the growing popularity of "00" type flours flour millers have taken to producing specific flours without any type of malt (cereal or fungal amylase) added to the flour, these flours are commonly referred to as being "untreated".

Tom Lehmann/The Dough Doctor

[Re: Results of my Diastatic Malt Powder Enzyme Tests](#)

2886

What is your confirmed baking temperature?

Tom Lehmann/The Dough Doctor

[Re: Uk- Lincat 630-2 oven](#)

2887

Have you tried FINE corn meal? The larger particle size slows the hydration rate substantially over that of flour so it allows for a longer peel time, plus it acts like little ball bearings under the skin to facilitate peeling the pizza onto the steel baking plate. It will also add another dimension of flavor and crispiness to the baked crust. Just be sure to use fine corn meal as anything else will be gritty.

Tom Lehmann/The Dough Doctor

[Re: Workflow preparing multiple pizzas before baking](#)

2888

Craig;

For some reason amylase and protease enzymes seem to go hand in hand, meaning where you find one you will typically find the other. Ingredient manufacturers have really done their home work in trying to minimize one over the other so if you have an amylase preparation the protease is really minimized and if you have a protease preparation the amylase is really well minimized. This is important as the commercial baking industry (the main user of these ingredients) wants ingredients with ONLY very specific effects upon their doughs and because there is a greater need for amylase than protease in the industry the work has been really concentrated on getting rid of the protease contamination (minimizing it). The method used for protein determination is the Kjeldahl Test, a method by which the protein is broken down and the nitrogen released is measured and multiplied by a factor of 5.7. I don't remember the entire procedure anymore but if you go to the AACC (American Association of Cereal Chemists) web site you should be able to find it or possibly just Google the Kjeldahl Test and or AACC. This is a slow, time consuming and somewhat dangerous test as the technician is dealing with flasks of boiling acid at face level, but it is still considered the most accurate. A great percentage of protein measurements today are based in NIR measured protein level which is fast, easy and with essentially no danger associated with it. In both of these cases "protein is protein" meaning that only TOTAL protein is being measured not just the two gluten forming proteins glutenin and gliadin, the only way to isolate these two proteins and measure their amounts is to first mix the flour in water causing the glutenin and gliadin to bind resulting in what we call "gluten" and then, using ice cold water, wash the remaining materials away so what you are left with is a relatively pure wet gluten ball.

I think you may have the "ash" procedure confused with the protein procedure.

When the ash content is measured the flour is burned in a Muffle Furnace leaving behind an ash residue which is measured and reported as "ash content". This is also an AACC procedure if you want to learn more about it.

Tom Lehmann/The Dough Doctor

[Re: Results of my Diastatic Malt Powder Enzyme Tests](#)

2889

Amylase is an enzyme which hydrolizes only starch. Native (intact) starch granules do not absorb water, only the starch granules which are damaged through the milling process are capable of absorbing water before being heated to the gelatinization point (140 to 180F+/-). The conversion of damaged starch to sugar is responsible for the noted stickiness and the slacked dough consistency resulted when the starch was hydrolized and gave up its water holding ability. The resulting

simple sugars were responsible for the darker color of the gluten after drying. As there is very little proteolytic activity present in the malt there would be little or no impact upon the gluten forming proteins. Washing gluten is a fairly imprecise technique, though it can be relatively accurate when done by a skilled technician. This is why we use the Glutamatic Gluten Washing Machine today for all of our wet and dry gluten assays. While we typically report protein as an indication of flour strength, when protein is reported, total protein present is actually being reported, flour has seven different proteins but only two are gluten forming (glutenin and gliadin) it is the property of these two proteins in forming "gluten" that is being reported by either wet or dry gluten weight/%. In some cases we can have a moderately high total protein content but still have a low wet/dry gluten weight/% due to the poor quality of the glutenin and gliadin either genetically or through chemical manipulation as in the case with a chlorinated high ratio cake flour.

Tom Lehmann/The Dough Doctor

[Re: Results of my Diastatic Malt Powder Enzyme Tests](#)

2890

They put a whole new meaning to "folding the pizza" :-D

Tom Lehmann/The Dough Doctor

[Re: Round pie, square slice. What is up with that?](#)

2891

John;

The produce bags CAN work BUT they are made very thin (probably 0.5-mil. in thickness whereas the Food Bags and bread bags are about 3 to 4-times that thickness. The thinner bags have a propensity of rupturing so if you are planning to use them be sure to double bag the dough balls. The bags that I use are 1.5-mil. in thickness and they work great, (1.5-mil. is the thickness of the average bread bag).

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2892

John;

You can buy Food Bags from just about any supermarket in a roll for less than \$3.00 or you can buy a box of bread bags on the internet for about \$10.00 (just Google "plastic bread bags"). Your dough formula numbers look fine. Adjust the water temperature to 75F and be sure to record the finished/mixed dough temperature.

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2893

TD;

Have you tried using the broiler function of you oven for baking the pizza? Even if it has a self cleaning function you might be able to get the oven up to a temperature where you can achieve some of the wood fired oven (hot bake) characteristics. If you go back through the archives here you will find discussion on both of these approaches. Have you considered a charcoal grill? Some members here use them quite successfully. As for a gas fired pizza oven as opposed to an electric one it all depends upon how hot the gas fired oven will get. In many cases there isn't much of a difference in maximum temperature but in other cases the gas oven can be hotter by 100 to 150F so you'll need to do some comparisons to see if a gas pizza oven is in your future or not.

Tom Lehmann/The Dough Doctor

[Re: Home oven versus wood-fired oven](#)

2894

Don't worry about what the dough is looking like during the three hour period, this is to allow time for biochemical gluten development to take place, you will see what I mean when you do it. No, DO NOT use snack, sandwich, quart, two quart, one gallon or larger size Zip Lock bags, they are not the same and will NOT work as well as the recommended Food Bags. Why you ask? Because the Zip Lock bags will not drape over the dough in the same manner leaving air pockets where the plastic is not contacting the dough leading to condensation and stickiness of the dough as well as sticking in the bag. Additionally, you DO NOT want to zip the bag to close, if you do the gas pressure can/will either tear the bag at a seam or pop in open at the closure resulting in a dry, crusted dough. By twisting the open end of the Food Bag into a pony tail and tucking it under the dough ball you allow the bag the ability to burp itself and expand as necessary. The bags can be saved and reused any number of times....but they are so cheap that this really isn't necessary for home pizza making.

If you can get the reverse spiral dough arm just mix the dough until it appears smooth, immediately scale and ball, oil and bag and place in the fridge (did you notice....no kneading). The dough will be ready to use in about 24-hours but it might be even better after 48 hours. This is where you can experiment to see what you like.

By the way, the oil on the dough ball is to help get it out of the bag after the fermentation period, the bag is what keeps it from drying out.

Don't over think it, now just get crackin' and makin' some pizzas, you've got friends and family depending upon you! :chef:

Let us know how your pizzas turn out.

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2895

We used reel type ovens quite a bit at AIB, two of which were Middleby-Marshall and two were Reed Oven Company. This is the same oven used in Chicago as the work horse for making both thin and thick crust pan style pizzas. Typical baking temperatures are in the 450 to 500F range though some will go as high as 550F. The difference being that our ovens, as well as most of those used in Chicago have a composite deck material as opposed to the steel decking which is really quite thin. Get a few pieces of un-glazed floor tile and place them on the shelves to preheat, then bake on the tiles to see if that helps the bottom bake. When we made pizzas in these ovens at AIB we actually had to use screens under the pan pizzas to prevent the bottom of the pizzas from getting too dark.

What was your baking time? In Chicago it runs right around 30-minutes.

Tom Lehmann/The Dough Doctor

[Re: help with ferris wheel Pizza oven](#)

2896

Make your first series of cuts top to bottom then rotate 45-degrees and cut to to bottom again, is that the one you are looking for?

Tom Lehmann/The Dough Doctor

[Re: Round pie, square slice. What is up with that?](#)

2897

And then two, followed by three, and if you're a micro-manager by any stretch of the imagination you will probably have changed your mind by that time, if not continue your quest to build an empire.

How can you tell if you're material for a multi-store operation with the potential of building it into a regional chain?

If you're a micro-manager....you are not.

If after opening your first store your life is in shambles....you are not.

If within 18-months of opening your first store you have not yet taken a vacation (and left your cell phone at home).....you are not.

If you feel that for whatever reason you cannot leave the store (your're a closet micro-manager).....you are not.

And there there's the financial backing....we won't even go there for now.

It's a lot of hard work but if you have the necessary skills and aptitude you have a reasonable chance to succeed. A very good friend of mine has three stores and he could go for more but right now finding good managers has been an ongoing problem.

Tom Lehmann/The Dough Doctor

[Re: Research. Interested in developing a Pizza Chain.](#)

2898

John;

See if you can wrangle up a reverse spiral dough arm for your mixer too, you will be forever glad you did as the dough just keeps climbing up on that silly "J" hook. Even starting the dough using a flat beater aka paddle doesn't really help. You might be better off using biochemical gluten development to your advantage for now. To do this you can use your mixer with a flat beater to blend the dough ingredients together into something of a homogeneous mass and then transferring it to a suitably sized container. Oil the container, scrape the dough from the mixing bowl onto a floured surface, roughly form the dough into a ball and place it into the container, loosely lid the container and allow the dough to ferment for several hours, turn it out of the container and knead several times (you will see a huge improvement), then portion into desired weight pieces (250-grams) and form into balls, wipe with salad oil and place into individual plastic Food Bags (like bread bags), twist the open into a pony tail and tuck it under the dough ball as you place it into the fridge to cold ferment for 24+ hours. When you're ready to use the dough, remove from the fridge, allow to temper AT room temperature until the dough balls reach 65F (internal temperature) then open into skins by your preferred manner, dress and bake.

This is a pretty fool proof and low cost method to get started with, as you get more confident and hone your pizza making skills you can begin experimenting with different dough management methods.

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2899

So, what's your point? I used to think that all pizzas were delivered in a paper bag....until we moved away from the Chicago area in the mid 70's. :-D

The only down side to the party cut is that there are only four pieces which have any resemblance to being crispy, like you said, the rest is pretty soft but still GOOD! ;D

Tom Lehmann/The Dough Doctor

[Re: Round pie, square slice. What is up with that?](#)

2900

How are you planning to mix the dough?

The highest elevation that I've made pizza at is 9350-feet above sea level, is that close enough?

Due to the lower atmospheric pressure you can reduce the yeast level to 0.1 to 0.15% IDY. I would also increase the dough absorption to 65% or higher (absorption is dependent upon the flour used) but in your case you want to maximize it. Salt should be in the 2.25 to 2.5% range. Other than that, no changes to the ingredients. Any typical bread type flour will work well for you. My "go to" flour for home use is Pillsbury Bread Flour (targeted specifically for use in bread makers), the protein content is about the same as Full Strength (12.6%).

Tom Lehmann/The Dough Doctor

[Re: Neapolitan dough at 9000'](#)

2901

Paul Pizza;

Welcome!

You are absolutely correct about the dough being therapeutic, it keeps the mind active through creativity and problem solving plus it instills a lot of patience while providing us with a tasty reward in the end. Best of all, if things don't go exactly as planned, it's still pretty good tasting! :chef:

Tom Lehmann/The Dough Doctor

[Re: PIZZA AND DOUGH LOVER](#)

2902

Yael;

Great responses! :)

The only thing I might add is with regard to #4, what you call a "plate" we call a "peel". A wood peel is referred to as a prep peel (it is the peel that the skin (dough) is dressed (topped) on and then peeled into the oven with. A small amount of flour, or more typically a blend of flour, fine corn meal and maybe semolina flour, (other materials are also used such as wheat bran and rice flour) is put onto the peel to facilitate peeling the dressed skin into the oven, this is referred to as "peel dust". A solid blade metal peel is referred to as an "oven peel" as it is the peel used to remove the pizzas from the oven with. While on the topic of peels, there is also a small round head peel which is used to spin the pizzas in the oven during baking, these peels are known as "spinning peels".

Tom Lehmann/The Dough Doctor

[Re: 8 questions](#)

2903

That is correct BUT do keep in mind that you are getting a MUCH accelerated rate of fermentation at RT and you do under CF conditions so in a sense, yes your procedure is giving you a different crust flavor than "the same time of CF" but when presented to a trained sensory panel our experience is that they are unable to distinguish a combination CF and RT crust as compared to 100% CF or 100% RT. The method that we used at the time to ascertain that the amount of TOTAL fermentation was as close as possible to the same for all doughs was measurement pH and total titratable acidity.

Tom Lehmann/The Dough Doctor

[Re: Poolish diminishing returns ?](#)

2904

The only time you're going to see any real flavor change between CF and RT is if you use 100% of either one.

Tom Lehmann/The Dough Doctor

[Re: Poolish diminishing returns ?](#)

2905

A poolish is really nothing more than just a "liquid ferment" aka "brew" in baker's terms. The flavor imparted is not much different than that achieved through any other room temperature fermentation process so if you are using a poolish and fermenting the dough for 4 to 5-days the poolish will just contribute to the total fermentation equation adding to the fermentation flavor, aroma and all the other good stuff that comes with longer fermentation times but it will NOT distinguish itself by contributing a different flavor so there is really nothing to be lost, it's just part of the fermentation profile.

Tom Lehmann/The Dough Doctor

[Re: Poolish diminishing returns ?](#)

2906

Well, it's hard to pin anything down there so I'll just add that insufficient salt can/will have a major impact upon the flavor of the finished crust and failure to allow the dough to warm to 50 to 60F prior to opening will reduce the amount of oven spring your dough can achieve which results in a more densa, compact crumb structure. Baking your pizzas at too low of a temperature can also have the same effect. While there are slight differences in flavor resulting from differences in flour the Allison bread flour (12.5% protein content if I remember correctly) and a regular flour (whatever that might be) will be negligible at best. Since your pan breads are typically made using very short fermentation processes and you liken the flavor of your crusts to those breads I'm thinking that your "recipe" might be out of balance and thus impacting total dough fermentation. You say that you are hydrating/activating the ADY in "warm" water, have you measured the temperature of the water to make sure it's within the recommended 100 to 105F temperature range? I have seen where the ADY was being hydrated/activated in "warm" water that was 122F (warm is a relative expression) which was adversely affecting the ability of the yeast to ferment the dough.

Tom Lehmann/The Dough Doctor

[Re: newb dough question + UK ingredients help!!](#)

2907

Both PMQ and Pizza Today use what are called "stock" or "file" photographs, that's why they always look so pretty and set-up. We used them at AIB too, admittedly not always the best choice.

Remember the old adage about judging a book.

Tom Lehmann/The Dough Doctor

[Re: How does this happen?](#)

2908

Also, if you can share your dough formula (in weight measures) as well as your dough management procedure it will help us to further assist you.

Tom Lehmann/The Dough Doctor

[Re: newb dough question + UK ingredients help!!](#)

2909

Judith;

Let's begin by looking at your dough formulation:

Flour (semolina)	62.5%
Flour (high gluten)	37.5%
Dark beer (50-oz.)	19.53%
Ice (50-oz.)	19.53
Water (75-oz.)	29.29%
Dry yeast (type?) (weight?)	????
Salt (weight?)	????
Sugar (weight?)	????
Oil (20-oz.)	7.81%

I need to ask you to fill in the blank spaces before I can complete the formulation.

Tom Lehmann/The Dough Doctor

[Re: NEED HELP WITH MY PIZZA DOUGH](#)

2910

Nancy's, Gino's, and Uno are the old timers in the Loop area. (Actually north of the Michigan Avenue bridge). Be sure to hit the Billy Goat Inn on Michigan Avenue immediately north of the bridge (west side), SNL made it famous...."cheeseburger, cheeseburger, cheeseburger".

Tom Lehmann/The Dough Doctor

[Re: Which are must try pizza places in Chicago?](#)

2911

The visual change in dough density is not a very reliable means of assessing the fermentation rate. I think the key factor to zero in on will be the finished dough temperature and running the doughs side by side will help to rule out any environmental factors which might influence the dough.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2912

vtsteve;

30-seconds? That's forever and a day :-D

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2913

Peter;

It doesn't bother me at all in that here we do things so differently. As I've said so many time before, when making pizzas for friends and family at home we can stretch the rules and take corrective action as we see it needed but in a commercial (pizzeria) setting FAILURE IS NOT AN OPTION, so we always recommend playing the conservative card, plus just ask any pizzeria operator if they feel comfortable letting the person who is mixing the dough make changes to the dough based on their own personal opinion.....betting there won't be many. But with the participants here we are much better versed in making pizza dough, recognizing problems/potential problems, and taking immediate corrective action which allows us to "bend" the rules, there is an inescapable price to pay for this though as you have heard me say many times, and that is that the pizza will be different...good or bad, different is BAD at a pizzeria but it can be good for us in that it might be one of those ah-ha moments allowing us to make a better pizza the next time and those who are being treated to a pizza dinner will rarely complain if

it isn't just like the last time they had your pizza. In my world I wear two hats, one is for the pizzeria where consistency and KISS is the name of the game and the other is worn when I'm making pizzas for family and friends in which case eating my pizza is like a trip to Walmart (if you find something you like at Walmart you had better buy it as they probably won't have it the next time you go there) the same is true for my pizza and cooking/baking in general, I'm always working to improve so it's never the same two times in a row (the one exception is my line of cakes: Double chocolate, coconut, nut cake; Lemon coconut cake and my orange cake, there were mentioned in an earlier post about desserts) In my opinion they're at my pinnacle of quality. But everything else is in a constant state of flux as I keep trying new/different things.....in my opinion, this is what keeps pizza going, my philosophy regarding pizza is "Dare to be Different" with the caveat if you are a pizzeria you must also be consistent.

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2914

Judith;

About all I can help you with at this time is to say that your flour to semolina ratio is way off. The total flour should not consist of more than 25% semolina flour unless you want to have finished crusts that would make a great substitute for shoe leather after delivery or carry out, or even just a slow eating experience in a dine in store.

In order to help you we have to get your dough changed from a "recipe" into a "formula" based on actual weight measures as opposed to volumetric portions as you have it now. As presented, I can't even determine what the dough absorption is as I have no indication of how much liquid is being added to the dough (a pitcher is a volumetric portion not a weight, and there can be many different speculations as to how big a "pitcher" actually is).

What you need to do is to have a scale capable of weighing your ingredients, then portion out each ingredient as you normally do but BEFORE you put it into the bowl weigh it and record the weight, this must be done for each and every ingredient, make the dough to ensure everything looks normal, or as it always looks. Repeat this three times, when done find the sum weight of each ingredient and divide the sum by three, this will give you the average weight of each ingredient in your dough "formula" from which we can accurately determine what corrective measures will need to be taken to achieve a crispier finished crust.

NOTE:

The dough formulation is only half of the equation we will also need to be able to see your dough management procedure as this can also have a great impact upon the final crispiness of the crust.

What are you baking your pizzas on (baking platform)? Pan, disk, screen? What is the color of the baking platform?

Tom Lehmann/The Dough Doctor

[Re: NEED HELP WITH MY PIZZA DOUGH](#)

2915

Peter;

While I cannot say too much about PJ's, I can confirm your suspicion that they do not use a special dough for their dessert pizza.

Tom Lehmann/The Dough Doctor

[Re: What types of crust for dessert pizza?](#)

2916

Peter;

I checked the referenced post and the 45 to 95F water temperature for suspending CY (compressed yeast) is indeed correct. Since CY is already hydrated it is not sensitive to cold water temperatures like the dry yeast forms are. It's the hydrating of the dry yeast in cold water that has the deleterious effect of pulling glutathione out of the yeast, thus impairing its ability to ferment in the normal manner. In the commercial baking industry we use a form of yeast not discussed in these pages very frequently, this is cream yeast (yes, it is also known as CY) but it is a more common practice to refer to it as "cream yeast" so I don't have any concerns over referring to compressed yeast as CY BUT if the reference is in regard to a LARGE wholesale manufacturer I always make sure to confirm the type of yeast being referenced. Cream yeast is available only by the refrigerated tank car (like milk) and it is highly perishable so it is kept at a temperature between 38 and 42F throughout distribution as well as in the holding tanks at the bakery. At the bakery it is pumped directly from the holding tank to the mixer for immediate incorporation into the dough. The main reason for using cream yeast is \$\$\$\$ it's cheaper than any other form of yeast as it does not go through as much processing (to remove water) and there is no packaging involved except to pump it through a heat exchanger and into a refrigerated tanker for immediate delivery to the user. Compressed yeast (CY) contains roughly 70% water while cream yeast contains roughly 80% water which allows it to be fluid. By the way, cream yeast has a shelf life of 3-days at the bakery (when held beyond this time the yeast level in the products being made must be increased to maintain dough performance and product quality which can erode or wipe out any cost savings resulting from the use of cream yeast.)

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2917

As one who is a FIRM BELIEVER in the KISS principle I try not to make things any more difficult or confusing than necessary so I always use my regular white pizza crust dough formula, after opening the ball into a skin I brush it with melted butter and then sprinkle it with a cinnamon-sugar mixture and begin building my dessert pizza from there. Aside from being simple and easy to make I've also found that by using this method the pizzas bake very similar to my regular pizzas....assuming I'm not baking at HIGH temperatures.

When making dessert pizzas in a hot oven (over 600F) I have found that baking the pizza on a screen for most of the baking cycle helps to control crust color while allowing the pizza to be sufficiently baked.

Tom Lehmann/The Dough Doctor

[Re: What types of crust for dessert pizza?](#)

2918

That's the amount of malt needed to bring an unmalted flour up to the same malt level as a regular malted flour.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2919

Zaroh;

If you buy a spiral mixer you'll probably never need to buy another mixer again.

Tom Lehmann/The Dough Doctor

[Re: Proper term for this kind of dough mixer?](#)

2920

Two things jump out at me, your dough absorption at 60% might be a bit too low for what you are trying to accomplish, I suggest increasing it to 65% and the salt level is at 4% (about twice of what it should be) which is probably inhibiting the dough fermentation. Bring the salt level down to 2% (9.6-grams) and try it again to see if it's any better. Your IDY level is also outrageously high at 4%, I suggest bring it down to 0.5% (2.4-grams).

Make sure the water temperature is adjusted to give you a finished/mixed dough temperature of about 80F.

Tom Lehmann/The Dough Doctor

[Re: Advice.](#)

2921

A "normal" dosage for a 20L malt powder is 0.25%.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2922

Steve;

You might be right! I do remember that it was a "hill", and at my age that's an accomplishment by itself! :-D

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2923

Once you've seen the color change there is no missing it, I usually just mix until I see the color change and give it another minute, or so, before checking the dough to make sure it's sufficiently extensible to ball without tearing. As for mixing speed, I like to use the highest speed possible WITHOUT undue strain on the mixer.

Tom Lehmann/The Dough Doctor

[Re: Dough Texture to shoot for](#)

2924

Unless you were adding enough sugar to slow the fermentation rate (highly doubtful) a small amount of sugar (2% or less) added to the dough formula would potentially speed up the rate of fermentation resulting in more of the classical "fermentation" flavor in the finished crust. Your comparison would be valid only if the finished (mixed) dough temperature for both doughs was the same as this will have a significant impact upon the rate of dough fermentation. Graig's idea of making the two doughs side by side and documenting everything is a good one, if you do it please let us know what you find out.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2925

Have you looked at the Eurodib mixers? I was looking at them while at Pizza Expo and I was impressed. You can get them in 20-quart size configuration/ 110v for well under \$1,000.00

Tom Lehmann/The Dough Doctor

[Re: Berkel Mixer](#)

2926

We used to have a pair of small bench top Artoflex mixers when I was at AIB. They were about 20-quart capacity but lotsa luck finding one of those!

If you're interested in a dough mixer take a look at one of the 20-quart spiral mixers, they work great, very dependable, and pretty cheap too. We have had lots of discussion on spiral mixers here.

Tom Lehmann/The Dough Doctor

[Re: Proper term for this kind of dough mixer?](#)

2927

C.G.;

When you say "yeasty" do you mean that the crust has a flavor like yeast or do you mean that it has a fermentation flavor/aroma? A good example of where we find a "yeasty"/yeast flavor is in Mom's home made bread and in some dinner rolls at restaurants where they are making them using a frozen dough.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2928

In the U.S. they're called Artoflex Mixers. They're designed to replicate hand kneading action. The most common application for these mixers is in making sweet and Danish doughs where you are looking for ingredient incorporation without excessive gluten development.

Tom Lehmann/The Dough Doctor

[Re: Proper term for this kind of dough mixer?](#)

2929

You certainly can, and it's my error, Oops!

The number should be 169.3, it is the sum of all of the ingredient percentages.

The new ingredient amounts based on this correction are as follows:

Flour: 100% (2,600-grams divided by 1.693 = 1,535.73-grams of flour needed) Due to bowl loss we will round this off to 1,600-grams. The remaining ingredients will remain unchanged as the 1,600-grams of flour will still provide sufficient dough to make our 10 dough balls at 260-grams each with a small amount of dough to account for any bowl loss. In short, we're still "good to go" with the original dough formula.

I apologize for the error and confusion.

Tom Lehmann/The Dough Doctor

[Re: Recipe Help](#)

2930

Everybody has their own favorite method of dough management, here's mine:

Add water to the bowl first, then add salt and sugar (if used), add flour, add IDY, Mix at low speed just until you don't see any dry flour in the bowl, add the oil and mix at low speed for 1-more minute.

Mix at medium speed for 8 to 10-minutes, or just until the dough appears smooth and has a satiny appearance.

Take the dough directly to the bench for scaling and balling.

Lightly oil the dough balls and place into individual plastic Food Storage Bags (NOT ZIP LOCK)

Twist the open end of the bag into a pony tail to close, tuck the pony tail under the dough ball as you place it into the fridge.

Allow dough to CF for 48-hours.

To use the dough, remove from fridge, allow to temper AT room temperature until the internal dough ball temperature reaches 60F.

Roll the top of the bag down to the dough ball, invert the bag allowing the dough ball to fall from the bag onto a floured surface.

Retain the plastic bags as they can be reused.

Open the dough balls into skins by your preferred method.

Place opened skin onto a dusted wood prep peel and dress to the order. (I like to use equal parts of flour, semolina and fine corn meal for my peel dust), everyone has their favorite concoction.

Peel the dressed skin into the oven.

Peel the baked pizza out of the oven using a metal blade peel.

Place hot pizza onto a screen or cooling rack for a minute prior to cutting and placing onto a serving tray. This allows the pizza to "steam-off" a little thus reducing the chances of the pizza getting soggy on the serving tray. There are any number of really good commercial items available to put between the pizza and the serving tray to further guard against the pizza getting soggy (just look to see what is being locally used in the pizza box for delivery pizzas). If nothing else, a corrugated pizza circle works well. For home use buy the size for the largest pizza you plan to make and let one size fit all.

Note:

If you want to get some great olive oil flavor in your pizzas pour some EVOO on the pizzas IMMEDIATELY upon removal from the oven, the heat of the pizza will "pop" the flavor.

Tom Lehmann/The Dough Doctor

[Re: Recipe Help](#)

2931

Walter;

I haven't seen that done in eons! When we used to make bread I would pick-up the hot loaves not 5-seconds out of the pan to place them onto a rack for cooling. There is a little trick to it, it has to do with the way you place your fingers on the crust...not all at once.

Tom Lehmann/The Dough Doctor

[Re: Old school](#)

2932

The dough looks pretty decent, the photo of the opened skin shows that you have too much dough out close to the edge so you're getting a thin center section. Continued practice will address that issue over time. It's something we all have to suffer through as part of the learning curve.

QD had asked about the "window pane" test where the dough is stretched using your hands to determine how clear of a gluten film can be formed by the stretching of the dough. While this can be used to determine when a pizza dough is properly mixed it is really hard for the novice to learn as there is nothing to compare it against. In bread production this is a very viable test for determining when the dough is properly mixed as we are looking for what is referred to as a "clear" film, none of the common spider webbing from undeveloped gluten that we see almost universally in pizza doughs (because pizza doughs are under mixed by choice). All of the work that we've done over the years points to minimum gluten development as being best for making pizza BUT we still need to mix the dough sufficiently so it isn't too sticky to handle reasonably well (especially during scaling and balling) without the need for excessive use of dusting flour or oil on the bench to facilitate

dough handling. Once the dough takes on the mentioned smooth appearance the dough is almost always within 3-minutes of completion. Lower absorption doughs may be ready to go as soon as they've been mixed to a smooth appearance while a higher absorption dough might need those extra three minutes. It's impossible to be more specific than this as all doughs are different in so many ways, only experience will tell you for sure just how much mixing is actually needed. The one rule in mixing that I do follow essentially all the time is: If the dough is too sticky/tacky at the bench during scaling and balling in all probability it hasn't been mixed enough.

NOTE: If you are using a reducing agent in the dough (PZ-44 or "dead yeast"/RS-190) you will want to mix the dough JJUUSSTT until it BEGINS to take on a smooth appearance...NO MORE! It will have a slightly sticky/tacky feel to it at the bench but that's normal for a dough with a reducing agent in it. The reason why mixing is so critical when a reducing agent is used is because the reducing agent continues to work all the way to the oven, it's going to continually get softer even if it's just sitting there in the cooler as a dough ball.

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2933

Steve;

Assuming a total dough formula percentage of about 167% you will need to have 10 X 260-grams = 2,600-grams of total dough weight. If you divide 167 by 100 = 1.67. Now just divide 2,600-grams by 1.67 = 1556.88-grams of flour. To allow for bowl loss round that up to 1,600-grams of flour. So, your dough will need to be based on 1,600-grams of flour to have sufficient dough to make 10 dough balls at 260-grams each. Sorry about the math, I'm "old school".

Here is a potential starting dough formula:

Flour: 100% (12.2 to 13.8% protein content aka strong bread flour) (1,600-grams)

Salt: 2% (32-grams)

IDY: 0.3% (variable depending upon your dough management procedure) (4.8-grams)

Oil: 1% (16-grams)

Water: 66% (variable) (1,056-grams)

Total % = 167%

I'm not sure I'd really want to get that oven dirty! :-D

Tom Lehmann/The Dough Doctor

[Re: Recipe Help](#)

2934

When it comes to mixing pizza doughs I've not seen a better mixer type than a spiral.

Tom Lehmann/The Dough Doctor

[Re: Best Spiral Home Mixer](#)

2935

Actually, I was going to say "trees" :-D

Tom Lehmann/The Dough Doctor

[Re: good source of wood in Arizona](#)

2936

Hey Steve;

Welcome!

Just over the past few days we had some discussion on hand mixing dough as well as use of different yeast types in hand mixing situations.

What dough weight are you planning to use for each skin? This will give us an idea of the dough weight needed for 10 skins allowing us to size a dough formula appropriately for you.

Do you have a scale capable of weighing in grams?

Tom Lehmann/The Dough Doctor

[Re: Recipe Help](#)

2937

Sucrose is inverted into the sugars dextrose and fructose which are nutrients for the yeast during the dough mixing process by the enzyme "invertase" which is present in the yeast. It is only the residual sugars that participate in crust color and flavor (sweetness) development. Sucrose by itself will not caramelize (this is why angel food cakes remain so white in color). Try making an angel food cake using dextrose (a reducing sugar) to replace the sucrose and you will end up with a very muddy brown colored cake, not just on the outside but on the inside too.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2938

And unlike taxidermy as a hobby, you can eat your mistakes! :-D

Tom Lehmann/The Dough Doctor

[Re: do overs](#)

2939

Sucrose will not be detected flavor wise in the finished crust until you get into the 4% and above range. Try a Papa Murphy's pizza if you want to see what 5% sucrose tastes like in the crust...sweet. Remember, with malt you have two decisions to make, diastatic or non-diastatic. Diastatic malt is enzyme (amylase) active and it PRODUCES sugar in the dough by converting damaged starch already present in the flour into dextrans and/or maltose (sugars which are fermentable by bakers yeast) and also participate in the browning reaction to provide crust color. You typically don't get a sweet flavor from malt like you do from high levels of sucrose but you will get a malty (think malted milk balls) flavor instead and you can also get the baggage of unwanted dough softening, the amount you get will be determined by the degree L of the malt you're using as well as the total amount of damaged starch present.

Non-diastatic malt is used just for its flavor impact as well as a little sweetness it can provide to the crust with residual malt participating in crust color development. In many cases non-diastatic malt powder is used for its darker (more reddish) the correct term is "foxy red" crust color contribution, this is why it is so widely used in bagel production. Because you don't have the limitations, due to enzymatic activity, with the non-diastatic malt you can use as much as you want/need to achieve your end goals for using it. At lower levels it provides what is described as a "nutty" flavor but as the level of malt increases this turns into the classic malty flavor.

There has been much discussion on malt and how to use it if you're not familiar with using it.

Tom Lehmann/The Dough Doctor

[Re: Effect of sugar on crust flavor](#)

2940

I agree with Craig, when looking at the pictures those were my first thoughts too. The whitening effect of oxidation is only seen in the interior (crumb portion) of the crust, not on the exterior (crust) portion. When we did our research many years ago comparing bleached v/s non-bleached flours in white pan bread production we always saw a brighter, whiter crumb with the bleached flours but never saw any difference in the crust color between the two. This was important for us to know at the time as the industry was moving towards the use of un-bleached flour and we wanted to know what other affects might be encountered (aside from a creamy/yellowish colored crumb) in all types of bread production.

Tom Lehmann/The Dough Doctor

[Re: Does autolyse gives a whiter final crust ?](#)

2941

Tin plated steel pans as well as "bright" aluminum pans that have been seasoned should NEVER be washed in a typical manner, and NEVER, EVER soak them in soapy water as this will ensure that the seasoning (which is really nothing more than a polymerized (think varnish) finish will begin to peel off like a bad sunburn. To clean these pans just dip in warm soapy water, immediately gently scrub with a SOFT bristle brush, then IMMEDIATELY rinse in clear water, towel dry and then oven dry. Do this and you won't have any problems with the seasoning peeling off, don't do it, and you're likely to be trying to figure out how to strip all of that beautiful seasoning off of your pans and starting the seasoning process all over again. By the way, I skipped the sanitizing step that comes into play after the rinse as you are a home pizza maker, but if you have a pizzeria you are well advised to include the sanitizing step just to stay on the happy side of your local health/sanitation inspector.

Tom Lehmann/The Dough Doctor

[Re: Washing Pizza Pans](#)

2942

If anybody is from the Pittsburgh, PA area there used to be a pizzeria in the (I believe it was referred to as the School Hill area) where the owner makes all of his dough by hand, quite a sight to watch him.

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2943

JPB;

Not following your question?

Tom Lehmann/The Dough doctor

[Re: Bulk cold ferment or ball then cold ferment?](#)

2944

You've got the right picture. We make croissants in a very similar manner. Another, though more labor intensive method is to scale the dough and ball it immediately after mixing, cold proof it and then open it by making multiple passes through a standard pizza sheeter/roller, the skins will be near finished size though just a little larger. The skins are placed on a screen and trimmed to final size. This method typically generates 10 to 15% scrap dough while the method using a reversible sheeter will typically generate upwards of 45% scrap. This is an

important consideration since the amount of scrap added back to new dough MUST be controlled if you are going to have a consistent quality finished crust. When working with a sheet and die cut line here is a typical scenario;

The amount of scrap return is not controlled (whatever scrap is generated is added back to new dough) the variable amount of scrap dough creates variability in the way the dough stretches and contracts (extensibility and elasticity) resulting in the generation of additional scrap which is again, all added to the new dough, resulting in even more variability which results in even more dough processing issues, etc., etc. You can see what happens when the amount of scrap dough isn't controlled....nothing good ever comes of it. The level of scrap dough where it has little impact upon the dough is 15%, any more than that just means more work for you. But the line is generating 45% scrap dough, what do I do with the other 30% scrap? (question most often asked). The answer is simple, find another use for it. Bread sticks are commonly made from this scrap dough as they are easy to make and have a broad spectrum restaurant application, you could also use it to make rustic type breads and rolls where in this case the scrap dough can be used much like a sponge (sponge and dough process) at levels of up to about 80%. Just some food for thought.

Tom Lehmann/The Dough Doctor

[Re: How To Increase My Crust Production](#)

2945

Kreskin;

Have you given any thought to using a reversible sheeter with a cutting/forming table (this is where take-away conveyor is about 6' long allowing for a die cutting roll to be installed or you can manually pass a die cutting roll over the dough sheet. If you really want to automate I would use the reversible sheeter to sheet the dough to the desired thickness, roll it on a baton and take it to a cutting table where the dough is unrolled from the baton and individual pizza skins are cut from the dough using a hand held die cutter. While this is taking place the next dough is being sheeter and rolled making the process quite fast.

Note: The die cutter in this case is not the biscuit cutter type as you might be presently using but instead it is a rotary die cutter looking more like a giant rolling pin so it continually cuts skins from the dough sheet as you roll it along the length of the ribbon of dough.

Just something to think about.

Tom Lehmann/The Dough Doctor

[Re: How To Increase My Crust Production](#)

2946

Here's something to remember, the "flash point" of most food grade oils is about 435F, meaning this is the temperature at which the oil can ignite. This is the reason why it is highly recommended that any future seasoning you do be initially done at not more than 425F, then after the oil has polymerized (formed an amber colored finish) you can crank up the temperature to further darken it without fear of all the excitement that accompanies an oven fire.

Tom Lehmann/The Dough Doctor

[Re: Smoke in oven](#)

2947

Cracker doughs and dough presses do not play well together, sheeting them is the only real way to get a decent crust with the same characteristics that you are getting from your present procedure which involves sheeting the dough.

How to speed up your operation? First thing we need to know is what your present procedure is, from there we might be able to suggest changes, or if you wish, please feel free to call me at 785-537-1037 and I will be glad to review what you are presently doing and suggest some possible changes that might help speed things up a bit. As I am not always at my desk, please send me an e-mail at <thedoughdoctor@hotmail.com> letting me know when you plan on calling.

Tom Lehmann/The Dough Doctor

[Re: How To Increase My Crust Production](#)

2948

I put the flour in the bowl and create a crater in the middle of the flour all the way to the bottom of the bowl then pour in the flour and begin mixing by pulling in the flour a little at a time as I stir it. I like to use a plastic bowl scraper to clean the flour and dough off of the sides of the bowl after I've got all of the flour incorporated. Mine you, this is a hand held, flexible bowl scraper not one of those Rubber Maid bowl scrapers which are designed for use with batters only.

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2949

I do essentially the same thing that Steve does when making unusually large batches by hand with one exception, I always like to mix the salt, sugar (if used) and yeast into the water immediately prior to adding the water. This ensures thorough dispersion throughout the dough. Remember, if you are using IDY, like ADY it must be suspended in a small portion of 95F water prior to addition to the dough water. If you're using CY you can just crumble it right into the dough water and whisk to suspend it and you're good to go. As for the fat, I prefer using oil as opposed to shortening for ease of incorporation but if you must use a plastic fat it's better to melt it and add it slowly during the mixing process. When adding the oil I will add it to the dough towards the end of the mixing process and let the following kneading process work it throughout the dough mass.

Tom Lehmann/The Dough Doctor

[Re: Need Some Help Making Larger batches of dough by Hand](#)

2950

From a fermentation standpoint, no but from a dough handling standpoint the answer is probably yes. When you bulk ferment you will still need to subdivide the dough by scaling and balling and then wait sufficiently long for the dough balls to sufficiently relax so they can be easily opened into skins. In my opinion it is just a lot easier to put the dough into balls right up front and then open a well fermented dough ball (rather easily) into a skin. This also eliminates the question of how long to wait before opening the dough balls after "bulk" fermentation.

Tom Lehmann/The Dough Doctor

[Re: Bulk cold ferment or ball then cold ferment?](#)

2951

Welcome to New York City! Goes to show you that even in NYC there are so many versions of pizza that it is impossible to keep track of. This didn't surprise me either when I did my tour as when it comes to pizza, if you don't like one pizza, try another until you find what you like.

That soft, limp slice is what caused me to develop my "new approach to pizza by the slice" which you can read about in PMQ Magazine if you search it out in the archives or go Google AJ's New York Pizzeria, Manhattan, Kansas where you can

see it in application.

The extreme variety that we see in pizza is the driver that makes pizza so popular, and truth be known, I wouldn't want it to be any other way! :chef:

Tom Lehmann/The Dough Doctor

[Re: NY slice joint tour](#)

2952

Bulk fermentation is characterized by a steady progression in fermentation. The outside ambient temperature will have little or no effect upon a true bulk fermenting dough. There are two reasons for this, one is because the dough, as it ferments becomes less dense so it is a better insulator thus preventing the core/center of the dough from being influenced by any outside temperature. The second is due to the heat of metabolism, as the yeast ferments it also creates heat (about 1F per hour), this results in a very steady and progressive rise in temperature which is really quite predictive which is an important aspect to managing dough.

Tom Lehmann/The Dough Doctor

[Re: Bulk cold ferment or ball then cold ferment?](#)

2953

Yes, there just isn't sufficient dough mass to give you the typical characteristics of bulk fermentation.

Tom Lehmann/The Dough Doctor

[Re: Bulk cold ferment or ball then cold ferment?](#)

2954

Amazing! :-D

I never knew anything like that existed aside from a dough descriptor.

You learn something new each day.

I wonder if the name is a befitting for that stuff as it is for the dough?

Thank you.

Tom Lehmann/The Dough Doctor

[Re: Elasticity, Extensibility & Tenacity, Oh My!](#)

2955

Rolls;

Your comment on the "over mixed" dough was interesting. It is very difficult, if not nearly impossible to really over mix a dough without some type of high speed machine mixing. With any type of low speed mixing, especially with kneading you are incorporating air/oxygen into the dough which oxidized the gluten bonding points on the gluten chain which re strengthen it. At one point some time ago I discussed the fatigue dough method of dough mixing which utilizes this to great advantage, with high speed mixing you can open/extend the gluten and allow the addition of more water (like an autolyze but without the need for time), the mixer bowl is then opened and the dough is allowed to continue mixing for several minutes at low speed. The opened bowl allows air to enter into the mixing chamber (horizontal bar type mixer) and the low speed mixing allows for a pulling/stretching, and folding action to take place which effectively incorporates air/oxygen into the dough which restrengthens the gluten giving the dough normal handling and processing properties. This was the preferred mixing method of the old Continental Baking Company (same folks who brought you Wonder Bread/"Builds strong bodies 12-ways" in reference to the twelve enrichment ingredients). Back to the point: From your description it sounds as if you had mixed

the dough to a point of full or near full gluten development. Full gluten development is defined as mixing the dough to a point where the gluten is developed to provide maximum dough strength which we see as a very stiff, tight dough consistency in the mixing bowl. You only see this when you develop the gluten by some form of mechanical means, when you achieve full gluten development through biochemical means the effects of the formed acids and the enzymes also provide a softening of the dough at the same time so what you end up with is a dough with a fully developed gluten structure but without the elasticity associated with a dough mechanically mixed to full gluten development.

Tom Lehmann/The Dough Doctor

[Re: Elasticity, Extensibility & Tenacity, Oh My!](#)

2956

QwertyJuan;

Note in my original response (heavy tomato puree), the answer to your question is behind door #2. Your assumption is correct. ^^^

My all time personal favorite is nothing else but the Stanislaus 74/40 tomato filets with a little fresh garlic and a few fresh basil leaves placed on the skin just prior to application of the filtes, great fresh, ripe tomato flavor with a superb texture. With the filets you don't need to go for 100% coverage like you do with a sauce, but instead go for about a 1" spacing between the tomato filets.

Tom Lehmann/The Dough Doctor

[Re: Sauce](#)

2957

Rolls;

An over mixed dough "lets down" during the mixing process, this means that the gluten structure becomes weakened to the point where the dough loses its elastic nature and begins to take on more of the characteristics of a batter, yes, pour able in extreme cases, in the baking industry the slang term for this is "elephant snot", not very pretty, but you get the picture. In this condition the dough is STICKY, has a very shiny appearance (due to loss of water holding properties of the gluten) and if you grab onto a piece of it the dough will stretch with no effort at all and continue to stretch for a country mile. I believe the Pyler book, Baking Science and Technology, by E.J. Pyler has some pretty good pictures of this. We've referenced this book a number of times in the not too distant past.

One of the very first things that I looked at when I first began my life's research on pizza was to identify the technology controlling the making of pizza dough. At the time the general belief was that pizza doughs were for all practical purposes the same as a bread dough but it didn't take too long to dispel that belief. This perceived similarity in dough technology is perhaps why we see some terms used in bread making also applied to pizza dough. They're not necessarily wrong, but they just don't fit well and "dough tenacity" is one of those terms. Another mixing term that falls into the same category is "pick-up" To the bread maker this is the point in time during mixing the dough where the dough begins to come together as a mass, in pizza production this might be all the mixing the dough will receive so it might be referred to as fully mixed at this point but due to so very many differences in dough formulation this term does not work well in pizza dough production as a thin crispy type of dough with 40% absorption might exhibit this characteristic at a very different stage of gluten development than a Domino's type of dough with an average of 60% absorption. Full gluten development might also be said to be one of those terms too as there are few pizza doughs mixed to "full" gluten development, the exceptions which come to mind are doughs for frozen pizza dough and

emergency doughs, essentially all other pizza doughs are under mixed to a greater or lesser degree. These are the things, among many, that I had to unravel back in the mid 60's.

Tom Lehmann/The Dough Doctor

[Re: Elasticity, Extensibility & Tenacity, Oh My!](#)

2958

Oven brooms are made from metal so there is nothing to melt or burn. If you're cleaning the deck with anything that melts or burns you're using the wrong kind of brush. The metal bristles on an oven brush do a very good job of removing all but the baked on debris, for removing that stuff you will need an oven rake, fortunately most of the time the two are combined so there is nothing else to buy.

Tom Lehmann/The Dough Doctor

[Re: Brush for cleaning](#)

2959

Q.J.

No, it is not, in fact, tomato paste is bitter, probably not the flavor you are looking for. To start, I'd suggest changing over to 7/11 (also a Stanislaus product). The 7/11 is made from whole "unpeeled" tomatoes so it provides a much richer tomato flavor and might be just what you are looking for, if you still want more flavor and want to "go for broke" begin blending some Saporito (also from Stanislaus) which is a heavy tomato puree, into the 7/11 until you get something that your customers like. If you go this route I'd start with 75% 7/11 and 25% Saporito and bench mark from there.

Tom Lehmann/The Dough Doctor

[Re: Sauce](#)

2960

The dough looks OK to me, but the real question is, did it make a good pizza? That's the only real way to tell is a dough has been properly fermented for making whatever you are trying to make with it. If it did then all you need to do is to replicate the dough formulation, all temperatures and time will become a relative constant in your equation for success.

Tom Lehmann/The Dough Doctor

[Re: Dough after Bulk Rise](#)

2961

Oh, that's easy! They're called "works of art"! As in now here is one of my works of art, enjoy! :chef:

We just don't tell them Art who, you all know him, he's the guy who steps in occasionally and makes a pizza for use once in a while that turns out really great, better than anyone's expectations, and then rides off into the sunset like the Lone Ranger. :-D

Tom Lehmann/The Dough Doctor

[Re: Elasticity, Extensibility & Tenacity, Oh My!](#)

2962

Rolls;

If you want it in "Lehmann's Terms" you'll have to go to PMQ Magazine :-D, but to save the trouble I'll try my best here.

Elastic: Think of the properties of a piece of elastic, you deform it and it quickly returns to its original shape. I used to use the example of a rubber band, stretch it

out to 12-inches long and let it go and it returns to its original length.

Extensible: This is the ability to be stretched (easily extended), when this adjective is used it carries with it the inference that when extended to a specific length or shape the dough will not retract or try to assume its original shape. A good synonym might be "stretchable".

Tenacious: Throughout all my years in the food industry, I think I might have heard this word used only a handful of time to describe the properties of a dough. When it was used it was always used to describe a dough that was tough, difficult to handle, generally, but not always, somewhat sticky. Where I've heard the term used most was to describe a dough that was difficult to discharge from a horizontal mixer, as in "The dough was tenacious and difficult to kick out of the mixer". I've never heard it used interchangeably with "elastic". While "bucky", as in a bucky dough, might seem similar to a tenacious dough it is not as a bucky dough is used to describe a dough that resists deformation, it just springs right back when you try to deform it in any way, and if you force it against its will it just rips or tears apart as in "The bucky dough was shredded by the reduction rolls as it went through the sheeter". Bucky doughs are almost always accompanied by a lot of gas bubbles in the dough as in an over fermented dough condition.

Did that un-muddy the waters, or just make it worse?

Tom Lehmann/The Dough Doctor

[Re: Elasticity, Extensibility & Tenacity, Oh My!](#)

2963

Walter;

Actually, they are a 4-speed mixer, an "H" shifting pattern too. :-D

Tom Lehmann/The Dough Doctor

[Re: What model of dough mixer is this!?](#)

2964

Rolls;

It is very much a dough mixer.

Tom Lehmann/The Dough Doctor

[Re: What model of dough mixer is this!?](#)

2965

Easy! Use $\pi \times R^2$. This will give you the surface area of a circle.

For example, if you are making a 12-inch pizza and you use 10-ounces of dough for the dough ball:

$\pi = 3.14$ (approximately)

$R = \text{radius (1/2 of the diameter)}$

Squared = radius X radius

Radius of a 12-inch circle is 6-inches, $3.14 \times 36 = 113.04$ square inches.

10-ounces divided by 113 = 0.08849-ounces of dough per square inch of surface area.

Now you know the "dough loading" (weight of dough per square inch of surface area for your pizza). To find the dough weight for ANY other size of pizza just calculate the surface area for the new pizza and multiple it by the dough loading (0.08849)

20-inch pizza:

$3.14 \times 100 = 314$ -square inches.

$314 \times 0.08849 = 27.78$ -ounces (round it off to 27.75-ounces.

Ain't math great?

By the way, you can use this for estimating the amount of sauce and cheese too. :)

Tom Lehmann/The Dough Doctor

[Re: How to figure out the weight for Dough Balls of Different Sizes?](#)

2966

Craig;

You're correct, (M-80 model has a closed base and the M-800 has an open base, otherwise the same) it is the best and I might add, the most powerful mixer EVER built by Hobart. It has an automotive clutch as well as an automotive transmission. The only problem those mixers ever had was due to their great power, they were known to break agitators, and main shafts and if the shaft didn't break the seal was always damaged as well as the bearings (this is evidenced by oil leaking at the shaft), this was all brought about by the power of these mixers and the low absorption pizza doughs of the time. I had one for many years, by the way, much like a P-51 Mustang, they have a very unique sound when you start one up...kinda sounds like a beast being fired up, which ain't entirely wrong!

Tom Lehmann/The Dough Doctor

[Re: What model of dough mixer is this!?](#)

2967

With that amount of IDY probably 3-days on the outside, re-balling "might" get you an additional day, I wouldn't hold my breath on it though.

Tom Lehmann/The Dough Doctor

[Re: Help! How long can I cold ferment?](#)

2968

Not a bad first run at it! As you've discovered, they all taste good and that's the best part of learning, you get to eat your mistakes too. Stay at it and soon you'll be inviting friends over for pizza dinner! :chef:

Tom Lehmann/The Dough Doctor

[Re: My first pizza!](#)

2969

Here is a dough formula that should get you started;

Flour: 100% (bread type flour)

Salt: 2%

Sugar: 2%

Oil: 2% (add by delayed oil addition mixing method)

Yeast: 1% IDY

Water: 56%

Hard Fat Flakes: 12% (these are added TO the dough after it has been mixed to within 4-minutes of completion) If you cannot get the hard fat flakes you can make your own by freezing Crisco and then shaving and chopping it into flakes about the size of rolled oats. Keep frozen until ready to use and add to the dough directly from the freezer. After mixing take the dough to the bench and roll out to about 3/16-inch thickness, cut into 7-inch diameter circles, add precooked filling, brush 1/2 of the edge with water and fold over (dry over wet), crimp the edges well and par-bake at 425F until just lightly browned. Refrigerate or freeze for later use or bake until the internal temperature reaches or exceeds 165F.

If you want more crust color brush the dough with whole milk, oil, or egg wash depending upon how dark you want the crust to be. Steam vents are not typically used BUT YOU HAVE TO WATCH THE INTERNAL TEMPERATURE CAREFULLY! If

you get the IT too hot they will blow every time.

Tom Lehmann/The Dough Doctor

[Re: Hot Pocket](#)

2970

Can you provide the following information?

- 1) Tell us as much as you can about the flour you're using.
- 2) How much and what kind of yeast did you use when making the dough?
- 3) Percent salt used?
- 4) Percent sugar used? (if used at all).
- 5) What was the finished (mixed) dough temperature?
- 6) Did you allow for and fermentation prior to putting the dough in the fridge or did you go straight from the mixer to the bench for scaling and balling and then directly into the fridge?
- 7) Did you cross-stack or leave containers uncovered for at least two hours after placing in the fridge? No need to do this if using bags.

If you can fill in these blank spaces we might be able to be a bit more specific.

Tom Lehmann/The Dough Doctor

[Re: Help! How long can I cold ferment?](#)

2971

I don't think anyone is going to be able to help you from the dough standpoint, I know if I could I wouldn't be where I'm at right now, I'd be sitting out on my own private beach on some secluded Caribbean island sipping a cold drink with a little umbrella placed on top of it. What you are asking for is the Golden Fleece of the retail pizza industry. Your best bet is to consider using boxes with steam vents, one of the many mats used to hold the pizza up off of the bottom of the box allowing for ventilation of the bottom crust, reducing the amount of vegetable toppings (reduces moisture in the box) and being a little sparse on the sauce (sauce, like the veggies, is almost 90% water). Additionally, be sure to allow the pizzas to steam off for at least 30-seconds before boxing them as this practice will also reduce the moisture which is trapped in the box.

If you search back through archived posts you will find that we have discussed this not too terribly long ago and you might be able to glean a few more nuggets of wisdom from one or more of those posts.

Tom Lehmann/The Dough Doctor

[Re: Chewy base](#)

2972

I forgot to add that while you aren't burning gas so products of combustion are not an issue, you will still probably want to be venting the oven to get rid of the acids, alcohol and carbon dioxide coming off of your pizzas during baking. Failure to do so may leave everyone in your store rubbing their burning, irritated eyes in short order.

Tom Lehmann/The Dough Doctor

[Re: Infrared pizza oven](#)

2973

I'm not an engineer qualified to really answer your questions so I'll leave that to someone better qualified than I am. I can however say that infrared has been used in pizza ovens here in the U.S. for many years, I worked with some of the first commercial IR pizza ovens back in the mid 70's, Domino's even used them for a

while. Heat/temperature recovery of the baking deck will be your greatest challenge as the emitter temperature will not be as hot as a gas flame or resistance heating in direct contact with the deck so you might want to think about going thicker with the baking deck material, I'm thinking that twice as thick as you have proposed would be better for holding heat as you will be baking on latent heat (as you have large production ovens for consideration I'm assuming you will be using this oven in a pizzeria application where you will need to bake multiple pizzas back to back without much time for heat recovery).

These are just my thoughts.

Tom Lehmann/The Dough Doctor

[Re: Infrared pizza oven](#)

2974

Your stone temperature is OK but don't use your infrared thermometer for measuring the dough temperature when determining the time to open the dough balls as in this case we are referencing the internal dough temperature so a stem or dial type thermometer must be used unless you have an electronic thermometer with a cabled thermal-couple which can be inserted into the dough. Your infrared thermometer is only effective for measuring the surface temperature (which will be lower than the internal temperature in most cases).

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2975

I grew them year before last and I agree with what you say about the flavor. While I don't use a traditional sauce very often I mostly just slice the tomatoes, blot them dry and apply to a very lightly oiled skin just as they are and call it my "sauce". Really great flavor. I also had a bunch of black, cherry tomatoes which had a fantastic flavor. I dried these for use as you would sun dried tomatoes....FABULOUS!

Tom Lehmann/The Dough Doctor

[Re: Black/purple tomatoes](#)

2976

You don't use the rolling pin on the crust, you only use it on the dough when opening the ball into a skin. By using a rolling pin to open the dough to about 2-inches LESS than full desired diameter you DO NOT degas the dough or significantly alter the cell structure in the dough as you would by opening it to full diameter using a rolling pin or pastry pin. Just be sure to use it correctly.

- 1) Pin the dough out from different directions by turning the dough often.
- 2) Use many light to moderate pressure strokes. Never try to open the dough using a couple of heavy pressure strokes.
- 3) Never allow the pin to roll off of the edge of the dough....that's a "golden rule".
- 4) When using a rolling pin always place your thumbs ON TOP of the handles, never on the bottom. This will provide much better control and application of more even pressure to the dough.

Tom Lehmann/The Dough Doctor

[Re: Pizza under carriage wet in the middle](#)

2977

Rolls;

You are ABSOLUTELY 100% spot-on! ^^^

Tom Lehmann/The Dough Doctor

[Re: Fermentation and Temperature](#)

2978

Cherubino;

Regarding your question on dough ball temperature, please refer to my Response #5 above, Item #8.

As for the ingredients, not really assuming you have a decent flour to begin with (like a bread flour), the main factor responsible for that easy to open characteristic is fermentation and to a lesser extent dough absorption. The comments posted by Rolls is "spot-on".

With all of this said, there are certain types of ingredients that can give you the dough characteristics depicted in the video. These ingredients are referred to as "reducing agents" they break down the gluten chains making the gluten form faster during mixing while at the same time giving a much more extensible (though weaker) gluten film after mixing. The two most commonly used reducing agents are glutathione aka dead yeast and L-cysteine/L-cysteine hydrochloride which is the active ingredient in the ingredient PZ-44 (a blend of dairy whey and L-cysteine). To a lesser extent one can also achieve a more limited reducing effect by adding onion and/or garlic to the dough. Some milk proteins can also exhibit a reducing effect but it is very inconsistent (this is why if you read old cooking and baking books they will always call for scalding the milk prior to using it in making breads and pastries. The scalding denatures those proteins and eliminates the reducing effects of the liquid milk. Bet you didn't know that! :chef:

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2979

This can also result when the skin is improperly opened resulting in a very thin center section so when the dough rises in the oven the edges rise higher than the center forcing the moisture and fat to flow to the center of the pizza and with a very thin center section the moisture and fat soak into the crust resulting in what you are seeing.

If you're having a problem opening the dough uniformly try this:

Use a rolling pin or pastry pin to open the dough to about 2-inches less than the desired diameter, then hand stretch the dough the last two inches or so. This will give you a much more uniform dough thickness across the entire diameter of the skin. With time and practice you will become better at opening the dough and you'll be able to put the rolling pin or pastry pin away.

Tom Lehmann/The Dough Doctor

[Re: Pizza under carriage wet in the middle](#)

2980

Mixing the dough JUST until it comes smooth in the bowl is pretty well a standard mixing procedure for all but two methods of handling or managing the dough. The two exceptions are when making an emergency/no-time dough where we will not be fermenting the dough for a sufficient time for biochemical gluten development to take place and when making a frozen dough where the dough will be frozen before any significant fermentation takes place. In both of these cases the dough needs to be mixed to full gluten development, this is a point in gluten development where the dough becomes soft and extensible during the mixing process.

By the way, bread doughs, unlike pizza doughs are mixed to full gluten development since they only receive limited fermentation.

If you want to see a pizza dough being mixed go to my web site at

<www.doughdoctor.com> and you will be able to watch one of my PMQ videos showing the mixing of a pizza dough.

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2981

As you watch the dough develop during mixing it goes from shaggy to having a curdled or "brain like" appearance then as mixing progresses you will see what appears to be a color change as the dough becomes lighter in color (actually it is not a color change at all but instead it is due to the dough becoming smoother and reflecting more light), once it reaches this point you are close to being finished with the dough mixing (the dough is normally sufficiently mixed about 2-minutes after you see this change in the dough. Additional mixing is not needed nor desired and it just puts more wear and tear on your mixer. Biochemical gluten development will take care of the rest of the gluten development for you during the fermentation period.

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2982

Mjs16;

Neeever Mind. You've got that base already covered. ;D

Tom Lehmann/The Dough Doctor

[Re: Making Neapolitan Pizza Dough - Rising and forming pizza](#)

2983

Here is a very simple and basic procedure for you to follow to make your pizza dough.

- 1) Use 60F water temperature when making your dough. We like to see a finished (mixed) dough temperature between 70 and 80F).
 - 2) DO NOT add the oil right away, instead, mix the dough JUST until all of the flour is picked up in the mixing bowl, THEN add the oil and resume mixing. Be sure to measure the temperature of the mixed dough as this is very important.
 - 3) Mix the dough JUST until it has a smooth appearance...no more than that.
 - 4) Remove the dough from the mixing bowl and immediately take it to the counter for scaling and balling.
 - 5) Lightly oil each dough ball and place it into a bread bag....NOT a Zip-Lock bag.
 - 6) Twist the open end of the bag to form a pony tail and tuck it under the dough ball as you place it in the fridge.
 - 7) If you can make 3 dough balls that'll be great. Remove one dough ball after 24-hours and one dough ball after 48-hours and the last one after 72-hours in the fridge.
 - 8) When you remove the dough ball allow it to temper AT room temperature until a thermometer, inserted into the dough ball, shows 60F, then begin opening the ball into a skin for dressing and baking.
 - 9) Repeat #8 with each dough ball.
- This will allow you to see how your dough handles at 24, 48 and 72-hours allowing you to see how the progression of time in the fridge impacts both the dough and the finished crust characteristics which will let you decide which one you like the most. Take a lot of pictures and notes along the way.
- Good picture shots:
- Immediately after mixing.
- Dough immediately after balling.

Dough in bag immediately upon removing it from the fridge.
Dough just before removing it from the bag.
Dough after being opened into a skin.
Dressed skin.
Baked pizza.
Smile on your face as you're eating your pizza. ;D

One other thing, how to remove the dough from the bread bag:
Roll or pull the bag down around the dough ball then invert the bag allowing the dough ball to fall free from the bag onto a floured surface, dust both sides of the dough ball and proceed to open it into a pizza skin.

After using the bag method you can experiment with different types of containers if you wish.

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2984

From the sound of your question your dough doesn't look like that...how does it look? What is the finished (mixed) dough temperature? I seldom, if ever mix my doughs to that consistency unless I'm making a no-time/emergency dough. A typical pizza dough, regardless of the type of mixer used, is only mixed to a point where it has a smooth, satiny appearance. When doughs are mixed more than that you begin to lose some of the desirable open, porous crumb structure characteristics....the crumb structure of the finished crust looks more like that of bread than pizza.

Tom Lehmann/The Dough Doctor

[Re: How to Mix Pizza Dough so it's ready to use?](#)

2985

I see you're using "00" flour, unless your baking at 800F or more you would probably be better off using one of the other regular white flours such as King Arthur Bread Flour or Pillsbury Bread Flour (designed for bread making machines and available at just about any supermarket).

Tom Lehmann/The Dough Doctor

[Re: Making Neapolitan Pizza Dough - Rising and forming pizza](#)

2986

The last time we moved deck ovens we had six college students, a few beers and the promise of a free pizza dinner, and my pick up truck.

You might want to run your post over at the PMQ Think Tank too, we have a number of Canadians tuned in over there who might be able to add something to the discussion <www.pmw.com>

Tom Lehmann/The Dough Doctor

[Re: Serial number and model number](#)

2987

Actually, Food Bags are better than Zip Lock bags, the reason being that it is possible for the gas pressure within the bag to either pop the seal open or actually split a seam open in the bag which will allow the dough to both seep out as well as dry out, additionally many people like to have the dough ball retain a round shape during the fermentation period as this can make the ball easier to open into a

round skin....Zip Lock bags are really not conducive to this. Food Bags (they look just like bread bags) are cheaper to use and are better at retaining something of a round shape. Just lightly oil the dough ball, drop it into the bag, twist the open end into a pony tail as close to the dough ball as possible (the idea is to exclude air from the bag) and then tuck the pony tail under the dough ball as you place it into the fridge. Why a pony tail? A pony tail is not an air tight seal so it will allow the bag to both expel gas and expand as the dough expands without fear of the bag tearing. To remove the dough ball from the bag just roll/pull the top of the bag down over the dough as you invert the bag allowing the dough ball to invert the bag as it falls free onto a floured surface, if you're so inclined you can place the used Food Bags into a sandwich size Zip Lock bag and store in a corner of the fridge, they're reusable any number of times. If you want to save up a few bread bags you don't need to buy the Food Bags (they're cheap) or you can buy relatively inexpensive bread bags on the Internet and not have to worry about buying them again for a long time.

Tom Lehmann/The Dough Doctor

[Re: Making Neapolitan Pizza Dough - Rising and forming pizza](#)

2988

Yep, I just mix it right into the water.

Tom Lehmann/The Dough Doctor

[Re: Best time to add starter in final mix](#)

2989

To the best of my knowledge FB has nothing on me at all. Don't do ANY social media, never have, never will. Plenty of other sources most likely have a lot of stuff on me though.

Tom Lehmann/The Dough doctor

[Re: Facebook knows everything about you, and it's scary!](#)

2990

Made a 45-Kg. flour based pizza dough in Guyana, 65F off of the mixer, direct to the bench for scaling and balling, oiled dough balls, bagged dough balls, places on sheet pans in a rack in the walk-in cooler, came back to it on the following day only to discover that the dough had essentially liquefied over night (it came out of the bag looking more like a very thick cream than dough). That's where I learned my lesson about damaged starch and fermentation.....they don't play well together at all! Oops!

tom Lehmann/The Dough Doctor

[Re: What was your worst pizza mistake.](#)

2991

You will get a different crust if you bulk ferment as opposed to what you're presently doing. You will also, in all probability, introduce a new world of inconsistency to your customers which will not be good for business in the long run. My recommended solution: Purchase a free standing walk-in cooler and install it "out back" where you will have ready access to it. This is a very common fix to a very common problem.....and it works well.

Tom Lehmann/The Dough Doctor

[Re: Batch fermentation](#)

2992

I always mix my sourdoughs the same as I mix any other pizza dough, just until it

begins to take on a smooth appearance..no more than that is needed. You can do it by hand if so inclined, or by machine.

Tom Lehmann/The Dough Doctor

[Re: effects of mixing on sd pizza](#)

2993

Q.J.;

Spot on! :) The use of oil in the dough can really have an impact upon the flavor of the crust as it will better enable it to retain flavors released from the pizza during the baking process.

Tom Lehmann/The Dough Doctor

[Re: Dough tastes boring - what to do?](#)

2994

Peter;

Your assumption is a valid one but it doesn't take into account one very important enzyme contained within the yeast cells, that enzyme is invertase, its main job, if you want to call it that, is to break down (hydrolize) the disaccharide (two sugar) sucrose into its monosaccharide (single) component sugars (dextrose and fructose) which are then available for the yeast as a nutrient. The action of the invertase is nearly instantaneous as it occurs during the mixing of the dough. This is also the very same reason why the addition of sucrose aka table sugar (a non-reducing sugar) to the dough allows for the development of additional crust color during the baking process.

What you observed when making the emergency dough with 0.8% IDY is what I would have expected to see, at least from one on my emergency dough which is ready to be opened into a skin between 60 and 90-minutes after coming off of the mixer. The total life of one of my emergency doughs is something less than 3-hours on average so it's fermenting VERY FAST to say the least. By the way, my fastest emergency dough (made at the P.H. Headquarters in Dallas, TX) was just under an hour from scaling ingredients to the pizza coming out of the oven. The story behind the dough:

Mr. Lehmann, how fast can you make a pizza from dough to oven?

I'm not sure of the exact time but it would be around an hour.

Can you make enough dough for four pizzas?

Sure! Do you want me to show you how to do it?

Yes!

With that I scaled-up the dough and proceeded to mix it, scale the dough balls and ball, oiled the dough balls and covered with a sheet of plastic to ferment until the dough could be opened, in just under an hour after starting we were eating pizza. When I asked them why they wanted to see this they responded: Oh, it was getting close to lunch time and we didn't want to have to run over to the cafeteria for pizza.

Just goes to show you, emergency dough pizza really isn't all that bad....all things considered. :)

Tom Lehmann/The Dough Doctor

[Re: honey](#)

2995

And we also need to look at your dough formulation, amount of yeast (we have to know the type of yeast you're using too) as well as the amount of salt you're adding to the dough formula are important considerations when assessing a dough formulation when flavor or lack of flavor is an issue. Lastly, do you weigh or portion

your ingredients?

Tom Lehmann/The Dough Doctor

[Re: Dough tastes boring - what to do?](#)

2996

Mike;

The reason why I asked is because if the total dough weight is under 1.5 Kg. (3.3-pounds) the dough will ferment the same if it is balled of in bulk due to the small size. I discussed this to some extent in an earlier post. The dough has to be sufficiently large to retain the heat generated through fermentation/yeast metabolism (heat of metabolism) to show the effects of bulk fermentation.

However, if you allow the dough to ferment, whether it be in "bulk" or as dough balls prior to placement in the fridge for a cold fermentation period the dough will ferment prior to going into the fridge making it perform more like true bulk fermentation regardless of the dough weight. This is due to the change in dough density resulting from fermentation making the dough a better insulator and better capable of retaining heat while in the fridge.

Tom Lehmann/The Dough Doctor

[Re: Bulk cold ferment or ball then cold ferment?](#)

2997

Steve;

There is a group of PMQ Think Tankers planning to meet on March 20th. following the Beer 'N Bull have you given any thought to possibly joining them? I'm sure they would be receptive to the idea. There is presently discussion on it on the PMQ Think Tank discussion board.

Tom Lehmann/The Dough Doctor

[Re: International Pizza Expo](#)

2998

Mike;

Out of curiosity, what is your total finished dough weight?

Tom Lehmann/The Dough Doctor

[Re: Bulk cold ferment or ball then cold ferment?](#)

2999

You got me on that one! :-D

All kidding aside, the little known fact is that the darkest grades of honey (also the lowest cost) are the one preferred for baking applications, not just due to their lower cost but mostly due to the fact that the flavor is more intense (robust) with the darkest honey grades. The least desirable for baking applications, if flavor is a reason for including honey in the formulation, is the grade referred to as "water white" this is the lightest colored grade of honey (also the most expensive) and from a baking perspective, has the most delicate (least intense) flavor of all the honey grades.

Tom Lehmann/The Dough Doctor

[Re: honey](#)

3000

The 20" screens are available from just about any restaurant supplier (might need to special order) or American Metal Craft. I can't help you on a 30" as the largest I know of is 28".

Whatever you get just make sure the rims are wither riveted or spot welded, NOT stapled. Most health departments take a dim view on the stapled ones as the staples come apart. You might check with Lloyd Pans to see if they are doing a 30-inch diameter aluminum screen.

Tom Lehmann/The Dough Doctor

[Re: Pizza screens](#)

3001

Here are the reasons for adding honey to a pizza dough formula:

- 1) Nutrient for the yeast to feed upon.
- 2) Residual honey/sugar contributes to crust color through participation in the Maillard browning reaction.
- 3) Residual sugar can provide a sweet taste to the finished crust if used at a sufficiently high level to begin with.
- 4) Redeeming social value, it makes you feel better using honey than that nasty stuff we refer to as "sugar".
- 5) You don't mind spending \$9.00 a pound for honey when you can accomplish the same thing using regular sucrose for less than \$0.50 a pound.

Tom Lehmann/The Dough Doctor

[Re: honey](#)

3002

Yael;

Post your question in the PMQ Think Tank too. There are several very good Canadian operators over there who I am sure will be glad to provide you with some first hand knowledge of what it takes to have a pizzeria in Canada.

<www.pmq.com>

Tom Lehmann/The Dough Doctor

[Re: Opening a pizza shop : USA vs CANADA ?](#)

3003

How about the food processor you probably already have sitting on the kitchen counter?

Tom Lehmann/The Dough Doctor

[Re: Parmesan Grater for 2 to 3 lb at a time?](#)

3004

To achieve the characteristics you're looking for the first place to start is with the dough absorption, ramp it up to 70% and bench mark from there. With your slightly greater elevation you will get even more oven spring than at sea level to 1,500 feet above sea level (Naples). At what temperature are you baking at?

Tom Lehmann/The Dough Doctor

[Re: Neapolitan pizza in montana](#)

3005

I've had my best success baking them at 500F in a deck oven or 465F in an air impingement oven.

Tom Lehmann/The Dough Doctor

[Re: Cracker Crust Issues](#)

3006

Almabts;

How about just replacing the sun dried tomatoes called for with pieces of FRESH,

VERY RIPE plum tomato? Cut the tomato into slices about 1/8-inch thick and then cut into quarters, use this rather than the sun dried counter part.

Tom Lehmann/The Dough Doctor

[Re: Sun-dried Tomatoes](#)

3007

That would be a good place to start at, and then slowly increase the absorption in 2% increments until either you have too great a difficulty in handling the dough or it collapses during baking.

Tom Lehmann/The Dough Doctor

[Re: What would cause pizza to stay dense?](#)

3008

Sounds about right for a cracker style crust. Too stiff to open any other way except to use a rolling/pastry pin..right? If so it sounds to be "spot on".

Tom Lehmann/The Dough Doctor

[Re: Cracker Crust Issues](#)

3009

My mother was German and my father was Italian and then there's me. I guess that explains why I like sour kraut and pizza.

My father died in the last months of WWII and my mother remarried hence my last name which is very German.

Tom Lehmann/The Dough Doctor

[Re: What are you made of?](#)

3010

Baking as you are I would expect that the absorption of your dough should be in the 70% range to give you optimum oven spring characteristics. Lower dough absorption values (high 50's to low 60's) are usually employed when baking at lower oven temperatures, say...in the 500F range. If the dough absorption is too low when baking at high temps the dough is too stiff/firm to give full expansion during the critical oven spring stage of baking whereas the dough made with a higher absorption will be softer/more fluid and expand more readily during the oven spring stage of baking.

Tom Lehmann/The Dough Doctor

[Re: What would cause pizza to stay dense?](#)

3011

Jr07;

Do you mean extensibility?

Elasticity means that the dough keeps fighting you as you try to open it into a skin. If the dough was soft and extensible (easy to open) the fermentation was probably sufficient so that leave the oven to look at. What kind of oven are you using? What is the confirmed baking temperature? What are you baking your pizzas on? How long do you allow the oven to warm up before baking a pizza?

Tom Lehmann/The Dough Doctor

[Re: What would cause pizza to stay dense?](#)

3012

Also, was the dough ball easy or somewhat difficult with a lot of dough memory/elasticity to contend with while opening the dough ball into a skin. Assuming you're opening the dough ball by hand and using a fixed weight for each

dough ball?

tom Lehmann/The Dough Doctor

[Re: What would cause pizza to stay dense?](#)

3013

In a word, yes. But at the same time I do realize that the type of wood being burned will have some impact upon the aroma of the pizza. A great example of this was when pine was being used to fire the oven, it resulted in a piney tasting and smelling pizza, sorta like sauce and cheese on a pine plank would best describe the flavor of that pizza. Cardboard resulted in another interesting flavor as the finished pizzas literally tasted like proverbial cardboard, not too much better for the paper which was whetted and rolled into a log shape, dried and used to fire the oven, not to mention all the ash on the pizza. The real "kicker" was the pizza baked in an oven fired by a kerosene heater (operates like a mini jet engine), those pizzas tasted just as if they had been baked over a diesel exhaust stack...yum! Come to think of it, there is one that I haven't had yet, pizza baked in an oven fired by cow chips/pies, I know they're burned as fuel but at least to the best of my knowledge, I haven't had a pizza baked in an oven fired by them yet and now that I've limited my International travel hopefully I've limited the possibility. That's what has made the International travel part of my career so interesting, you get to see just how resourceful people can be.

Tom Lehmann/The Dough Doctor

[Re: Coal fired pizza...give up the dream?](#)

3014

If it burns or can be made to burn I've probably worked with an oven fired by it (coal/anthracite, hard wood, soft wood, fruit woods, paper rolled into logs, cardboard, kerosene, electric and all forms of gas). The type of pizza you are attempting to make will determine the temperature you operate your oven at. For example, a number of years ago I was working with a fellow in Dallas, TX on his pizza concept using a wood fired oven. The problem he was having was getting his pizzas crispy enough to satisfy his customer's demands. To do this we finally ended up operating the oven at 600F and baking for a longer time. Since his main business was DELCO he finally sold the wood fired oven and replaced it with a stone hearth gas fired oven.

In both New York City and South Carolina I worked with coal fired ovens and in both cases we were baking in excess of 900F with great results BUT the dough was entirely different AND both were dine-in pizzerias. I've worked with any number of wood fired ovens operating in this temperature range too with similar results when the application was correct (right dough and right audience). While a coal/anthracite fired oven might be able to achieve a higher operating temperature than wood I've yet to actually see that put into use in a commercial application. By the way, when managing a coal/anthracite fired oven I've found it much easier if you have the coal put up into 5# bags. it's a lot easier to handle too.

From a commercial standpoint the only drawback to a single fuel source oven (wood or coal) is that you're locked into feeding the beast 24/7/365, to get around this I really like the idea of a dual fuel oven where the second fuel is gas. This allows you to idle the oven at 350F during the night and when the store isn't open and then get it back up to operating temperature within a reasonable time on the following day. There was a very practical aspect to the pizzeria and bakery owners living above their business establishments back in the early 1900's, their ovens were primarily all coal or wood fired which needed constant feeding and the trip down to the oven was a short one when you lived immediately above it.

Tom Lehmann/The Dough Doctor

[Re: Coal fired pizza...give up the dream?](#)

3015

How are you mixing the dough? I see you are using 1-pound of flour, are you weighing out this amount? The other ingredients are all portions rather than weights, since we all portion differently there can be differences in portion weights. Do you have a scale that will weigh in grams? If so, can you provide the portion weights that you are using? You mention an issue with flavor, problems with flavor are normally associated with salt (not enough), fermentation (insufficient) and baking (insufficient). Can you share with us how you are managing your dough (this is everything you do to the dough from mixing to opening it into a pizza skin). Additionally, what is the finished dough temperature? You mention that the dough was still too tough to open even after 24-hours fermentation at room temperature. Did the room temperature fermented dough show much in terms of expansion of the dough ball after 24-hours? If not your issues might be due to;

1) Old yeast.

2) Incorrectly hydrated/activated ADY.

3) Excessive salt, but I really don't think that is the issue here as you would be detecting a salty taste in the finished crust.

How did the dough feel after mixing? Was it tougher/tighter than what you had with the KA flour? If it was the AT flour might just require more water than the KA flour. Flour is the most variable of all the basic ingredients used in making a yeast leavened dough.

Sorry to have more questions than answers but with more information I'm sure we can get you back on the pizza making track again.

Tom Lehmann/The Dough Doctor

[Re: Cracker Crust Issues](#)

3016

Bill;

That seems to be the accepted way to go about it, put it right on the deck to achieve the oven spring and to set the structure, then transfer the crust to a screen to finish baking off of the deck so as not to get too much bottom color on the finished crust, in a way it like "having your pizza and eating it too", the best of both worlds.

Tom Lehmann/The Dough Doctor

[Re: 80% hydration pizza](#)

3017

I haven't seen the article but he is absolutely correct about the high absorption doughs providing a crispier texture. I have said for MANY years that if you want to have a crispier crust characteristic increase the dough absorption, to a point. The increased absorption allows for faster expansion and more expansion of the dough during the critical oven spring stage of baking, this in turn allows for improved bake-out and a less dense structure which are the factors contributing to a crispier characteristic, however you do need to have sufficient oven temperature to achieve maximum oven spring with these high absorption doughs but like everything else there is a limit to the temperature part of the equation, too hot and you get the oven spring but you don't get the baking time necessary to fully bake the dough/crust all the way through so you end up with a crispy crust fresh out of the

oven but it quickly turns soft and limp with less than desirable eating properties. You can also go the other way with regard to absorption and reduce it down to something in the 30 to 40% range to make a thin crispy or thin cracker type of crust but now you have a crust that is different in that it is crispy pretty well all the way through.

When making high absorption doughs it is important to remember that the absorption level must be matched to the oven temperature, by this I mean if your oven will bake at 850 to 900F you will soon find that you can successfully use a higher absorption than you can if your oven will only reach 700F, in which case the definition of "high absorption" will have a lower number immediately before the "%" sign, you will still get many of the benefits, just not to as great a degree.

Tom Lehmann/The Dough Doctor

[Re: 80% hydration pizza](#)

3018

We really need more information to address your questions, we need to know what type of yeast you're using and how much, we also need to know your entire dough formulation as well as the finished dough temperature (temperature after mixing). You mention that the dough is shiny coming off of the bread machine, this sounds as if the dough is being mixed too much for a pizza dough, you only want to mix the dough to a smooth, satiny appearance as this will give you the best finished crust characteristics.

Tom Lehmann/The Dough Doctor

[Re: NEW RO ALL THIS AND IN UK BUT WOULD APPRECIATE HELP PLEASE?](#)

3019

Victor;

To address your questions;

#1) Flavor is OK after 24-hours, much better after 48 and quite good after 72-hours. The main reason why many pizzerias don't go to a 3-day dough is due to keeping track of the day the dough was made on and the need to have an inventory of 3-days of dough plus any carry over (4-day dough).

2) Don't sweat the humidity issue, instead concentrate on achieving a constant finished dough temperature. As for yeast level I have always used 0.375% IDY for a 48-hour dough with 1-day carry over and 0.4% for a 24-hour dough with 1-day carry over. If you've got the temperature control thing under control a lot of times you can eek out an extra day from the 24-hour dough allowing you to carry over any unused dough for up to two additional days, giving you a three day dough. This can only be accomplished using a walk-in cooler as I've never been able to effectively get that second extra day when using a reach-in cooler.

3) While it can be done, I'm not a big advocate of using a biga or starter in a commercial pizzeria setting as it is just another thing to go wrong and you really don't have much of a margin for things to go wrong in a pizzeria.

Tom Lehmann/The Dough Doctor

[Re: Fermentation and Temperature](#)

3020

Actually, my first preference is to bake them on screens, then disks or cookie sheets as it is much easier to control the bottom bake color this way.

I bake mine at 430F.

Tom Lehmann/The Dough Doctor

[Re: Stromboli](#)

3021

The reason why I asked is because HOT POCKETS is a registered trade marked name that is jealously guarded, to about the same extent as Micky Mouse and other Disney characters are. "HOT POCKETS" are different from calzones.

Tom Lehmann/The Dough Doctor

[Re: Hot Pocket](#)

3022

What Craig says is correct but when we bulk ferment the dough (large doughs is what I'm talking about here) the finished dough temperature is MUCH MORE CRITICAL than it is when the dough is subdivided, formed into balls and CF in that manner. Time and temperature are the two main drivers of fermentation so if the fermentation time is the same for two different doughs the dough that came off of the mixer at a higher temperature will ferment faster than the one that came off of the mixer at a lower temperature. No, bulk fermenting the dough in the cooler is not the solution as the dough is an excellent insulator and it continues to improve in this aspect as it continues to ferment so it is all but impossible to efficiently cool a large dough mass in the cooler, and to add insult to injury there is the heat of metabolism to contend with too, this is the heat generated by the yeast as it metabolizes nutrients during fermentation, this temperature gain is about 1F per hour. In some cases we see where a bulk fermented dough in the cooler results in a mottled finished crust color, which has been found to be due to the outer portion of the dough, that which was against the container, being cooler, thus conserving sugar and having a higher pH than dough from the center portion of the mass where there was little to no cooling of the dough resulting in more fermentation which allowed for greater metabolism of any sugar and the development of more acidity which inhibits crust color development. We saw a lot of this issue back in the late 60's and early 70's when pizzerias were transitioning from 100% room temperature bulk fermentation to a refrigerated dough management procedure. A good compromise that never really caught on was to form the just mixed dough into logs (weighing 6 to 8-pounds each) and 28-inches long (the length of an 18" X 26" sheet pan, two of these dough logs were placed on each pan which was then placed in the cooler (uncovered for 2-hours and then a plastic bag was slipped over the entire rack or over each pan of dough to prevent drying). The dough in this condition is really quite stable and can be held easily for two days and can even go as long as three days depending upon the finished dough temperature coming off of the mixer. To use this dough we just removed it from the cooler, allowed it to temper a little (just enough to be able to ball it), then cut each log into desired weight pieces, balled and placed back onto a lightly floured sheet pan, covered with plastic and allowed the dough to rest at room temperature until the dough could be easily opened into skins.

Tom Lehmann/The Dough Doctor

[Re: Fermentation and Temperature](#)

3023

Hotpocket;

When you say hot pocket do you really mean "Hot Pockets" or do you mean calzones?

Tom Lehmann/The Dough Doctor

[Re: Hot Pocket](#)

3024

Not too shabby! Here is an idea to help you win a few extra gold stars with her. For

Mother's Day make another one just like that but make it in a heart shape. I've not made one in a ring shape, I've always made them in more of a bar shape....I think you're onto something there! ^^

Tom Lehmann/The Dough Doctor

[Re: Stromboli](#)

3025

Victor;

I would suggest the following:

Use a CF procedure for dough consistency and convenience, since you are flexible, go with only a 1 or 2-day CF rather than a 3-day. This will reduce the number of boxes of dough by about 1/3. Depending upon dough weight/pizza size you should be able to get 8 dough balls per box, assuming 333 dough balls per day are needed (1000 divided by 3 = 333), 333 divided by 8 = 42 dough boxes will be needed for the dough ball inventory, this will be only 2 to 2+ a partial stack in your walk-in. Adjust the dough temperature off of the mixer to about 85F, follow my suggested dough management procedure and you should have a very good and consistent quality dough to work with. Additionally, using CF the addition of scrap dough back to fresh dough will not have as dramatic impact upon the overall quality of the dough (especially in view of the fact that you are considering as much as 20% scrap add back) as a room fermented dough would have. It will also be much easier to manage your dough ball inventory using CF as you will almost assuredly be able to use the dough balls one day beyond their CF period, meaning if you don't use a dough ball today you can still use it tomorrow.

If you use a RT management procedure you will need to pay special attention to managing the scrap return to your new doughs, it is highly recommended that you limit the scrap return for RT dough to not more than 15% of the new dough weight, so if you're making a dough based on 50-pounds of flour the total dough weight will be around 84-pounds which means the maximum recommended scrap return not exceed 12.6-pounds. Can you use more than this? Sure you can but dough quality as well as finished pizza quality will be impacted, remember GIGO.

As to the type of yeast that you use, any type CY, IDY or ADY will work just fine so long as it is USED CORRECTLY. My recommendation would be to use IDY for its ease of storage, long storage life, consistency and ease of use.

Tom Lehmann/The Dough Doctor

[Re: Fermentation and Temperature](#)

3026

Winstonian;

Let me start off by quoting an age old adage: "A happy wife makes for a happy life". Of course you should make them for her! You have two choices when it comes to the dough, one is to use your regular pizza dough...it'll work just fine as long as the dough absorption is in the 58 to 62% range. The other option is to use a slightly richer dough for your strombolis to do this, going back to your regular pizza dough add 2 to 4% whole egg and replace the olive oil with unsalted butter or if your dough formula doesn't call for olive oil add 4% butter to the dough. While not traditional, this second dough formula really makes a great tasting stromboli. I like to finish mine off by brushing it with a little melted butter and then sprinkling it with shredded Parmesan cheese immediately before baking, or if you prefer, you can forego this step and brush it with melted butter as soon as it comes out of the oven and then sprinkle with an Italian herb blend and some powdered Parmesan cheese.

Tom Lehmann/The Dough Doctor

[Re: Stromboli](#)

3027

The reason for twisting the open end into a pony tail and tucking it under the dough ball is just the opposite, it allows the bag to "self burp" thus releasing any gas accumulation and prevent the beg from being opened or burst by the excessive gas pressure. Following one of the laws of physics stating that cold air is heavier than warm air I would highly recommend packing the dough balls into the containers and then placing a piece of cardboard over the top layer and then add some dry ice on the top...8-ounces should be plenty for both cooler chests.

Tom Lehmann/The Dough Doctor

[Re: Pizza Party at park: Dough temperature-control](#)

3028

Why not just oil the dough balls initially and drop them into individual plastic Food Bags, twist the open end into a pony tail and tuck it under the dough ball as you place them onto aluminum sheet pans and place them into the walk-in cooler for the CF period, place 1/2 of the dough balls into a cooler (which has also been stored in the walk-in) for first use at the event, the second half would be placed into the freezer for super cooling (DO NOT FREEZE) about 20 to 30-minutes in the freezer will be sufficient, there will be packed into the other cooler for use later in the event. Being in plastic bag you can just arrange them in the coolers and remove at the event to warm in the bag, then just invert from the bag onto a floured surface and open. The bags would be discarded...fast, easy, and it works well.

Tom Lehmann/The Dough Doctor

[Re: Pizza Party at park: Dough temperature-control](#)

3029

The level of fermentation that a dough has received is measured by both the pH and total titratable acidity of the dough. While being a by-product of fermentation the bubbles seen in the dough are not a good indicator of level of fermentation since they are greatly influenced by both the viscosity of the dough (softer doughs tend to promote larger bubbles while tighter/stiffer doughs tend to promote smaller bubbles additionally, as previously indicated, the size of the container, relative to the dough size, in which the dough is fermented will also influence the bubble formation. Commercial pizzerias control the spreading of the dough balls in two ways, the first is through temperature control, keeping the doughs within a very narrow targeted temperature range (usually in the 70 to 80F range) and managing the dough in such a manner so as to allow for rapid and efficient cooling of the dough balls once in the box. The second thing that is done is to adjust the dough absorption so as to control the amount of spread of the dough ball during the storage period, this is why we almost universally see the dough absorption used in pizzerias running about 60% (+/- 2%).

Tom Lehmann/The Dough Doctor

[Re: Same NY style dough recipe, different flour & different containers...new problem](#)

3030

If you're planning to bulk ferment a large dough mass your greatest concern should be with regard to achieving a CONSISTENT finished dough temperature, then just keep the dough in a draft free area and it will maintain temperature and humidity all by itself. Just be sure to drape a sheet of plastic over the fermentation container to prevent drafts and possibly evaporate drying.

Tom Lehmann/The Dough Doctor

[Re: Fermentation Process](#)

3031

One thing to keep in mind is that all sourdough starters do not provide the finished baked product with an actual sour/tart flavor, it all depends upon the type of microflora you have growing in the starter. We have used specific types of sourdough starters to make panettone which is a kind of Holiday fruit bread.

Additionally, your sourdough starter may not have been strong enough or you didn't use enough for the strength it was at.

Tom Lehmann/The Dough Doctor

[Re: Why aren't low inoculation sourdoughs sour?](#)

3032

Additionally, I didn't see any dusting flour in any of the pictures? Actually, the dough looks pretty good.

Tom Lehmann/The Dough Doctor

[Re: Sticky Dough - can't ball - The Pizza Bible](#)

3033

I must have missed it, I didn't see anything in the video to suggest a "dough room" , all I saw was an open kitchen concept...is that what you are referring to?

Temperature and humidity (relative humidity) of Naples? On what day? I'd go with controlling the dough temperature and bulk fermenting at room temperature while controlling the room temperature seasonally in Denver, CO. The biggest difference between Denver and Naples is altitude which means that there is a greater potential for a seasonal temperature change in Denver, and then there is the effect of altitude on evaporation of moisture from the dough (it wants to dry out faster an altitude (5200-feet) than at something closer to sea level 0 to 1500-feet). Just controlling the dough temperature to something around 80F and keeping it covered with a sheet of plastic will do fine for emulating the R.H. of Naples (about 80% R.H.) I mention this because 80% R.H. is the point where there is very little moisture evaporation from the surface of the dough...regardless of where you're at. It appears that they bulk ferment in a large container (like a food contact approved bin) probably for 12 or more hours, and then turn the dough out onto the bench for scaling and balling (in the video they are using a box scraper to cut the dough for scaling (wrong tool, they should be using a bench scraper aka bench knife...really isn't a knife at all) and the lady doing the rounding (balling) is doing it EXACTLY as I do it, even to the reverse pull at the end of the procedure. Hummm, I wonder if someone might have been watching one of my videos?

Just to make sure we're both on the same track, please clarify what you are calling the "dough room".

Tom Lehmann/The Dough Doctor

[Re: Fermentation Process](#)

3034

That's a fine looking pizza there! :) :)

Tom Lehmann/The Dough Doctor

[Re: Stretching issues and timing?](#)

3035

Lard is a fat in the family of "plastic" fats...sure go ahead and use it if you like! It works well and like many other fats it imparts a unique flavor to the finished

product it's used in. It's interesting to note that people ALWAYS comment on how great REAL tortillas taste...soooo much better than the ones you buy at the store. "REAL" tortillas are made with REAL/non-deodorized, LARD which provides tortillas with a wonderful flavor. So why doesn't everyone use lard? Lard gets a bad consumer rap due to health concerns and for all practical purposes you can't sell much when you show lard on the label...that's just a fact of life here.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3036

Norma;

What I said was that using just milk kefir and Dutched process cocoa may just create a situation where the alkalinity of the cocoa (pH 9.8) neutralizes the acidity of the milk kefir almost instantly leaving nothing to react later in the oven...hence the baking powder. When you're using the cocoa powder in a baked product I find very little benefit from using the more expensive cocoa powders. The flavor imparted comes from the amount of cocoa butter present as well as the pH. If those numbers are similar you won't find much difference in flavor in a baked product. When you have a baked product that is supposed to be chocolate but lacks the chocolate flavor it's almost always due to the pH being too low. Stop at a donut shop and buy a chocolate cake donut...upwards of 15% dark (Dutched process) cocoa and yet you don't have a pronounced chocolate flavor...why? pH is the answer. You can't mess with the pH of a cake donut without destroying the quality of the donut itself due to too much or too little fat absorption during the frying process. DO NOT CONFUSE THIS WITH THE CANDY MAKING PROCESS...that's a whole different story.

By the way, one of the things that I do when making my "double chocolate coconut nut cake" mentioned in a previous post, is to use semi-sweet chocolate morsels in the batter. The morsels melt late in the baking of the cake so the chocolate retains its integrity (unlike a chocolate syrup which would get incorporated as a part of the batter) so after baking there is sort of a matrix of melted chocolate through out the entire cake giving it a VERY chocolate flavor and I might add a somewhat desirable "gooey" texture. I'm not sure how this texture might come across in a pizza crust BUT if it were a crust that was used just for the foundation of a dessert pizza it might work. This is similar to how we make the chocolate croissant dough where there are "splotches" of melted chocolate distributed throughout the dough for flavor...a trip to your local Panera will get you a chocolate croissant to sample.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Chocolate Dough Pizza](#)

3037

It would be interesting to experiment in this direction (you would be making a "chemically leavened" crust as opposed to a yeast leavened crust. You have to be in developing a leavening system, if you just use the cocoa for the alkali and milk kefir for the acid part you're liable to cancel out the pH of the cocoa and end up with something that more closely resembles natural cocoa. Why not just experiment with a chemically leavened crust to begin with? Use a single acting baking powder (CALUMET) and blend it into a small amount of Crisco to encapsulate it with the fat, then blend this into the remainder of the fat (be it oil or shortening) and proceed to make the dough. Things to remember:

For each % cocoa added you will need to add 1.5% additional water.

The dough will not ferment (no yeast).

The dough will not rise until it goes into the oven.

You will want to have a fairly soft and extensible dough coming off of the mixer which will allow it to rise due to oven spring.

I would suggest starting with 5% Calumet Baking Powder for starters and bench mark from there.

Procedure?

Mix; Scale; Ball; Refrigerate (for convenience); Remove from fridge, dress and bake. You MIGHT need to allow the dough to warm up a bit?

Alternative Procedure:

Mix; Scale; Ball; Box; Oil; Seal to prevent drying. The dough might be able to be held for quite some time (several hours) in this manner?

Tom Lehmann/The Dough Doctor

[Re: Chocolate Dough Pizza](#)

3038

Norma;

The most flavorful cocoa is cocoa made by the Dutched Process, this is where the cocoa powder is treated with alkali (high pH) to develop the dark color and more pronounced flavor. Natural cocoa has a lower pH but little flavor and gave the dough a "muddy" appearance.

Tom Lehmann/The Dough Doctor

[Re: Chocolate Dough Pizza](#)

3039

Agreed. In the wholesale baking industry we use the delayed salt addition mixing method to reduce total dough mixing time and yes....they even forget to add the salt occasionally :(so I can appreciate your concerns.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3040

Peter;

You're ABSOLUTELY AMAZING!!! :)

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3041

Many times here, PMQ and P.T.

Both serve the same purpose, entrap flavors, lubricate the dough for improved extensibility, seal the cell structure for improved oven spring, provides tenderness in the finished crust and adds a dimension of "richness" to the finished crust. Shortening TENDS to promote slightly better volume/height in thick crusts than oil. No significant difference in thin crusts.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3042

I can't tell you how much oil to use, you'll need to make dough with 2% and 4% (if those are the amounts you want to look at) and judge for yourself to see what works best for YOUR application. Regarding the oil/fat addition, since when a very

short mixing time in 1st. speed is employed I DO NOT advocate using oil in your dough, instead use shortening and add it right along with the flour (no special handling or addition method) and continue mixing the dough just as you do. Oil will change the viscosity of the dough in a way similar to water but because it functions so very differently than water I do not recommend including it the dough absorption calculation BUT do be aware that it WILL make the dough feel softer as you either add or increase the oil and if this poses a problem in handling address it by reducing the dough absorption by an amount equal to the weight of oil added. Shortening DOES NOT do this so it is not necessary to make any changes to dough absorption regardless of the amount of shortening used.

NOTE: In some very specialized applications where high levels of shortening are added to the dough (I'm talking about levels of 10 to 25%) it may be necessary to mix the dough to "normal" (whatever that is for the dough in question) and then add the shortening and mix at low or medium speed for an additional 4 to 5-minutes to incorporate the shortening. This is a very common practice when making a high quality sweet dough (think cinnamon rolls) where the total fat content is typically in the 18 to 22% range. The reason for these practices with high shortening addition levels is due to the fact that the shortening (at these high levels) will coat the flour and thus interfere with both flour hydration and gluten development.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3043

We experimented with making chocolate croissant dough back in the heyday of croissants. They already add chocolate to croissant dough but it's in the form of chocolate pieces, we wanted to see if we could make a decent "chocolate" dough for making chocolate croissants. The problem we were having at the time was related to the flavor of the dough, it looked like chocolate but it sure didn't have a chocolate flavor. The reason for this is due to the pH of the dough. Chocolate/cocoa develops its flavor in an alkaline environment....dough pH is acid and it becomes more acid with fermentation. When we added soda to the dough to get the flavor we were looking for fermentation all but ceased (pH too high). Because of this we stopped working on the concept.

Tom Lehmann/The Dough Doctor

[Re: Chocolate Dough Pizza](#)

3044

Use the delayed oil addition method of mixing. Put water in bowl first, then the salt (no need to stir) and then the flour with the IDY added on top of the flour, mix at low speed JUST until you don't see any dry flour in the bottom of the bowl (1.5 to 2-minutes), add the oil and continue mixing at low speed for another minute then finish mixing at medium speed.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3045

I can't argue with you on that one! "Even a bad pizza is better than no pizza at all". I have a saying that I coined many, many years ago, it goes like this: "I've never had a pizza that I couldn't learn to like" ^^

Tom Lehmann/The Dough Doctor

[Re: Freezing whole pies](#)

3046

I've done N.Y. style crusts with just sauce, then dress the sauced crusts and bake with relatively good success. When I've frozen fully dressed baked pizzas I never really like the texture of the toppings after the final reheating (too soft and mushy).

Tom Lehmann/The Dough Doctor

[Re: Freezing whole pies](#)

3047

Thanks for catching that, I neglected to change the salt and IDY to bakers %...Oops!

Here are the correct percentages for the salt and IDY in bakers percent;

Salt: 0.286%

IDY/SAF: 1.13%

The salt is still much too low and the yeast as IDY is really quite high for making pizza crust unless it's for an emergency dough.

Tom Lehmann/The Dough Doctor

P.S.

I'll lick the egg off of my face in the morning for breakfast :-D

[Re: dough making questions](#)

3048

MBLUE;

You gave your dough formula in "true %" as opposed to bakers percent which is the more common and to a great extent, correct way to look at a dough formulation.

Here is your formula in bakers %;

flour: 100%

Water: 59.94%

Salt: 0.18%

Yeast (IDY/SAF): 0.71%

Based on this my recommendations would be to increase the salt to 1.75 or 2% and probably cut the yeast level in half as this is a very high level for IDY. I'm betting that just increasing the salt level will do wonders for the flavor and consumer acceptance of your crusts. With very low salt levels like you have the flavor of the crust is typically described as being "starchy" and flat/tasteless.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3049

Peter;

I classify the Chicago thin crust as a thin crispy type of crust...and I might add that I use the term "crispy" quite loosely in this description as only the very edges (the corner edges of the round pizza, remember it is a party cut pizza) even come close to resembling anything very crispy...that's just the way it is. A good example of a thin cracker type crust can be seen at Incredible Pizza, the silly thing holds up fantastically well on their pizza buffets. Thin cracker crusts are also what P.H.

"used" to have back in the 50's and 60's but then changed to a more traditional thin crispy type of crust sometime around 1968 or so.

Tom Lehmann/The Dough Doctor

[Re: crispy crust](#)

3050

Which ever you use just be sure to use it correctly (both method of addition and amount used). ADY has to be suspended in 100F water (use a thermometer) and allowed to activate for about 10-minutes before addition to the remainder of the dough water, IDY, on the other hand, is used at a level about 20% less than ADY and it is typically added in its dry form directly to the flour. The one exception to this is when mixing the dough by hand, in that case the IDY is suspended in 95F water and allowed to activate for 10-minutes prior to addition to the remainder of the dough water.

Aside from that you can expect essentially the same results between IDY, ADY and CY (compressed yeast) as Craig noted.

Tom Lehmann/The Dough Doctor

[Re: what yeast for Neapolitan](#)

3051

Peter;

Oil is a tenderizer, with regard to a cracker style crust it makes for a more tender/flaky eating crust. Work that we did many years ago showed that 8 to 10% fat (preferably as shortening or any plastic fat) gave the overall best characteristics. I might also add that this closely corresponds to what is typically used in the production of premium saltine and club crackers which come in at around 8% fat. The reason why I don't recommend oil at those levels is due to the possibility of the oil soaking into the flour. If you really know what you're doing oil can be used but a plastic fat is a LOT easier to work with in this case, and if you are using a VERY SHORT mixing time (under 2-minutes) a plastic fat is mandatory as it is impossible to use oil in this specific application without it soaking into the flour...remember, we're dealing with only two minutes or less total mixing time. Those dough formulations which do not contain any oil are normally referred to as "thin crispy" while those made with oil or shortening are normally referred to as "thin cracker".

Tom Lehmann/The Dough Doctor

[Re: crispy crust](#)

3052

TXCraig1;

Amen to that! Too many people buy into the "better ingredients make better pizza" philosophy, agreed, it's part of the equation but if you can't consistently make a decent pizza better ingredients aren't going to make your pizzas any better. I liken it to a pile of the best bricks in the world....in the hands of a skilled brick mason he can build a castle, in the hands of anyone else, you're likely to get a pile of the best bricks in the world stuck together with mortar.

Tom Lehmann/The Dough Doctor

[Re: Best water for pizza style](#)

3053

These are the things that will come into play when trying to develop a crispier crust.

1) Enhance oven spring.

a) Make sure you have sufficient yeast in the dough formulation.

b) Optimize dough absorption.

c) Sufficient fermentation for an extensible dough.

2) Oven temperature should be balanced to the dough formulation.

3) Bake the pizza long enough to develop a thicker crispy layer across the entire bottom of the pizza.

- 4) Minimize the use of browning agents in the dough as much as possible to allow for #3 above.
- 5) The higher the flour protein the greater the POTENTIAL for a crispier crust.
- 6) Ensure the dough formula is in proper balance.
- 7) Develop good time and temperature controls over the dough, without these you cannot have effective dough management and without effective dough management you will not have a consistently crispy crust.

Those are the high points of achieving a crispier crust.

Tom Lehmann/The Dough Doctor

[Re: crispy crust](#)

3054

MBLUE;

We really need more information. Your dough management procedure is very sketchy and we don't have a clue as to what your dough formulation is. With your procedure I'm guessing that the yeast level might be very low...can you confirm yeast level and type used? A low yeast level can result in a reduction of crispiness as well as set the stage for a potential gum line just below the sauce.

Any additional information you feel comfortable sharing will help us to answer your questions.

Tom Lehmann/The Dough Doctor

[Re: dough making questions](#)

3055

MakingPizza;

You just bring it out of the fridge and set the containers on the bench/counter top or some other convenient location. Like Yael said, make a note of how long it takes the dough balls go get up to 60F and then you can just go with the time. One thing you might try is placing the dough balls into plastic Food Bags (not Ziplok). Form the dough into balls, oil the dough balls with any food grade oil and drop into individual plastic bags, to close the bags, twist the open end into a pony tail and tuck it under the dough ball as you place it into the fridge...that's all there's to it. When you're getting ready to use the dough just remove it from the fridge and set it on the counter top for 60-minutes. To remove the dough ball from the bag, roll the bag down close to the dough ball and invert the bag allowing the dough ball to fall free from the bag onto a floured surface, flour the dough ball and begin opening it into a skin for immediate dressing and baking. When done right, the bag automatically makes a nice round dough ball. This procedure has been discussed here a number of time if you would like to look back in the archives to see how others use this method.

Tom Lehmann/The Dough Doctor

[Re: My Attempt at New York Style](#)

3056

Craig;

I think you're confusing dough quality and bread quality. The "hardness" of the water is well documented regarding its effect upon the dough. As for bread quality, I'm not aware of any real benefits to the finished bread quality resulting from the hardness of the water unless it is a peripheral benefit resulting from the improved dough handling properties had when using hard water. This does not mean that you cannot have a decent handling dough when soft or treated water is used, you certainly can, but when comparing like doughs made with hard and soft water

research shows that those doughs made with soft water tend to carry about 2% less absorption and they also have a greater propensity for stickiness/tackiness than dough made with hard water. Some commercial bakeries have their mixer water (water that is used for making the doughs) piped directly from the building main without any further treatment while the rest of the water is further processed through a water conditioning/softening system. Calcium is a very effective dough improver, especially where stickiness and strength are potential issues, this is why literature states that you get stronger, better handling doughs with the addition of milk (dry milk solids) to the dough....it's the calcium in the milk. Calcium has always been an ingredient in mineral yeast food too (calcium sulfate, ammonium sulfate, potassium bromate) are the main ingredients. The ammonium sulfate is where MYF gets its name from as the ammonium sulfate breaks down releasing nitrogen as a food source for the yeast (actually it has little to no effect on the yeast) so when bromate fell from favor it didn't take too long for baking companies to figure out what the "real" active ingredient in MYF was....calcium sulfate. If the water in question has sufficient calcium content you don't see any further improvement from the addition of calcium sulfate or MYF for that matter. There is also an acid type mineral yeast food that also contains MCP (mono calcium phosphate) as the acid source. With this type of MYF the MCP serves an important role in helping to improve the rate of fermentation in applications where the water is slightly alkaline. We ran head long into that issue when the AIB moved from Chicago to Manhattan, KS back in the mid-1970's. The water in Chicago was as hard as a rock (city is built on a lime stone structure/lots of stone quarries) and slightly acidic (helps to keep the calcium from building up in/on equipment) so we just used a plain bromated MYF, not because we had to but because that's what the baking industry was doing. Then we moved to Manhattan, KS and all of our dough fermentation times were WAY off...Huh??? A check of the water soon disclosed what the problem was....our water had a pH of 7.3 at the lowest and 7.7 was the highest we saw...Good Grief! We addressed the problem by changing over to an acid type MYF and increased the amount from 0.25% to 0.5%.

Note:

Chicago has since changed their water treatment as it is now all pre-softened before it goes into the delivery system and Manhattan, KS has addressed their alkaline water issue too as well as going with pre-softened water into their delivery system. The reason: Water treatment is cheaper than equipment failure, maintenance, and replacement.

Tom Lehmann/The Dough Doctor

[Re: Best water for pizza style](#)

3057

Let us know how that works for you.

Tom Lehmann/The Dough Doctor

[Re: Stretching issues and timing?](#)

3058

Did you place the dough containers in the fridge uncovered? Why did you turn the dough out of the fermentation containers and allow to set out for 2-hours? They are supposed to go into the fridge uncovered for at least 2-hours. If you lightly oil the containers before you put the dough into the containers all you need to do is to remove the dough (leaving it in the container(s) and allow to temper AT room temperature to about 60F, then invert the container allowing the dough to fall onto a floured surface, turn the dough over a couple of times to get it completely floured and you're ready to begin opening it into a skin. You might also try partially

opening the dough using a rolling or pastry pin to about 2-inches of full diameter, then finish opening by bench stretching or your preferred method of hand opening. As you continue to get more proficient with your opening skills you will be able to wean yourself off of the rolling/pastry pin and open the dough entirely by hand.

Tom Lehmann/The Dough Doctor

[Re: Stretching issues and timing?](#)

3059

Norcoscia;

Yes, non-bromated mineral yeast food goes by two different names.

1) Non-bromated mineral yeast food.

2) Calcium sulfate. Actually, since bakeries stopped using bromated mineral yeast food most have just switched over to using calcium sulfate because it is the majority ingredient and most beneficial ingredient in any commercial yeast food. You can get calcium sulfate at any drug store or many garden centers (the stuff you get at the garden centers will not be approved for food use). It is so cheap that farmers apply it to their fields to break up clods of clay.

Tom Lehmann/The Dough Doctor

[Re: Best water for pizza style](#)

3060

For any yeast leavened products hard water is better than distilled, RO or softened water. This is primarily due to the calcium in hard water which has a strengthening effect upon the wheat proteins making for a stronger dough with less stickiness/tackiness. If you need to use any of the treated waters named above all you need to do is to add some calcium sulfate (0.25%) to the dough and you're good to go. I wrote an article in PMQ on this very topic some time ago if anyone wants to research it.

Tom Lehmann/The Dough Doctor

[Re: Best water for pizza style](#)

3061

Making Pizza:

There are two reasons why I suggest 55F (it can be as high as 60F) instead of "room temperature". 1) The dough is a little easier to handle at 55 to 60F than it is at room temperature. 2) Room temperature is a great unknown. There is no consistency to "room temperature" while 55 to 60F is a known entity and it's always the same. As an example, I've got a friend in Australia and for him "room temperature" is constantly flirting with 37.7C aka 100F. As for the temperature of your fridge, there is only one temperature range that is recommended: 36 to 40F.

Tom Lehmann/The Dough Doctor

[Re: My Attempt at New York Style](#)

3062

Your pizza appears to be very light in color possibly due to the oven temperature being off (cooler than what the thermostat shows it to be) or not knowing your finished dough temperature (immediately after mixing) the dough could be getting too much fermentation for your baking temperature. Fermentation produces acids (among other things) which inhibit crust color development unless you can bake at high temperatures. You might include 2% sugar in your dough formula to see if this helps or reduce the amount of room temperature fermentation to an hour or less before balling the dough and putting it into the fridge. The crust also appears to have a lot of dusting flour on it so you might want to concentrate on minimizing the

dusting flour when making future pizzas. By the way, for your method of dough management I would suggest a finished dough temperature in the 70 to 75F range. I'm also assuming that you're allowing the dough balls to warm up to at least 55F before opening them into pizza skins. You say you have your fridge temperature set at "level 5" but that really doesn't help us as you need to know the actual temperature in the fridge...this will have a significant bearing on the rate of fermentation taking place. By addressing these issues you might find the dough balls holding their shape better too, if not we can help you sort that out too.

Tom Lehmann/The Dough Doctor

[Re: My Attempt at New York Style](#)

3063

Jizza23;

The problem in using a domestic yeast in a true sourdough starter is that a sourdough starter is a delicate blend of wild yeast strains and lactic acid forming bacteria. It is the proportions of these microbes in the starter that give the finished/baked product its unique flavor. It was said for many years that San Francisco sourdough bread couldn't be made outside of the Bay area as no one was ever successful at making breads with a true sourdough flavor east of California. We studied this and what we found was that in every case where flavor was an issue they added domestic yeast to the sourdough starter. This was done to speed up the final proofing of the breads, as you know, a true sourdough bread requires approximately 12-hours to proof after forming. Bakeries producing sourdough breads in California had this consideration built into their processing schedule but other bakeries didn't...they tried to incorporate sourdough bread into their regular production/processing schedule (hence the addition of yeast) and the unique flavor notes were lost. We found that the addition of the yeast completely upset the balance of micro-flora in the sourdough starter and within a short time the yeast became the dominant micro-flora as a result the starter was "lost". With that understanding, today, sourdough products are successfully made across the U.S. but only in bakeries designed for making/handling sourdough products. To a great extent sourdough products are made most successfully by smaller bakeries which can better accommodate the long proofing times required of sourdough products. By the way, much of what we see on the supermarket shelves today promoted in one way or another as "sourdough" on the label are not made from a true sourdough but instead incorporate what is referred to as a "dry sour" which is a sourdough which has been matured and then dried and ground into a powder for addition to the dough as a flavoring compound or it might be made as you have described, from a blend of yeast and sourdough starter, but in either case the flavor is far from what many would describe as a "true sourdough" flavor. This is why so many people recognize a true sourdough flavor as something different....it is. But remember that all sourdough starters are not the same, the flavor can range from sweet to tart/acid and in some cases can be down right disgusting, it all depends upon what micro-flora you're culturing.

Tom Lehmann/The Dough Doctor

[Re: Hybrid Starter Levain/Direct](#)

3064

QP;

Eliminate the malt powder from the dough formula and let me know how the dough performs for you. Excessive diastatic activity in the dough can result in an overly slack dough condition which could manifest itself as you have described. Also, what is your measured finished dough temperature? This can impact the dough both by

itself and also the effect of the diastatic activity on the dough.

Tom Lehmann/The Dough Doctor

[Re: dough stretches really quickly?](#)

3065

Yael is right, there are some "00" type domestic flours available at a much lower cost. You will need to try them to see if they meet your specific requirements for the way you are managing your dough.

Tom Lehmann/The Dough Doctor

[Re: Any substitute for caputo 00 Flour which is suitable for Neapolitan pizza](#)

3066

Stiks;

IOf you e-mail me at <thedoughdoctor@hotmail.com> I can send you a copy of a distributor's price list.

Tom Lehmann/The Dough Doctor

[Re: Fresh Mozz Price](#)

3067

Nick;

I can't answer that as the price of cheese is very fluid. Perhaps someone who is buying directly from a distributor will identify the brand as well as the current price that they are paying for it.

I will get you a local (for me) price for Grande shredded mozzarella.

Tom Lehmann/The Dough Doctor

[Re: buying mozzarella direct from manufacturers](#)

3068

In its own way hand mixing probably does a better job of mixing a very high absorption dough than a spiral mixer, in this regard an ARTOFLEX type of mixer might work quite well for mixing those very high absorption doughs.

The way the agitator works with the very slack dough condition is why it takes so long to mix the dough. There is a spiral mixer design that might be better suited for a very slack dough condition, this is the one with a wide breaker bar (about 75mm wide) and it also has a plastic scraper to assist in pulling dough off of the bottom of the bowl. Like other mixer types, all spiral mixers are not designed the same.

Tom Lehmann/The Dough Doctor

[Re: Pizza pala/in teglia \(Sicilian style\): troubles with hydration & dough mixer](#)

3069

There is a HUGE difference in the way the dough interacts with the agitator when using a spiral mixer as compared to a planetary type of mixer, this is especially true with the larger size spirals. It is this difference which enables the spiral mixer to handle tough pizza doughs so much better than their planetary cousins and it is also the reason why the longevity of a spiral mixer is so much better than that of a planetary mixer. Spiral design mixers are really not the best suited mixers for making really high absorption doughs. just watch the mixing action between the two designs and you will see what I'm referring to.

Tom Lehmann/The Dough Doctor

[Re: Pizza pala/in teglia \(Sicilian style\): troubles with hydration & dough mixer](#)

3070

Peter;

Oops! You caught me!!! ;D

You're right. I do recommend 50 to 55F for application in pizzerias but in home pizza making applications where all of the dough will be opened within a rather short window of time I like to go with 60F as a temperature suggestion but in actuality, because of all the variations in the way we make pizzas at home and all the different temperature definitions of "ambient" I like to say 60F minimum but let it go longer in necessary, then note the internal dough ball temperature and whatever it is now becomes YOUR specific temperature to allow the dough balls to temper to before opening.

Tom Lehmann/The Dough Doctor

[Re: The "Basic Dough Recipe" from the Dough Doctor](#)

3071

Craig;

You're right! There is a difference between politically correct food and good tasting food. They're beginning to learn this in the school lunch programs too. If I wanted to eat politically correct (whatever that means) I would not be eating pizza and certainly not the double chocolate, coconut, nut cake that I made last night for dessert. I know what you mean about supporting the kids, we do the same. I've even helped them do pizza dinners for fund raisers too. One of them raised over \$800.00 for the local grade school.

Tom Lehmann/The Dough Doctor

[Re: Girl Scout Cookies - Worse than before?](#)

3072

I'm not aware of where you might be able to source just gliadin (one of the two wheat proteins making up what we call "gluten"). You can easily source vital wheat gluten (many supermarkets carry it in their baking section) which can be easily added to any flour to increase the gluten forming protein content of the flour. When adding VWG, for each 1% VWG added to the flour you will be increasing the gluten forming protein content of that flour by 0.6%. For example, if you have a flour with 11% protein content and add 1% (based on the total flour weight) VWG to the flour, the protein content of that flour will now be effectively increased to 11.6%.

Remember, for each 1% VWG added YOU MUST also increase the dough absorption by an amount equal to twice the weight of VWG which you added. Different types of wheat flour can have different protein levels, some high (14+%) and some low (10% and less). It is a fairly common practice with home pizza makers to make a blend of different flours to make specific types of pizzas. Which flour would be best to blend with Caputo flour depends upon the type of Caputo flour you are using as well as the type of pizza you want to make and to some extent the dough management procedure you wish to employ in making your pizzas. Do you have a specific reason for wanting to use a Caputo flour? Do you have an oven hot enough to bake pizzas made using Caputo flour to make the dough? It takes an oven temperature of at least 700F (800 to 900F is better) to properly bake dough made with Caputo flour unless you add sugar or diastatic malt to the dough formula.

Tom Lehmann/The Dough Doctor

[Re: Gliadin](#)

3073

Congratulations! That's a mighty fine looking pizza! :chef:

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3074

I've not done it nor seen it done in a commercial oven so I can't answer that.

Tom Lehmann/The Dough Doctor

[Re: Hey Tom. Sd448 question.](#)

3075

You got it right!

Tom Lehmann/The Dough Doctor

[Re: The "Basic Dough Recipe" from the Dough Doctor](#)

3076

To answer your question in one word...yes. The amount of toppings that can be applied before a pizza becomes soggy (swamp pizza) depends upon how you have prepared the toppings, the amounts added (you already know that) , the type of oven the pizzas are being baked in as well as the baking time (longer baking time allows for more evaporation of moisture) and air movement/circulation helps with the evaporation (like a hair dryer). If you par-bake your crusts prior to dressing you can carry more of the wet toppings than you can if you build your pizza on a raw dough skin.

Tom Lehmann/The Dough Doctor

[Re: Soggy pizza.... weight or liquid content of toppings?](#)

3077

After it comes out of the fridge it goes straight to the bench for opening into a skin. If you ball it again you will be waiting another 6-hours or more for the dough to relax sufficiently so it can be opened into a skin without the dough having all of the opening characteristics of a tennis ball.

Tom Lehmann/The Dough Doctor

[Re: The "Basic Dough Recipe" from the Dough Doctor](#)

3078

If you plan on using the same size dough formula the answer is yes. Keep in mind that the two flours in question MAY NOT be directly interchangeable due to the potential differences in malting between the two flours which will affect the way the pizza bakes.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3079

Yes you may. You can attach it here or in a P.M. or send it directly to me at

<thedoughdoctor@hotmail.com>

Tom Lehmann/The Dough Doctor

[Re: Sourdough pizza dough](#)

3080

It's a baking procedure where the pizza is baked on a screen to limit the bottom bake, when the top of the pizza is almost done the pizza is removed from the screen and placed right on the deck for 15 to 30-seconds to achieve the desired bottom bake characteristics. This is a very effective way to bake a more heavily loaded/dressed pizza in a deck oven where one would like to bake the pizza longer but in doing so the bottom of the pizza gets too dark. This is just the opposite of

"doming" a pizza which is common in high temperature ovens where the bottom of the pizza gets done first so the pizza is raised on a peel into the dome of the oven, where the temperature can be as much as 1,000F, for just a few seconds to achieve the desired top color characteristics.

Tom Lehmann/The Dough Doctor

[Re: Hey Tom. Sd448 question.](#)

3081

All things equal the addition of sugar or more sugar to the dough will result in both the top and bottom of the pizza developing more color. You might also try decking the pizzas, a lot of pizzerias do it.

Tom Lehmann/The Dough Doctor

[Re: Hey Tom. Sd448 question.](#)

3082

Actually...a lot of research has been done with mixing dough under controlled atmosphere (vacuum) back when the Tweedy Dough Mixing process was being developed in the U.K. Fermentation doesn't do very well in a vacuum as bakers yeast is aerobic, plus the things that grow in an anaerobic environment are typically not very "consumer" friendly.

Tom Lehmann/The Dough Doctor

[Re: Same NY style dough recipe, different flour & different containers...new problem](#)

3083

You have two options...see which one you like best.

1) Soak in olive oil several hours or overnight before use.

2) Take a small quantity of your sauce, heat it just to a simmer, add the sun dried tomatoes and stir in. Place in the cooler/fridge for several hours or over night before using.

You don't want to hydrate as that will dilute the flavor.

Tom Lehmann/The Dough Doctor

[Re: Sun-dried Tomatoes](#)

3084

We did the work back in the late 60's and found that it retards the fermentation rate. It's not the pressurized aspect, it's the fact that the dough presses against the sides of the container thus impeding the release of the leavening gas. This is why I personally favor using plastic bags to cold ferment my dough in.

Tom Lehmann/The Dough Doctor

[Re: Same NY style dough recipe, different flour & different containers...new problem](#)

3085

In one word.....EXCELLENT!

They provide a sweet flavor and a great texture.

Tom Lehmann/The Dough Doctor

[Re: Sun-dried Tomatoes](#)

3086

Andy;

1) Move dough rack further away from the oven.

2) Create a heat/thermal block between the dough rack and the oven.

3) Use a refrigerated catering cabinet for storing your dough in.

Take yer' pick.

Tom Lehmann/The Dough Doctor

[Re: Starting my own Artisan/Neapolitan pizzeria](#)

3087

Just going to take a guess on this one as I would need to actually see the two doughs made with the different flours to do any better at this time.

The larger diameter container allowed the dough to expand outward (dough will always try to expand outward as it is the path of least resistance) so much of the leavening gas was not seen as it was allowed to escape into the space within the container (dough only retains a small portion of the leavening gas, the rest passes through it into the surrounding atmosphere) This is why you didn't see the bubbles. BUT you never said you had any problems opening the dough so I'm guessing fermentation was still OK, and you said the flavor was still good, again an indication that fermentation was still good. Because there wasn't as much gas trapped within the dough cell structure (the smaller container will help to prevent it from escaping into the surrounding space because there is LESS surrounding space) there was less present IN the dough when you opened it into a skin. The open cell structure is well known to be partially responsible for the crispiness as well as the firmness of the finished/baked crust. A simple test would be to use one of the smaller containers to ferment the KASL flour based dough in and see how it compares to a control dough made in the SAME size container at the same time. This is why, in research, we use the mantra "Change only one thing at a time". When something changes it's a lot easier to get a handle on the reason for the change.

Tom Lehmann/The Dough Doctor

[Re: Same NY style dough recipe, different flour & different containers...new problem](#)

3088

If you read any of my postings on dough mixing you'll know that I advocate mixing the dough JUST until it takes on a smooth, satiny appearance...no more. It sounds like that's where you are at. Well done! :chef:

Tom Lehmann/The Dough Doctor

[Re: Dough Texture to shoot for](#)

3089

If your yeast is IDY the amount is fine for taking the dough right from the fridge, allowing it to warm AT room temperature to about 60F dumping it out of the container onto a floured surface and immediately beginning to open the dough ball into a skin. Without actually seeing your dough formula and knowing the dough temperature after mixing this is based on a lot of assumptions.

Try it and let us know how it worked for you, I think you're be fine.

Tom Lehmann/The Dough Doctor

[Re: Pre-portioning before cold fermenting](#)

3090

Yep, had a BP electric deck oven with both top and bottom temperature control. The top wasn't a specific temperature control, it was more like a top heat damper but it worked well to allow adjusting the top bake. Crown height aka oven height (distance from the deck to the top of the oven) can have a significant influence on the way an oven bakes. We always baked our pizzas in the BP deck oven at 500 to

not more than 525F. We could never get a decent temperature balance when baking at a temperature higher than that.

Tom Lehmann/The Dough Doctor

[Re: Hey Tom. Sd448 question.](#)

3091

Look at the used restaurant equipment market to see if you can find a Hobart A-120 or A-200 mixer with a reverse spiral dough arm. The A-120 should handle up to about 2-Kg. flour based doughs while the A-200 should handle up to about 3.5-Kg flour based doughs. There has been some discussion here on these mixers and I think just about anyone would jump at the chance to get their hands on one (space permitting). These mixers don't require an unusual amount of space on the counter top BUT they are NOT portable either. A lot of people put these mixers either in their garage or on a sturdy wheeled stand so it can be moved out of the way when not in use.

Tom Lehmann/The Dough Doctor

[Re: Standing Mixers in Australia](#)

3092

It all depends upon your dough formulation, specifically the yeast level. I ALWAYS make my pizza dough in a way similar to what you have described. After the CF period, remove the dough balls from the fridge, allow to warm to 50 to 60F (NOT ROOM TEMPERATURE), turn the dough ball(s) out of the container onto a floured surface and open into a skin for dressing. Hopefully you oiled the container prior to putting the dough in it thus allowing the dough ball to be easily turned out of the container.

Tom Lehmann/The Dough Doctor

[Re: Pre-portioning before cold fermenting](#)

3093

I realize that the amount of bake that a pizza received is purely a personal preference type of thing with mine being that the bottom of the pizza be baked a bit more than the top of the pizza, thus assuring a nice crispy pizza without excessive char on the top. With that said, too much bottom color:

- 1) Oven temperature too hot for the crown height of the oven.
- 2) Use of sugar (any type), eggs, milk or anything which would contribute to the browning reaction in an oven which is too hot for the dough formulation.
- 3) Burners too close to the deck or providing too much heat to the deck.
- 4) Deck material not sufficiently thick.

Any one of these might be responsible based on the information provided.

Tom Lehmann/The Dough Doctor

[Re: Hey Tom. Sd448 question.](#)

3094

Define "pop-up pizzeria"?

Tom Lehmann/The Dough Doctor

[Re: What do you need for a Pop-up Pizzeria?](#)

3095

I know that P.H. contracts all of their cheese from Leprino and I've seen their trucks at various P.H. stores so I'm assuming if you're big enough there is a chance

to buy directly from a cheese producer rather than a distributor. I can't speak to all of the large producers if they sell direct or not but there are many small and mid size producers from which one could probably buy direct. As for Grande, I don't THINK they do any direct sales unless it would be to one of the large frozen pizza manufacturers.

Tom Lehmann/The Dough doctor

[Re: buying mozzarella direct from manufacturers](#)

3096

It sounds more like a leavening issue to me than a flour issue as flour will not have such a significant impact upon flavor (more subtle). I suggest trying more SD to see if that brings you back closer to where you used to be.

Tom Lehmann/The Dough Doctor

[Re: SD quandary](#)

3097

Alveograph:

A dough testing machine which measures the extensibility of dough by expanding a disc of dough with compressed air and recording the degree of extensibility of the dough before the bubble bursts. The Resultant graph gives an indication of the stability, the extensibility and the comparative strength of the gluten forming proteins in the flour being tested.

Farinograph:

An instrument used to measure development and certain other physical characteristics (tolerance to over mixing) of dough at a constant temperature. It also provides an absorption value for the flour.

Stability:

A measurement taken from the Farinograph curve as soon as the curve drops below the 500- B.U. (Brabender Unit) line on the chart. The stability value provides an indication of the tolerance of the flour to over mixing. The higher the number (in minutes) the more tolerance the flour has to over mixing. This is also a good indicator of the quality of the flour protein also. Higher quality protein = stronger doughs with all things equal.

Falling Number:

A laboratory device used to measure the level of alpha-amylase activity in the flour. The number provided by the Falling Number Test that indicates the level of diastatic activity in the flour. A falling number of 400 to 500 indicates a very low level of amylase activity while a number of 200 to 250 indicates a level typically associated with a malted flour (such as is typically used for bread and pizza production).

Dry Gluten:

The weight of the gluten after drying. In the U.S. we report gluten as protein content (nearly the same) but we typically report it on a standardized 14% moisture basis (this is the moisture basis that flour is sold on when purchasing in bulk). The gluten here appears to be reported at 10.5% moisture content resulting in a slightly higher protein/gluten percentage than if reported on a 14% moisture basis.

I know we have discussed this a number of times here at Pizzamaking.com so a quick search through the archives may shed a little more light on the topic.

Tom Lehmann/The Dough Doctor

[Re: measurements of rheological properties](#)

3098

That's the whole idea behind a sourdough culture. Once it matures, retaining the flavor. If the flavor changes from what it originally was it is due to a shift/change in the bacteria/wild yeast composition and the starter is said to have been "lost". Sourdough cultures, once developed, are rather difficult to maintain (they're like a long living pet....think a parrot) as they require constant and timely feeding as well as temperature control. Sourdough starters were not developed for the flavor that they developed in the finished product, instead they were developed as a means to leaven dough. It's only over the past 50-years or so that we have recognized sourdough starters for the unique flavor profile between different starters. I can still remember my grandmother going to the neighbors to get a small amount of their starter so she could make bread later in the week after finding that her own sourdough starter had "gone south" for whatever reason. I remember that she kept in in a 1-quart Mason jar on a kitchen shelf near the wood burning cook stove. From what I know now about sourdough starters today, the reason why she lost her starter was most likely due to lack of temperature control as it was stored too near to the stove where it was exposed to regular temperature fluctuations.

Tom Lehmann/The Dough Doctor

[Re: SD starter vs. little yeast](#)

3099

Additionally, you can also use frozen cheese (applied frozen) or you can find what is referred to as a low melt cheese, this is the type of cheese that is most commonly used in the commercial hot sandwich type products (avoided the commercial name).

Tom Lehmann/The Dough Doctor

[Re: A question about cheese](#)

3100

When I was at AIB another research group was doing a full blown research study on sourdough starters so I wasn't involved first hand but if I remember correctly the starters stabilized, in general, after about a month of culturing.

You can purchase a copy of the AIB Technical Bulletin on sourdough starters by Wulf Doerry by contacting the American Institute of Baking at

<www.aibonline.org>

Tom Lehmann/The Dough Doctor

[Re: SD starter vs. little yeast](#)

3101

Since you were NOT thoroughly cooling the dough prior to lidding the container(s) you ended up getting more fermentation than what the dough formulated for. You have two options (1) Further reduce the finished dough temperature. I seriously doubt that this will result in any significant change as 45-minutes unlidded cooling is just too short a time to allow for any real cooling to take place. So we go on to the next option (2) Reduce the yeast level in the dough to control the amount of fermentation the dough receives under YOUR SPECIFIC dough management procedure. Be aware that you should always be sure to allow the dough to warm to at least 60F (maybe more) before opening the dough when using low yeast levels. I suggest using your standard procedure with a reduction in yeast level, if you find the dough too elastic at the time of opening allow the dough ball to warm to a higher temperature the next time before opening as this will reduce the elasticity of the dough, continue making adjustments to the temperature of the dough ball before opening until the dough ball opens easily or to your liking. Use a stem type thermometer to measure the INTERNAL dough ball temperature prior to opening.

Tom Lehmann/The Dough Doctor

[Re: Me again Tom...](#)

3102

A sourdough starter "is what it is", meaning that it doesn't change with age, a sourdough starter that is 1,000-years old and PROPERLY MAINTAINED will retain its original flavor profile. Does age make any difference in flavor profile? No. Every starter lends a different flavor profile due to differences in the bacteria present so the trick is to find something that you like and then continue to culture or manage the starter so as not to change the bacteria profile in the starter (this is MUCH easier said than done).

Tom Lehmann/The Dough Doctor

[Re: SD starter vs. little yeast](#)

3103

After I got off of the computer I thought I with all this talk about cake, why not make my wife her favorite treat? Yep, I made a double chocolate, coconut, nut cake. We had it for dessert after our Alfredo, shrimp and rice (Alfredo, fresh garlic, fresh basil and dried cherry tomatoes from our garden last year) this is all simmered and then dressed with a splash of lemon juice and served over rice. Fast, easy and good! Susan was ready to go straight to the dessert but she did manage to eat her dinner first. :)

Tom Lehmann/The Dough Doctor

[Re: Tom Lehmann's Sour Cream Cake Dessert](#)

3104

Same for me too! :)

I also do a version using a chocolate cake mix modified in the same manner to which I add 1/2 cup of chocolate morsels, 1/2 cup of shredded coconut and I use chopped walnuts instead of pecans. We call it the double chocolate, coconut, nut cake.....This is my wife's favorite by a long shot! This one I like to serve with an icing (applied at the time of serving) using nothing but vanilla yogurt and then sprinkled with a little more coconut. :drool:

Tom Lehmann/The Dough Doctor

[Re: Re: Tom Lehmann's Sour Cream Cake Dessert](#)

3105

If you don't have an orange handy at the time you can also use the zest from one lemon as a substitute for the orange zest. When I do this I like to toss in about 1/4-cup of shredded coconut. :chef:

Tom Lehmann/The Dough Doctor

[Re: Re: Tom Lehmann's Sour Cream Cake Dessert](#)

3106

This is a little off topic but I thought I'd share it as it concerns my use of sour cream. When I do pizzas for the family occasionally I will make a cake for dessert. Being lazy I don't do scratch cakes very often anymore (except for pound cakes and fruit cakes). I use the box cake mixes, the ones where you only need to add oil, eggs and water. The yellow cake mix is preferred, what I do is to add an extra egg, reduce the water by 4-ounces, replace the oil with melted butter and include 4-ounces of sour cream, then blend together until smooth (a few lumps in the batter are OK), to spice things up a bit I add 1-tablespoon of vanilla, zest from one orange and 1/2-cup of chopped pecans, blend these into the batter and pour into an

9" X 13" greased (buttered and floured) cake pan and bake at 350F until the cake sets firm (use toothpick to test). These cakes are great just as they are without any added icing but you can ice them if you really have a sweet tooth. Right now I'm using the Pillsbury Traditional Yellow cake mix as I bought a bunch of them on sale over the winter for \$1.00 each.

Tom Lehmann/The Dough Doctor

[Re: Tom Lehmann's Sour Cream Cake Dessert](#)

3107

Rolls;

You can probably get a copy at Amazon.

Don't forget to check out any used book stores too.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3108

To me it sounds like a RECIPE FOR DISASTER!

Offer a few great pizzas as your mainstay, and then do "specials" these are NOT lower priced special, but instead they are different type of pizza that you might offer once or twice a week (like a Tuesday and Thursday "special"). Now those specials become a "treat" and as everyone know treats are better tasting than anything else! :chef:

Tom Lehmann/The Dough Doctor

[Re: Selling nothing but pizza as USP](#)

3109

Joe;

It sounds like you are not rounding the dough balls properly/consistent tightness which is what is causing the issue. Have you been to my web site

<www.doughdoctor.com> and watched my videos on dough making? I discuss dough rounding in detail.

If you REALLY want to go the route of individual fermentation containers they will need to be oiled to ensure decent dough release (you don't want to have to dig the dough out) and yes, I HIGHLY recommend leaving the containers uncovered for 2.5-hours for a 20-ounce dough ball. My reason for not having a preference for individual dough ball containers in a retail setting is because they are a real pain to work with, especially when it comes to washing them (sorry, I have better things to do with my time than washing and drying all those containers and lids. Before going that route I might suggest using plastic food bags to store the dough balls in. Round the dough balls, oil then and drop into individual plastic bags (DO NOT USE ZIP-LOCK BAGS), twist the open end of the bag into a pony tail and tuck it under the bag as you place it on a sheet pan or other flat surface. By using this method you don't need to use the dough boxes and there is no cross-stacking required, just bag the dough balls, place in the cooler until ready to use (dough balls should have a 3-day shelf life in the cooler if you do your part). To use the bagged dough balls just remove from the cooler, allow to warm AT room temperature for about an hour (you may need to experiment to find the time that works best for you in your shop), pull the bag down around the dough ball and invert the dough ball/bag allowing the dough ball to fall onto a lightly floured surface. The bags can be reused a number of times IF they remain in a secure area (behind the counter). The dough balls DO NOT need to be perfectly round to be opened into a round pizza, if your people are having problems with opening the dough balls try using a rolling pin to open the dough balls to within an inch or two of the desired finished diameter and then

finish opening the dough by hand. We developed this procedure a number of years ago as a training tool to help those who are challenged in opening dough balls. I've never seen a case where it didn't work wonders....no more thin center sections either! I have a video of this procedure being used in a commercial pizzeria if you are interested in seeing it just let me know.

Tom Lehmann/The Dough Doctor

[Re: Me again Tom...](#)

3110

Alpha amylase aka liquefying amylase (naturally present in flour to a greater or lesser extent, also present in diastatic malt as well as amylase supplements, hydrolyzes only the damaged starch into sugars. The native/intact starch granules are NOT hydrolyzed as they are the starch which develops the gel structure for making the finished product being bread, pizza crust, pastry, etc. without them the structure would not set during the baking process.

The amylase enzymes begin to denature at around 137F and complete activation is achieved at about 160F, this is the same temperature at which the native starch granules begin to gelatinize at except the gelatinization process continues to a temperature of about 190F at which point all of the starch has been completely gelatinized. This is the reason why par-baked goods are ALWAYS baked to a minimum internal temperature of 190F. though most go to 195F as an added level of assurance. If the starches are not fully gelatinized the finished product will either collapse during baking or cooling or at the very least it will have a wet, gummy crumb structure.

The sugars formed as a result of the amylase hydrolyzing damaged starch are not just on the surface of the dough but instead are an integral part of the dough. It is only the residual sugars that participate in the browning reaction during baking as the other sugar has been metabolized by the yeast and is now in the form of carbon dioxide, alcohol, and acids (acetic, lactic and propionic) which is not sugar and does not participate in the browning reaction.

Keep in mind that the production of sugars by the amylase working on the starch will be limited by the amount of damaged starch present and crust color is not dependent upon JUST the sugars produced by the amylase. As the dough continues to ferment the yeast continues to produce acids (see above) these acids WILL significantly impact crust color development by reducing the crust color development, such as is the case with sourdough bread which will always have a very light crust color due to the acidity of the dough either formed naturally by the metabolism of nutrients by the yeast or added as an ingredient such as the addition of lactic acid to the dough to provide a sourdough like product. Additionally, crust color is an arbitrary thing, it is whatever you want it to be so many time we have to add something to the dough to improve the browning characteristics in order to achieve the DESIRED finished crust color characteristics.

If you want to learn more about bread making and everything related to it including fermentation and effect of different enzymes on the dough/bread I suggest getting a copy of Baking Science and Technology by E.J. Pyler. The book isn't cheap to buy but it's worth every cent if you want to learn the practical hows and whys of baking. If you have a nearby university that offers any kind of food or cereal science curriculum I'm betting that they will have this book in their library resource. Also check with your public library to see if they have it. The book is fondly referred to as "the Bible of the baking industry" and each of our Baking Science and Technology students at the American Institute of Baking had a copy.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3111

Yael;

To answer your first question, flour with less (to a point) damaged starch can indeed ferment slower but what concerns us more is that without added sugar to the dough the yeast can metabolize all of the available nutrient which then greatly SLOWS the rate of fermentation but more importantly, the yeast can begin to cannibalize itself releasing glutathione from the cells in doing so which will now cause the dough to become overly soft and sticky while exhibiting weakness. When there is an abundance of damaged starch the yeast doesn't ferment any faster as it can only feed on so much nutrient during fermentation (if you were to ADD an excessive amount of sugar to the dough it will most certainly slow the rate of fermentation. This is why when making yeast leavened pastries with high sugar levels we also significantly increase the yeast level at the same time (many pastries will contain upwards of 8 to 10% CY in their formulas when sugar levels are close to or above 20%. The one thing that higher levels of damaged starch does do is to provide a continual source of nutrient for the yeast to feed upon which is especially important when long dough fermentation times are employed. Like I said earlier though, the damaged starch absorbs A LOT of water in the dough making stage but when it is hydrolized it releases the water into the dough making for a wet, soupy dough after a couple hours of fermentation.

The Italian flours are milled from varieties of soft wheat which are much easier to mill to a low level of starch damage than hard red wheat varieties common to the U.S. and Canada as well as any other country importing wheat from either country and milling it themselves. As the the differences in dough absorption, different wheat varieties will exhibit vastly different absorption properties. In the U.S. and Canada the wheat varieties developed for use in milling into flour are bred for mixing tolerance, fermentation tolerance and absorption properties. They are looking for wheat varieties that exhibit slightly short to moderate mixing times, excellent tolerance to long fermentation times without breaking down, and high dough absorption characteristics (within reason). A good number of years ago (1968) there was a wheat-rye cross called Red River-68. The flour exhibited decent milling properties made good flour and had a reasonable mixing time as well as fermentation tolerance, so what was there not to like about it? The rye gene that was introduced into the wheat brought with it a unique property of rye flour.....STICKINESS. The doughs made with

Red River-68 were so sticky that you couldn't handle them! Remember, this is due to a genetic characteristic of rye so when we reduced the dough absorption all we got was a stiffer sticky dough that now exhibited a raft of other unwanted bread making properties. As you might have guessed, a lot of genetics goes into wheat breeding programs in many countries while in other countries the only concern they seem to have about the wheat is if it can be harvested and milled into flour. This is still true in most middle eastern countries there the order of the day is some type of flat bread which is typically made with not much more than an hour of total fermentation time.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3112

Rob;

Nothing "chemical" about it. When dealing with white flour it is primarily the protein portion of the flour that carries the water/influences the dough absorption.

When more water is added to the dough than what the flour is capable of absorbing the surplus water results in the characteristic stickiness due to dilution of the protein/gluten with water. There is a reason why it is called ("glue" ten) it is due to its inherent stickiness. Under normal circumstances the water is absorbed into the protein allowing it to be developed into gluten through the mechanical mixing action or through bio chemical gluten development which takes place during fermentation. Any water in excess of what can be absorbed into the protein just coats the protein on the outside which is what gives us the characteristic stickiness.

Tom Lehmann/The Dough Doctor

[Re: Why is high hydration dough sticky?](#)

3113

If you are asking what is the best or preferred flour protein content for making Papa John's, Domino's and Chicago style pizzas from a commercial stand point the answer is a patent grade flour with a protein content between 12.8% and 13.2% for the big box stores and 13.8 to 14.2% for the Chicago style pizzerias.

Tom Lehmann/The Dough Doctor

[Re: All Trumps flour vs. others for certain particular style pizzas](#)

3114

Yael;

May I ask, more specifically what are you trying to understand or accomplish?

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3115

Gary;

This topic was recently covered here in significant detail, check it out to see the entire discussion...short of it...break it down into smaller portions/bags and store in the freezer for longest shelf life and overall best results. If you don't have enough freezer space still break it down and store in the freezer for 45-days then remove and store at room temperature. Not the best but at least you will not have to worry about infestation in the flour as the freezing will kill any viable insect eggs that might be in the flour. When storing at room temperature air tight is not the issue as it serves no benefit to the flour but you do want to protect the flour from infestation from outside of the bag so a metal or plastic container is recommended. Plastic 5-gallon buckets like you can get at a home center work great for this.

Tom Lehmann/The Dough Doctor

[Re: Storing Flour](#)

3116

Jon;

It all has to do with temperature differential in the room. A great example of this is the differential between the top and bottom of the room where the floor or lower part of the room is cooler than the top of the room, and then there is the area near the door(s) where cooler air is introduced every time the door is opened, all of this leads to condensation.

By far, the best way to have controlled bulk fermentation is a small operation such as a pizzeria or small bread and bun bakery is to develop excellent dough temperature control measures and then bulk ferment in a suitably sized container (room temperature if fine) with nothing more than a sheet of plastic draped over the top of the container to retain the carbon dioxide which is heavier than air and

creates an insulating (green house) effect over the surface of the dough. The purpose of the plastic in this case is just to keep that layer of carbon dioxide in place. If the sides of the container extend sufficiently above the top surface of the dough at full fermentation volume (about 18-inches is what is needed) you really don't even need the plastic IF the area is draft free. Why can you bulk ferment large doughs at room temperature? Because the truth is, the room temperature has little control over the fermentation of the dough, instead it is the temperature of the dough which has the greatest impact upon the rate of fermentation, this is why I said it is better to fine tune your skills at controlling finished dough/sponge temperature rather than wasting money investing in a "fermentation room".

Tom Lehmann/The Dough Doctor

[Re: Temperature Controlled Dough Room](#)

3117

Additionally there appears as if there might be some anti-microbial properties to the wood work surface.

Wood/marble/ stainless steel that's also my order of preference too.

Tom Lehmann/The Dough Doctor

[Re: Bench: wood, marble, steel](#)

3118

With conventional roller milling of wheat is is all but impossible to achieve a very high level of starch damage unless we're milling a soft wheat (better suited to cake and pastry production than bread and pizza) so the flour will have to go through some form of additional milling to get a high level of starch damage, this might include pin milling, ball milling or hammer milling (this is the way it is commonly done in Mexico and they use their Entilators (a type of hammer mill intended specifically for breaking insect eggs left in the flour post milling). The easiest way to achieve a higher level of starch damage is to simply add some pre-gelatinized wheat starch to any existing flour....PRESTO! Damaged starch content of the flour has just been increased. Remember...an increase in dough absorption due to an increase in the amount of damaged starch present in the flour is just temporary, after about an hour the damaged starch will be hydrolized into sugar and the water it was carrying will be released into the dough system resulting in a softer, stickier and more extensible dough, the magnitude if which will be dependent upon how much damaged starch was present. In many developing countries the amount of damaged starch is around 20 to 23% of the total starch present. 100-grams of flour is approximately: 11% protein, 12% moisture, and 3% ash and fiber. The remainder is carbohydrate/starch so, $100 - 26 = 74$ -grams/%. These are just very rough numbers for a typical white flour of around 76% extraction rate.

Based on this 23% of 74 = 17.02 grams of the starch would need to be in the form of damaged starch or pre-gelatinized starch but you can't really replace native starch with damaged starch in the flour (how would you get it out to replace it?). so you can only dilute the flour with damaged starch. If you add 17-grams of pre-gelatinized starch the total starch damage in the flour will increase by about 18.5% this combined with the existing 5 to 6% naturally occurring damaged starch in the flour will get you close to 23% total damaged starch BUT do keep in mind that you are also diluting/reducing the amount of protein at the same time so that example of 11% protein now becomes something closer to 9.4% protein content (it no longer looks like a bread flour but now it looks like a pastry flour so your next option is to add additional protein in the form of vital wheat gluten. The addition of roughly 3.9% will get you back to around 11 to 11.5% protein content for the flour. Oh yes, now you will need to increase the dough absorption by an additional 6% just to

satisfy the absorption properties of the vital wheat gluten that you have added.
Seems like a lot of work for nothing?????

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3119

Sounds like you might be using too much sourdough starter or your starter might be too strong. Then too, maybe your flour is too weak ?

Tom Lehmann/The Dough Doctor

[Re: sd pizza ballls](#)

3120

Hey Mitch!

I've still got my old "slip stick" too! You would be surprised at how many young people don't have foggiest idea of what it is and what it was used for.

Tom Lehmann/The Dough Doctor

[Re: Calculators - HP 10C Scientific](#)

3121

No body uses a fermentation room anymore due to all of the issues surrounding the presence of caustic acids in these rooms, instead of fermentation rooms we now use what is referred to as a fermentation shelf. This is nothing more than a fermentation container aka dough trough which is wheeled under a suspended shelf there the dough troughs are placed for the fermentation period. This has totally eliminated all of the physical, mechanical and food safety concerns associated with fermentation rooms.

Tom Lehmann/The Dough Doctor

[Re: Temperature Controlled Dough Room](#)

3122

We developed that standard/basic dough formula more than 35-years ago for use in our pizza seminars at AIB. The reason why we like to call it "basic" is because it can be used with only slight modifications for making just about any type of pizza crust. Just as it is it will make a fine New York or Domino's type of crust, or just increase the amount of dough for a Pizza Hut type of deep-dish crust, then reduce the dough absorption to 40 to 45% and you have the making for a thin crispy type of crust. Take the same dough formula using 45 to 50% absorption, and mix the dough not more than 1.75-minutes to produce a "shaggy" dough and you're well on your way to making a dough for a thin cracker type of crust (much like Pizza Hut made wwaayy back when...well....they still used deck ovens in their stores).

By using the cold fermented dough ball method (my Dough Management Procedure is available I believe, in the tools here at [PizzaMaking.com](#)) or If you P.M. with your e-mail address I'll be glad to send you a copy, you will achieve a finished crust with much improved flavor and a much more tender eating characteristic than what you have proposed. Would I advise offering deep-dish pizza as a regular menu fare? No, at least not at first, not to sound disparaging but I think you are already biting off too much for a new store just opening. You are offering way too many options for a start-up pizzeria which can be a kiss of death. Start with just a few pizza options, do them very well, and then as you become more experienced expand your menu if you want to. A gerat way to ease into deep-dish pizzas is to make them as a special offering on your slowest night of the week "Join us next Monday for a special offering of deep-dish pizza" then show the sizes and pricing. The idea is to offer something "special" NOT SPECIAL PRICED/LOWER COST to bring the sales for

that slow night up to equal or better the other nights of the week. This is when I begin making all different kinds of pizzas such as seafood pizza, Multi-grain crust pizza (your favorite pizza on our special multi-grain crust), fresh fruit dessert pizza (This Monday only, add a slice of our unique dessert pizza for only \$2.50 (1/8 of a 12-inch pizza format) with any pizza order). You get the idea.

Personal pan pizzas are just like their larger cousins only made on a smaller format. Again, why not start out with a slice offering for a lunch special at first? You can do it using what you already have and if done right you can make a GREAT slice. At AJ's here in Manhattan, KS you can get a slice made to your order in under 5-minutes....fresh, hot and crispy. The cost is \$5.00 for 1/6 of a 16-inch pizza....do the math. Best of all, we're using regular pizzas for the slices so there is no special handling or space required.

Tom Lehmann/The Dough Doctor

[Re: Whats the best use for these Pans/Lids? Need advice.](#)

3123

Those are relics left over from the days when Pizza Hut used to make dough at each location and proof the dough for their deep-dish pizzas too.

You can use them for making deep-dish pizzas or by using less dough (about 12-ounces) you can use the pans to make a thin crust pizza too. You just won't be proofing the dough in the pan and you won't be using as much dough either.

To make deep-dish pizzas your regular dough will most likely work OK.

Scale at 16-ounces, ball, place into dough boxes, oil the top of the dough balls, cross-stack in the cooler for 2.5-hours then down-stack. The dough will be ready to use after 24-hours but it's better after 48-hours. Dough balls will keep for up to 3 possibly 4-days in the cooler. To use the dough balls, remove from cooler, allow to temper AT room temperature for 2 to 3-hours (you want to see a dough ball (internal) temperature of 50 to 55F. Using a rolling pin or pastry pin open the dough ball up to pan diameter (12-inches). Oil the pan (P.H. used peanut oil) be generous to get a fried effect on the crust. Fit the opened dough piece into the pan, cover and set aside for 45 to 60-minutes. Check the fit of the dough in each pan and re-fit if necessary. Cover again and allow to proof for about an additional 45-minutes (you will need to experiment to see what works best with your specific dough). Dress the proofed dough as you would any other pizza, bake at 450F in a deck oven. Baking time will be about 20-minutes. Get yourself a deep-dish pan gripper and a long, flexible blade spatula to help remove the pizza from the pan. Run the spatula around the pizza in the pan, slide the spatula down next to the pizza, using the pan gripper give the pizza a moderate flip while guiding the spatula under the pizza, guide the pizza out of the pan onto a cutting table using the spatula. Cut using a rocker knife.

Note:

The P.H. procedure called for the pizzas to be proofed to about 1/2-inch in thickness (dough thickness), there should be a stamped line on the side of the pan as a reference for how thick the dough should proof to, after the dough has proofed to the reference point it is placed in the cooler (UNCOVERED) for 30-minutes, it is then covered for use during the remainder of the day. Unused (proofed) dough SHOULD NOT be carried over from one day to the next, instead, incorporate it into new dough at an amount not to exceed 15% of the new dough weight, or it can be made into bread sticks by par-baking the dough in the pan, then cool on a rack or screen. Store at room temperature in a covered dough box. To make bread sticks on the following day use a pizza wheel to cut in half, then cut each half into 1-inch wide strips (one crust will make two orders of bread sticks). Place the cut bread sticks on a screen, brush with a commercial garlic flavored oil/butter and bake

until thoroughly warmed, brush once again and sprinkle with an Italian seasoning mix (powdered Parmesan cheese, garlic powder, dried oregano) and serve with a dill flavored ranch dressing or a balsamic vinegar & oil dip. If you want, you can even brush with clarified butter/Ghee instead of the flavored butter/oil before baking, bake and lightly brush once again and sprinkle with a cinnamon-sugar mixture and serve with a cup of powdered sugar - water icing.

Tom Lehmann/The Dough Doctor

[Re: Whats the best use for these Pans/Lids? Need advice.](#)

3124

Using a dough absorption higher than what the dough with that particular flour is capable of handling will, as you know, result in an overly soft, extensible, sticky dough characteristic and as the dough ferments, which naturally makes the dough softer and more extensible, these characteristics will become even more extreme. The overly weakened gluten structure may fail to retain the leavening gas during the critical oven spring phase of baking resulting in a full or partial collapse of the dough giving the finished crust an over tough, chewy eating characteristic along with a gum line just under the sauce. This picture is painted of a dough which is excessively over absorbed for the flour being used. Depending upon the magnitude of over absorption these characteristics could vary from not as extreme to even more extreme.

Flour is the single most variable ingredient used in dough production and this is why if you want to have consistent handling properties along with consistent finished crust characteristics, it is imperative that the dough absorption be correct for the flour and matched to the type of crust being made along with dough formulation and dough management practices being employed.

Tom Lehmann/The Dough Doctor

[Re: Absorption rate and the detrimental effects of ignoring.](#)

3125

You're looking for a dough formula and procedure that pours? You can use my dough formula and follow the following procedure to make a no mix dough, but you're still going to have to use some dusting flour to help in opening the dough into a skin for dressing.

Put water (75F) in mixing bowl.

Activate/suspend yeast in a small portion of 100F water for 10-minutes.

Add yeast suspension to the dough water.

Add oil to the water.

Add salt and sugar to the water IMMEDIATELY followed by the flour (bread flour works fine).

Stir until the resulting "dough" looks like porridge/thick oatmeal.

Cover the bowl with a piece of plastic or stretch wrap (don't seal tight).

Allow the dough to ferment for a minimum of 1-hour (2 to 3-hours works better), then turn dough out of the bowl onto a lightly floured surface.

Knead the dough for a minute or so, lightly oil the mixing bowl and place the dough back into the bowl, cover with a sheet of plastic and allow to ferment for another 3 to 5-hours.

Turn dough out of the bowl (it will come out much more easily) onto a lightly floured surface and carefully open into a pizza skin.

Sauce and dress as desired and bake.

Even with this procedure you're still going to need to use some dusting flour.

Tom Lehmann/The Dough Doctor

[Re: Thin base no kneed pizza?](#)

3126

If you will P.M. me your e-mail address I'll be glad to send you a copy of my Dough Management Procedure which is very effective at providing dough to dough, day to day consistency in your pizzas.

Tom Lehmann/The Dough Doctor

[Re: Mixing time](#)

3127

The key aspects to being able to consistently make good pizza are dough temperature control and accurate weighing of the formula ingredients. Combined with an effective dough management procedure you will be able to produce your pizza consistently wherever you're at. I've got an outline of a very effective dough management procedure posted here at pizzamaking.com that you might want to look at to glean some ideas which you can incorporate into your present dough management procedure to make it more effective.

Tom Lehmann/The Dough Doctor

[Re: Trying to perfect a dependable recipe](#)

3128

Joe;

In my opinion the picture shows a dough that is still under mixed, I'm guessing by about 2-minutes.

Tom Lehmann/The Dough Doctor

[Re: Mixing time](#)

3129

With all things equal just swapping out a low protein all-purpose flour with a higher protein content bread type flour results in some gluten formation during the mixing process which in turn helps to better retain leavening gas (both carbon dioxide as well as air incorporated into the batter during the mixing process) resulting in greater oven spring but at the cost of a tougher, firmer and sometimes dryer eating characteristic. This is true for all home made scratch cakes which are a form of what is referred to as a low ratio cake, meaning that the formula contains sugar equal to or less than the amount of flour. Conversely, a high ratio cake (like you buy from some bakeries but always from the super market), this is the super sweet cake we're all familiar with, is formulated so the sugar is equal to at least 110%, but sometimes as much as 160%, of the flour weight. The two specialized ingredients which allow these cakes to be made are emulsified shortening or a special emulsified oil as well as chlorinated cake shortening....without these two ingredients a high ratio cake cannot be made. By the way, those Hostess cupcakes are made using a very lean (low in fat and sugar) formula so they tend to be somewhat more like a low ratio cake. The most common low ratio cakes we see being made at home are pound cakes or "kilo" cakes in countries working in metric measures. These cakes contain only the most basic ingredients of flour, sugar, eggs and butter/shortening. The amounts of each as the name implies is one pound, or one kilo of each ingredient. Salt and vanilla as well as lemon are added for flavor enhancement. Pound cakes are also the basis for making fruit cakes too. Make a pound cake batter using bread flour rather than all-purpose and add candied fruit and nuts at the rate of 1 to 3-parts fruit and nuts to 1-part batter. Keep in mind also that there is no real standard for all-purpose flour (it's just a name). Some AP flours are down in the 8 to 10% protein range and some are even made using soft wheat

varieties as opposed to hard wheat varieties like are used for making bread flours, while other brands of AP flour will range up into the high 10% and into 11% protein range (for example, Certesota/Heckers AP flour is well within the 11% protein range) making it suitable for many bread and pizza applications.

Tom Lehmann/The Dough Doctor

[Re: I hate cake..... but wow.](#)

3130

Yael;

You are correct.

Aside from being naturally present in the flour (good quality milling wheat has very low amylase levels) it is usually added by the flour miller too as in "malted flour" which is how the falling number is adjusted to the desired level.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3131

We will also need to know how you are managing the dough (everything you do between mixing and baking) too. This is a case where T.M.I. is a good thing.

Tom Lehmann/The Dough Doctor

[Re: Thin base no kneed pizza?](#)

3132

I use my left over sauce in making something as simple as pan fried chicken, pork , beef or in our case venison simmered in a seasoned tomato sauce served over rice...not fancy but really good. :chef: or you can take the "coward's way out and just season it up a bit and serve over rice or egg noodles...either way makes a pretty decent meal. Speaking of #10 cans, I just finished a project evaluating pizzas made using a specific tomato product. I brought the unused portion home and used it in making a full crock pot of great tasting chili....now that's eatin' on a cold winter day! What we don't eat over this weekend I'll freeze for another day. I find that the chili freezes pretty well for up to about a month.

Tom Lehmann/The Dough Doctor

[Re: Pizza sauce for 2 - storage question](#)

3133

Big Moose;

Just to give you an idea of why ash content is all but meaningless, assuming T55 = a flour with a 0.55% ash content the General Mills Hi Power and Remarkable both come in at about 0.54% ash content but the protein content is around 13.6% and more. then there is the T80 = 0.80% ash content which would be equivalent to the General Mills Iron Duke flour with 0.80% ash content. This is a clear grade flour like you might use when making rye bread but it is not a whole wheat flour by a long shot. For comparison, General Mills Wondra flour has an ash content of 0.56% but only 10.5% protein content.

If you're looking to replicate the "T" values it really isn't necessary to blend flours at all.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3134

Par-baking the crust and then finishing as a whole (completed/dressed) pizza, in my opinion, produces the crispiest pizza possible. Not necessarily the best after it has

cooled off, but nice and crispy when still hot and fresh from the oven. Due to the lower moisture content of the crust as a result of par-baking, those pizzas made using a par-baked shell usually withstand the rigors of DELCO better than single baked pizzas. It's the single baked pizzas, aside from thin crispy and thin cracker that are problematic in DELCO.

Tom Lehmann/The Dough Doctor

[Re: How long to age dough to ferment NY Thin crust, I assume no ferment for DeepDish](#)

3135

Yael / Pizzajourney;

But the alpha amylase DOES hydrolyze starch into sugars to support fermentation...and to help develop crust color. The alpha amylase will continue to hydrolyze starch in the flour until it is destroyed/denatured in the baking process or whenever the temperature of the dough reaches 160F. There are no other real sources of sugar in the flour.

Composite flour is any flour that is made from a blend of different grains milled into a flour like consistency. We run into composite flours all the time in developing countries where wheat is not generally grown and if it is it is not grown in any significant quantity but other grains and legumes are available. In this case the flour is used only as a binder to hold things together while the bulk of the "flour" is made up of the other grains and legumes. The closest thing we might have to a composite flour here in the U.S. is a multi-grain flour blend where 30 to 40% of the total flour weight is comprised of non-wheat grains and seeds. Look at it like this....in the case of a multi-grain flour blend the "other" grains and seeds do not provide any gluten so the amount of gluten present in the flour is reduced by the percent of non-gluten forming material in the flour blend, add to that the fact that the gluten film that is formed tries to envelop the other grains and seeds thus over extending what gluten there is which weakens the gluten film and to add insult to injury, many times these "other" materials will exert a cutting effect upon the gluten film as as the film is expended (dough increases in volume) the other materials cut into the gluten film weakening it even more. It there any wonder why composite flours exhibit a very short fermentation tolerance? Those "other" materials don't affect the rate of fermentation but they do raise havoc on the substrate (gluten film) that contains the leavening gas in the dough.

Back in the late 70's I was charged with developing a method to improve the dough quality with composite flours WITHOUT the use of additives or anything that would increase the cost of the dough. I was able to develop a method for making the dough where we found the absorption of the non-wheat materials (this is the same way we find the absorption of multi-grain blend and whole-wheat flour/discussed many this here) and then we made a dough using ONLY the wheat flour but with ALL of the calculated water for the dough. Sometimes this resulted in more of a batter than a dough so we used a flat beater aka paddle to mix the dough at this point. The "dough" was mixed until we had achieves good gluten film development for the flour being used, the non-wheat material was then added to the dough, the flat beater was swapped out for the dough arm, and the dough was mixed JUST until the material was blended into the dough, it was then allowed to ferment for 60-minutes (actually more for hydrating the "other" materials than to achieve fermentation which would further weaken the dough, at that point the dough was ready for use. This method for making composite flour doughs was so successful that I authored an AIB Technical Bulletin on the topic and then spent considerable time traveling in the middle east demonstrating the process. Is the process still in

use today? I don't know as I have no burning desire to return to Syria, Afghanistan, Iran, or Yemen to find out.

In case you're wondering why I didn't just hydrate the non-wheat materials as a soaker like we do when making multi-grain doughs, we found that this process only worked when we had white flour of decent gluten forming properties...a quality few, if any, of the wheat flours in those countries had. At one point I was traveling for U.S. Wheat Associates and spent considerable time demonstrating how the use of U.S. wheat flour would improve the overall quality of their products made from these composite flours...the idea here being to show one big advantage to using U.S. flour provided many times under the government aid (federal assistance) program.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3136

For a while we saw a lot of interest in heated bags (ceramic disk heated by magnetic resonance) but they still didn't address the issue of steaming of the pizza during the delivery period, yes they were effective at keeping the pizza hot but that really wasn't the issue. I can't think of any pizzerias here in the U.S. where I've seen anything but the common, insulated pizza bags aka "moon bags" being used for delivery. The only variation in the bags that I see is between single pizza bags and multiple pizza bags. When we have had "other" things delivered such as Italian beef sandwiches and hamburgers they either came in a grease proof paper bag or in a Styrofoam clam shell. I've not seen them ever delivered any other way.

Tom Lehmann/The Dough Doctor

[Re: Pizza delivery bags - opinions](#)

3137

Just an increase from 10.15 to 10.5-ounces.

Tom Lehmann/The Dough Doctor

[Re: Couple of questions](#)

3138

That's the same malt powder that I use at 0.5%.

Tom Lehmann/The Dough Doctor

[Re: Added Malt](#)

3139

Can't provide a "recipe" (volumetric portions) but here's a dough formula (weight measures) which will get you started...it's just a simple modification of your existing dough formula.

Flour: 16.1-ounces.....100%

Water: 10.5-ounces.. . 63%

Salt: 0.28-ounce.....1.739%

Oil: 0.16-ounce.....0.993%

IDY: 0.04-ounce.....0.248%

Sugar: 0.322-ounce.....2%

Depending upon how you are managing the dough you might also consider increasing the IDY to 0.4% (0.0644-ounce).

Tom Lehmann/The Dough Doctor

[Re: Couple of questions](#)

3140

Congrats! Super Cool!!

Tom Lehmann/The Dough Doctor

[Re: TV appearance for National Pizza Day](#)

3141

It wouldn't be my first choice but it will work so long as you have some diastatic malt or sugar of some kind in the dough formulation it will be OK. If you want to be a "purist" use General Mills All Trumps flour.

Tom Lehmann/The Dough Doctor

[Re: Couple of questions](#)

3142

Sounds pretty normal for a "just mixed" dough to me. I always apply a little oil to my hands when handling the dough right out of the mixer and especially if I am planning to cover it with plastic as it doesn't breathe so it traps moisture at the interface of the dough and plastic causing it to stick. Additionally, finished dough temperature can play a big role in how the dough feels right after mixing.

Tom Lehmann/The Dough Doctor

[Re: Couple of questions](#)

3143

The ash content of a flour is only an indication of its extraction rate during the milling process. Extraction rate in basic terms is the pounds/Kg of flour extracted from 100-pounds/Kg of wheat. Ash content influences the color of the flour with lower ash content giving a brighter, whiter flour and high ash content giving a darker, more gray colored flour. Over the past 50-years we have seen the ash content of U.S. flours increase from an average of around 0.450 to 0.52 and above for bread type flours. The lower ash flours can still be found but they are considered as "specialty" flours and command a premium price. Ash is purely an economic thing, a tool used by the flour miller to help control flour prices. This move to higher ash flours has also been embraced by consumers as they are no longer demanding that their white bread have a bright white crumb color, but instead they show a preference for a more "natural" slightly darker crumb color. This is further supported by the consumer shift towards non-bleached flour which has a slightly yellow/creamy color to it, further darkening the crumb color. We generally attribute this shift to the consumer move to more "natural" foods. I cannot see where ash content would have any impact upon the amount of fermentation that a flour might require, in fact it tells you almost nothing about the flour or how to handle it, but you are quite correct that referring to the flours by protein content would be a much better way to look at flours with regard to such things as dough absorption, mixing time and dough fermentation time. When we have less damaged starch present in the flour the flour typically exhibits a lower water absorption and the converse is also true. Italian "00" flour is un-malted so there is little amylase activity in the flour. It is the amylase enzyme (present in diastatic malt, malted/sprouted barley, or in a more pure preparation such as in amylase tablets or powder) which hydrolizes the damaged starch into sugars to both support fermentation and provide crust color. Since "00" flour has low damaged starch and little to no amylase the only way for the crust to brown is through browning of the protein which requires a very high oven temperature to accomplish. This can be overcome by adding a source of amylase or sugar to the dough. With regard to the type of sugar added to the dough any simple sugar

(dextrose, honey, molasses, malt syrup) or reducing sugar (sucrose, or brown sugar) can be used with a "00" flour to support fermentation and enhance crust color development. With regard to particle size, this can be regulated by the milling process and the grist (types of wheat being milled to make the flour). With hard red wheat varieties it is common that when flour is milled to a smaller/finer particle size there is more damaged starch present. This is a very common practice in Mexico where very short fermentation times are the norm rather than the exception and millers actually run the milled flour through their Entilators (a hammer mill like device that the flour is processed through to help destroy any insect eggs left in the flour after the milling process) which further damages the starch which results in flour with very high absorption properties but little tolerance to fermentation as the damaged starch (which is holding all that extra water) is the first to be hydrolized into sugar by the small amount of naturally occurring amylase enzyme in the yeast resulting in a total release of all that additional water giving a dough which, in many cases, can almost be poured out of the mixing bowl. When softer wheat varieties are milled it is possible to mill the flour to a smaller particle size without use of multiple passes through the Entilator which results in a smaller particle size flour without the associated starch damage associated with the milling of hard wheat flours. This is how we mill the soft wheats used in making cake and pastry flours here in the U.S.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3144

You are correct in that "00" flour does have a smaller/finer particle size and the wet/sticky dough was most likely due to the fact that "00" flour has a lower absorption than the flour for which the dough formula you were using was developed for. If you want to use "00" flour just reduce the dough absorption to 57% and start from there. All flours are different and as such each will exhibit a specific optimum absorption depending upon the type of pizza you are making, dough formulation as well as the dough management procedure you're using.

Tom Lehmann/The Dough Doctor

[Re: Couple of questions](#)

3145

Shorter runs are typically better than longer runs.

Tom Lehmann/The Dough Doctor

[Re: Need advice about pizza oven installation](#)

3146

Q.J.

Two things to remember, heat rises so effective ventilation only takes place using a vertical or near vertical stack. If you have a codes department check with them before you do anything as they WILL HAVE THE FINAL WORD, especially when it comes to stacks and oven ventilation. Case in point, where I live our codes department requires that ALL ovens be ventilated with a vertical stack to the outside and the stack MUST extend a specified distance above the highest part of the roof, and if that's not enough, ALL oven ventilation hoods must extend for a specified distance beyond the physical oven AND it MUST be equipped with an approved fire suppression system. How do you spell oven hood and ventilation system in Manhattan, Kansas? Easy.....\$\$\$\$\$\$\$\$\$:-D

Tom Lehmann/The Dough Doctor

[Re: Need advice about pizza oven installation](#)

3147

They don't. The basic steering mechanisms for fermentation are the amounts of salt and sugar, dough pH, temperature plays a huge part, and dough absorption plays a lesser part.

The addition of non-wheat flours (what are commonly referred to as "composite" flours) will impact how much fermentation a dough should receive or how much it will tolerate but it will not impact the speed or strength of fermentation.

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3148

There can be huge differences between mixers, even those of the same model by the same manufacturer. The reasons for these differences can be for such things as bowl texture, type of agitator, dough size type of flour, dough absorption but more importantly, the single most over looked thing is the agitator (hook) to bowl clearance which has a very significant impact upon how the dough mixes.....much more than most people realize. All of this aside, I go into stores all the time where the "numbers" don't fit, not to worry, just mix the dough (what other option do you have?) until it takes on a SMOOTH appearance, at that point consider mixing completed. By the way, you should have a reverse spiral dough mixing arm and the bowl to agitator clearance is set by using a nickle placed into the bowl (DO NOT RUN THE MIXER WITH THE COIN IN THE BOWL), instead, adjust the bowl height until the coin "just" fits into the clearance between the bowl and bottom of the agitator with the bowl in the fully raised position. The correct place to set the clearance is where the bottom of the agitator angles sharply upwards, anywhere along that roughly 2-inch long section of the agitator (I normally take the measurement at the lowest part, just because it's the easiest to measure at that point). In summary, don't sweat the time, just look for the change in dough appearance from rough looking and dark color appearance to smooth and brighter in color (due to the smooth skin formation better reflecting light, not a TRUE color change at all but instead a change in reflectivity). If you find that the dough is tearing during normal dough rounding just give the dough a couple extra minutes of mixing time. (17-minutes is a long mixing time in second speed, check the agitator to bowl clearance when you get a chance, it may need to be adjusted)

Tom Lehmann/The Dough Doctor

[Re: Mixing time](#)

3149

With what I've just read, the reason why we don't ever allow dry salt or sugar for that matter to ever come into direct contact with compressed yeast is because it will plasmatize the yeast, that is, it will draw the moisture as well as the glutathione out of the yeast. Salt and sugar are VERY hygroscopic, that's why they both exhibit a tendency to lump during humid weather. So....you are just adding the salt to the surface of the dough and just pushing down on the dough to "incorporate" it, for some reason this seems counter intuitive to good incorporation of the salt, then you folded the dough over, removed it from the bowl and kneaded it a few times on the bench (layering the salt into the dough). IF the salt is not dissolved (salt comes in different particle sizes/granulation) by this action alone, it will draw moisture out of the dough and hold it in a brine solution (wet/slimy) sound familiar? Also, the dough will not adhere to the slimy layer resulting in a delamination where ever the brine solution is present. Touch your tongue to the delaminated/wet area to see if you get a salty taste, or just sprinkle some of your

salt over the dough as you begin hand kneading. folding the dough on the bench to see if you get the same effect.

Tom Lehmann/The Dough Doctor

P.S. The coarser the salt the worse the issue is expected to be as it would be more difficult to get the coarse salt to go into solution by your method of addition. In the baking industry our rule is to always mix the dough for an additional 4-minutes after addition of the salt to ensure complete dispersion and dissolution of the salt (we use a VERY fine salt when using the "delayed salt mixing method").

TDD

[Re: What leads to dry dough in the middle?](#)

3150

Pete covered the differences in pretty good detail in the referenced response. What are your specific questions?

Tom Lehmann/The Dough Doctor

[Re: Differences between 00 flour and bread flour](#)

3151

Under mixing the dough combined with a low/cold finished dough temperature could result in less affect of fermentation on the flour which could result in a chewier finished crust. In a case like that though I would expect that the colder dough would have the greatest impact due to its inhibiting effect upon the rate of fermentation.

Tom Lehmann/The Dough Doctor

[Re: Too much chew in pizza crusts](#)

3152

Also with hand kneading you are incorporating additional flour into the dough while at the same time folding it (much like laminating the dough), this might be where the layering is coming from?

Tom Lehmann/The Dough Doctor

[Re: What leads to dry dough in the middle?](#)

3153

With the sugar in your dough already I wouldn't sweat it, it should be just fine as it is.

Tom Lehmann/The Dough Doctor

[Re: Flour mixup](#)

3154

Yes it would.

Tom Lehmann/The Dough Doctor

[Re: Too much chew in pizza crusts](#)

3155

Do you have any milk, sugar or eggs in your dough formula? If not brush the edge of the skin with oil just before you place it into the oven, this will help the edges brown but the bottom will still be somewhat light in color. If you have a suitable pan you might also try pan baking the pizza with extra oil in the pan to get a fried effect....fried pizzas are actually pretty good.

Tom Lehmann/The Dough Doctor

[Re: Flour mixup](#)

3156

What's strange about the appearance of the dough is the apparent layering of it as seen in the attached pictures, there even appears to be a dry or floury texture between the layers. The only two explanations I have with the information presented are that it happened during the rounding process (hard time buying it though) but more likely during the mixing process where the dough is being continually pulled and folded over itself. I would think that the dough would need to be very dry and stiff for this to happen though which should have been apparent in the mixing bowl and a tip off that something wasn't right. Very small or too small size doughs in a large bowl are not well mixed and tend to just get pushed around by the agitator which creates friction resulting in heat on the surface of the dough which then accelerates drying of the dough surface to the point where a slight crust is formed on the dough. Once a crust is formed it is NOT soluble and remains as a crust within the dough, the crusted dough is rounded which folds the dough over on itself even more so what you end up with is a type of laminated dough. This is essentially the same method as used by manufacturers of saltine crackers to achieve the dough laminations only in their case the dough is sheeted into a continuous ribbon, heated air is blown onto the surface of the dough to create the desired drying effect and then the dough is passed through a laminator where it is folded over upon itself, this is repeated several times to achieve the desired number of laminations before the dough is cut to shape and baked.

Just a guess.

Tom Lehmann/The Dough Doctor

[Re: What leads to dry dough in the middle?](#)

3157

Steven;

Your N.Y. style dough will be best if cold fermented for 36 to 48-hours. Deep-dish pizza doughs should also be fermented for a minimum of 24-hours for best handling, textural and crumb structure characteristics.

If you ever find a way to keep a pizza crispy 20-minutes after baking please contact me immediately....together we'll both become very rich.

After baking the outer crust (that's the part that's crispy) has a moisture content of about 8 to 12% while the inner crumb portion has a moisture content of 24 to 30%, as the pizza cools after baking the moisture content of the pizza equilibrates throughout the entire crust which means the dry crispy part is no longer dry and crispy, but instead it becomes soft and droopy (I wouldn't call it soggy though) If you REALLY mean soggy/wet that might be the result of placing the hot pizza on a tray or plate of some type (a cold plate or tray would be especially problematic), but that just at room temperature the plate/tray would be cold as compared to the temperature of the pizza. The pizza will steam-off from all sides and as the bottom steam contacts the cooler plate/tray the steam will condense to water making for a wet, soggy pizza bottom. I hope this helps.

Tom Lehmann/The Dough Doctor

[Re: How long to age dough to ferment NY Thin crust, I assume no ferment for DeepDish](#)

3158

Little bean;

You should be targeting a finished (mixed) dough temperature in the 70 to 75F range. I'd also suggest increasing the IDY to between 0.3 and 0.4% to get more fermentation which will be conducive to achieving a more tender eating finished crust. Using a lower protein flour, as was mentioned is probably the most effective

way to get a more tender eating crust. Remember, in New York City All Trumps flour is typically used as it gives their pizzas the desired "chew". Like Jackitup said, going to a lower protein flour just might be the ticket in your case. A good flour to test is the Pillsbury Bread flour aka "bread machine flour" which comes in around 12.2% protein content and should work well in your application. One other thing, your salt level at 2.5% is also inhibiting the rate of fermentation to some extent, especially when combined with your already low IDY level so that would be a contributing factor to insufficient fermentation which could result in a tougher eating crust. Maybe give some thought to reducing the salt to something in the 1.75 to 2% range.

Tom Lehmann/The Dough Doctor

[Re: Too much chew in pizza crusts](#)

3159

Great question Q.J., you're crazy like a fox. ;D I think I see where you're going with your question.

Tom Lehmann/The Dough Doctor

[Re: What leads to dry dough in the middle?](#)

3160

Condensation is where the water came from. The best way to address a little dryness on the dough is with a light coating of oil, not water. Does the dough always look so dry when you make it?

Tom Lehmann/The Dough Doctor

[Re: What leads to dry dough in the middle?](#)

3161

You say you used a dough hook a "J" hook? If so there is a probability that the dough was not properly mixed, the water that you saw on top of the dough was almost certainly due to condensation forming within the container as a result of 1) Not placing the dough into the fridge uncovered. 2) Excessively warm/hot dough...what was the finished/mixed dough temperature?) 3) Your new fridge being too cold (it should be operating at 36 to 38F).

Tom Lehmann/The Dough Doctor

[Re: What leads to dry dough in the middle?](#)

3162

In my collection of photographs, much like yours, I have pictures of the process which were taken in the same part of the world (though at a much safer time)...THANK YOU FOR YOUR SERVICE!). The dough that is used is VERY WET and SLACK and one must wet the hand and arm that is used to place the dough into the oven with. Two long sticks are used much like chop-sticks to remove the baked bread from the oven. Really great when hot and very fresh but only so-so after cooling and getting a little age on it. The biggest complaint that I had about the bread was due to the source of fuel used to fire their ovens, since this type of baking is common in some of the most poor as well as remote countries on earth (or any other place as I'm told) they don't exactly have access to the best materials to fire their ovens with. I found that cardboard and wood pallets were the most common things used to fire their ovens. Cardboard gave the baked breads a sort ofwell cardboard like taste, while pallets were not too bad unless they were made from pine and in that case the breads had a very distinctive "piney" flavor...sorta like sucking on a pine board.

Tom Lehmann/The Dough Doctor

[Re: Fascinating use of a wood fired oven in Afghanistan...anyone ever try this?](#)

3163

QJ;

There is, just re-bag the flour into individual use portions and place it into the freezer for storage as soon as possible after you get your flour. This is how we did it when we were working on long term projects at AIB and it worked quite well. One thing to remember though, be sure to bring the flour out of the freezer a day or more before you want to use it. This will allow plenty of time for the flour to warm back up to room temperature before you open the bag. If you open the bag and begin using the flour while it is still cold, depending upon the room humidity, you might get condensation on the flour and for sure, the cold flour will NOT absorb water or mix/develop in the same manner as warmer flour until it warms up in the mixing bowl.

Tom Lehmann/The Dough Doctor

[Re: Weird dough sometimes.](#)

3164

Please describe your idea of what "fresh made frozen pizza" is. This is important as it will allow us to better respond to your question. We also need to know if you plan to make your frozen pizzas using a par-baked crust or will you be making something along the lines of a "bake to rise" concept pizza? How do you plan on marketing your pizzas? Lastly, before you get too deep into the pool you might contact your local licensing department as there is a possibility that you could come under some very specific regulations when selling food to the masses and you'll need to address those specifics before selling your first pizza.

Tom Lehmann/The Dough Doctor

[Re: Frozen pizzas](#)

3165

Your hypothesis makes perfect sense to me. The greater amount of sauce piled up out towards the edge of the pizza might very well be the cause of the white ring you are seeing.

Tom Lehmann/The Dough Doctor

[Re: whitish ring around my pizza](#)

3166

Simple :) it's part of the oven spring, in bread baking we call it the "break". It's the area where the dough has expanded last. Why uoi ask? Because it is right next to the sauce line which is high in water content (about 90%), as the pizza is baked the sauce gives off steam which cools the dough preventing it from developing a crust which would inhibit further expansion, so the dough continues to expand in that area longer than in other areas (closer to the edge/further away from the cooling steam from the sauce) until finally the dough heats to a point where the starch gelatinizes, the structure is set and the crust is baked...but this happens so late in the baking cycle that there is not enough time for this late expanding dough to achieve a dark crust color. You will see this very same thing on the side of a loaf of bread or on a hamburger bun too where it is referred to as "the white ring", come to think of it you also see it on a yeast raised donut ring and most other yeast raised products.

Tom Lehmann/The Dough Doctor

[Re: whitish ring around my pizza](#)

3167

Flour can and certainly does change from bag to bag especially when bought at different times. We discussed this some time ago but a thumb nail sketch of the reasons are:

- 1) Flour was made from a different grist (blend of wheat varieties)
- 2) Flour oxidizes as it ages (oxidization = stronger dough)
- 3) Flour will dry out in the unopened bag during storage (this can vary with seasonal changes)
- 4) Opened flour can/will change in moisture content over the time during which the flour is being used, this is especially so if that period of time covers a seasonal change.
- 5) The conditions under which the flour is stored prior to or after sale can influence both oxidation and moisture content of the flour.
- 6) If you buy multiple bags of flour and store them in the freezer you can minimize further change but be sure the bags show the same milling lot numbers. It is a very common occurrence to have mixed milling lots on a single pallet and they get further mixed up at retail.

Flour is potentially the most variable ingredient we work with.

Tom Lehmann/The Dough Doctor

[Re: Weird dough sometimes.](#)

3168

From the looks of the dough I'd put the absorption at around 60%. If you noticed that Tony doesn't work the edges of the dough at all, this promotes the development of a raised edge.

Tom Lehmann/The Dough Doctor

[Re: Is it possible to get a FAT airy cornicione in a home oven?](#)

3169

Additionally, don't forget about the food safety (clostridium) issues associated with fresh garlic and oil. This has been covered here in great detail previously. Sure hate to lose a fellow participant of PizzaMaking.Com.

Tom Lehmann/The Dough Doctor

[Re: Garlic Sauce](#)

3170

My literature from Hobart gives the following maximum dough capacities for the A-120 mixer.

Pizza Dough 40% Abs. : 2-Kg. (All mixing at first speed only)

Pizza Dough 50% Abs.: 2-Kg. (All mixing at first speed only)

Pizza Dough 60% Abs.: 5-Kg. (All mixing at first speed only)

It should be pointed out that first speed mixing, even with a reverse spiral dough arm accomplished very little except to blend the ingredients together over a rather long period of time. If your mixer has a 'J' hook it accomplishes next to nothing.

Tom Lehmann/The Dough Doctor

[Re: Minimum Amount of Dough Rating for Mixers](#)

3171

Just hand knead the dough until it begins to take on a smooth appearance, biochemical gluten development will take it from there.

Tom Lehmann/The Dough Doctor

[Re: Hand Kneading vs Machine Hook](#)

The reason why you don't see data for minimum dough size is because mixer damage is not the result of mixing a dough that is too small, but instead it is the result of mixing a dough that is too large.

Try as I may, I have not been able to use a percentage of maximum dough size to determine the minimum dough size in planetary design mixers. This works well in spiral design mixers where the minimum is 25% of maximum rated bowl capacity. There are a number of reasons for this:

- 1) Agitator type ("J" hook v/s reverse spiral dough arm)
- 2) Age of the mixer. The older mixers (pre 1975, or so) especially those from Hobart have a different motor which is significantly more powerful than later production models.
- 3) Number of speeds. (impacts ability to effectively mix medium to large size doughs)
- 4) Clearance between the agitator and the bottom of the bowl (adjustable) will influence minimum dough size.
- 5) Dough consistency such as soft, firm, sticky, etc.

With this said, I can say this; I've used the Hobart A-120 (new and old) as well as the A-200 in research where consistency in mixing is CRITICAL. The MINIMUM dough size I used (to conserve sometimes scarce ingredients) was based on 750-grams of flour for the A-120 and 1,500-grams for the A-200 (this was for the older mixers, the new mixers were relegated to mixing batters only as they would stall when mixing even these small size doughs, mixers were returned to Hobart but when we got them back no improvement was noted). By the way, our MAXIMUM dough size for the A-120 was 1,200-grams of flour while that for the A-200 was 2,500-grams of flour weight. These mixers have been around for a LONG time which means that some of them are tired and well worn/used as such they will not be as powerful as they used to be (much like me) so the maximum dough size will be significantly diminished. A few years ago I used a 25-quart capacity mixer from a manufacturer I will not name (it was a new mixer, at a pizza show) the silly thing would not even effectively mix a dough based on 5-pounds of flour weight, needless to say I was not impressed at all. Planetary mixers are ALL OVER THE BOARD, I HAVE NOT found this to be the case with spiral design mixers, hence my preference for spiral design mixers.

Tom Lehmann/The Dough Doctor

[Re: Minimum Amount of Dough Rating for Mixers](#)

3173

The dough has a propensity to sweat in those containers unless you leave them unlidded for the first 2 or 3-hours after placing them in them fridge, plus if lidded right away it is next to impossible to achieve a consistent and repeatable rate of cooling for your dough. Since a lidded container traps the heat of the dough as well as the heat generated by the yeast during fermentation (heat of metabolism) it's next to impossible to effectively control the rate of fermentation.

tom Lehmann/The Dough Doctor

[Re: Please walk me through a hand kneaded Lehmann NY pizza dough](#)

3174

If you have the room, go for it! It ain't goin' bad in the freezer.

Tom Lehmann/The Dough Doctor

[Re: Old Cerasota Flour question](#)

3175

I tell people to use a wooden spoon, when you think you might break the spoon it's time to stop mixing, sorta like a shear pin in the mixing procedure. You knead it just until the dough begins to take on a smooth appearance as opposed to a curdled appearance.

Tom Lehmann/The Dough Doctor

[Re: Please walk me through a hand kneaded Lehmann NY pizza dough](#)

3176

Fiber, that's a cute one too. When studies were being conducted on the impact of increased fiber in the diet (I believe it was Cornell University) included a study using students as test subjects. The protocol was to have the students continue eating just as they normally do but fiber (I don't remember the amount anymore) was introduced into their daily food intake in the form of supplemental fiber. Within a few days many of the students in the study began complaining of a painful malady....constipation. It seems that no one took into account the amount of pizza an average college students eats. The casein in the cheese is an excellent binder and the fiber was the bindee...oops!

Tom Lehmann/The Dough Doctor

[Re: Is pizza a healthier breakfast than most cereals?](#)

3177

Reserve 2-ounces of water (100F) to hydrate/activate the ADY in. Hydrate for 10-minutes.

Add remainder of water to mixing bowl, add salt and yeast suspension, then immediately add the flour and begin your mixing process.

When thoroughly mixed together set aside and cover for 30-minutes.

Turn dough out of bowl and begin your kneading process.

Divide into dough balls, lightly oil the dough balls, place into individual plastic food or bread bags NOT ZIP LOCK BAGS. Twist the open end of the bag to close and tuck it under the dough ball as you place it into the fridge.

Place in fridge for a minimum of 24-hours, 48 is better.

To use, remove from the fridge and allow to warm AT room temperature to 60-65F.

Turn the dough out of the bag allowing the ball to drop onto a floured surface.

Begin opening the dough into a skin.

Dress and bake.

Tom Lehmann/The Dough Doctor

[Re: Please walk me through a hand kneaded Lehmann NY pizza dough](#)

3178

The only "fly in the ointment" here is that there are very few people with the will power to eat only one (1) slice of pizza! AIB did some nutritional work on pizza (They have an AIB Technical Bulletin on the results) a number of years ago and if I remember correctly it was found that plain cheese pizza was about on par with white bread on an equal WEIGHT basis. This means that one slice of white pan bread and a 2"X 2" piece of plain cheese pizza were similar nutritionally. Many of the popular cereals today are looking much better nutritionally than they did a number of years ago, in fact they are beginning to look more like granola than cereal which isn't a bad thing. It seems pizza has always gotten a bad rap nutritionally, and some of the famous offerings from the big box chains hasn't done anything to dispute those claims, just look at the cheese filled crust pizzas so popular a short time ago. The only drawback to pizza is in the quantity typically

consumed, but then we can say the same thing about our pasta servings too. Even that bowl of cereal, if you look carefully you may find that our average bowl of cereal really isn't a single serving as indicated on the box, but instead it is generally closer to two or maybe more servings, think about this the next time you pour out a bowl of cereal. I used to explain it like this to my students; A typical 12-inch thin crust cheese pizza is made with 10 to 12-ounces of dough, 4 to 5-ounces of sauce and 6 to 7-ounces of cheese. A typical slice of white bread weighs 2-ounces. If you eat that whole cheese pizza (be honest, who hasn't done that???) what you have really consumed is the equivalent of about five cheese sandwiches, now, be honest once again, when was the last time you sat down and ate five cheese sandwiches for a single meal? Pizza, like potato chips by itself really isn't all that bad (just 10-calories in a potato chip) but who eats just one or two chips? Who eats just one average slice (1/8th of a 12" pizza), that's where the real issue is.

Tom Lehmann/The Dough Doctor

[Re: Is pizza a healthier breakfast than most cereals?](#)

3179

If you watch carefully you will see that while they don't "create" a raised edge on the skin they also do not work the edge of the pizza either. In some videos you might see where the skin is being worked between the thumb and forefinger but look closely and you will see that the dough is not being worked on the edge, but instead a little bit inside of the edge which promotes development of the desired raised edge. I believe this can be seen in possibly one of Tony G's videos. From the looks of your pizza and the edge I'd say that your dough is still too elastic. Needing maybe more fermentation or possibly more absorption, and don't forget the impact of "technique" on the edge too, as you continue to practice you will get better at opening the dough into a skin.

Tom Lehmann/The Dough Doctor

[Re: Is it possible to get a FAT airy cornicione in a home oven?](#)

3180

Easy, just remove what you need to use within the next few weeks and break the bigger bag(s) down into smaller bags of flour, label the bags and place in the freezer. Stored in the freezer your flour can last for years, or you can store it in the fridge and it will last for 6 to 9-months without any problem.

Tip: If your dough formula calls for say...2-pounds of flour, put 2-pounds plus a little extra in each bag so when you want to make pizza all you need to do is to just remove a bag from the fridge or freezer, allow it to warm to room temperature over night and you're good to go on the following day.

I've got flour in my freezer right now that is 3-years old, we just used some of it over the Holidays and it performed just fine.

Tom Lehmann/The Dough Doctor

[Re: Old Cerasota Flour question](#)

3181

I would certainly entertain the idea of going with a higher dough absorption, as for the issue you mention with the K.A. mixer, have you seen the recent discussion here on that very topic?

Tom Lehmann/The Dough Doctor

[Re: Is it possible to get a FAT airy cornicione in a home oven?](#)

3182

Looks good! Have to remember that. Now let's see how it works with a larger

batch size. Things can get outta hand rather quickly when trying to make larger batches in a food processor as it doesn't turn over as quickly so a portion can become a paste in you're not careful. You've got my curiosity up, keep us posted.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)

3183

It's not too often that I make a N.Y. sauce but like you I like things simple and uncomplicated. Here is what

I do for a N.Y. sauce.

1-can of Italian plumb tomatoes

Crush/shred the tomatoes by hand.

Based on the weight of the crushed tomato add 4% sugar, 1.5% salt, 1% olive oil, and three basil leaves rolled and cut in to strips.

Adjust the viscosity as necessary by adding a small amount of cold water.

Blend together well and allow to marinate several hours or overnight (in the fridge) before using.

If you really want to make a "sauce" on the cheap and dirt simple, just brush the pizza skin (12-inch) with olive oil, cut one garden variety tomato into 1/8-inch thick slices.

Tear apart several fresh basil leaves and place on the skin, add sliced or diced fresh garlic or garlic powder if you wish, place tomato slices over the top of the skin (the tomato slices serve as the "sauce" in this case) About one medium to large tomato will cover a 12-inch pizza skin. Finish dressing the pizza with desired toppings and bake.

NOTE: If fresh ripe tomato is not available substitute 6-ounces of well drained canned diced tomato.

Everybody has their own favorite sauce formula so you should get a lot of great ideas for a sauce.

Tom Lehmann/The Dough Doctor

[Re: Introduction and inquiry about pizza sauce](#)

3184

Good point Peter. A good starting point for ADY is 0.5% to 0.7% in deep-dish/thick crust pizzas. So that puts 2% way over the top.

Tom Lehmann/The Dough Doctor

[Re: a bit too much oven spring](#)

3185

Additionally, I would recommend working with higher dough absorption percentages and bake as hot as you can. The idea here is to have a very soft and extensible dough and then have the oven heat expand the leavening gas, air and water vapor within the cell structure before the crust begins to set. The higher absorption both makes the dough softer and more extensible so it can better expand within the very short window of time for oven spring and it also exhibits a cooling effect upon the surface of the dough during baking (evaporative cooling) which effectively allows a little more time for oven spring before the dough begins to set. It is this rapid expansion of the dough during the oven spring phase of baking that will give you the characteristics you are looking for.

Tom Lehmann/The Dough Doctor

[Re: Is it possible to get a FAT airy cornicione in a home oven?](#)

3186

Chet;

Do you have a specific reason for using all of your dough water at 90F? Depending upon your dough mixing method this is probably giving you a finished dough temperature which is above the recommended 80 to 85F maximum. A high dough temperature might be resulting in too much fermentation for what you are trying to achieve. I would suggest using only 1/4-cup of water at 100F to hydrate/activate the ADY in with the remainder of the water at 70F which should give you a more controlled finished dough temperature. Do you know what your finished (mixed) dough temperature presently is? The other thing to consider is reducing the amount of dough for your pan size (12-inch?). I'd reduce it by 2-ounces and see where that brings you out at, then adjust from there if necessary. Another possible action is to adjust the amount of time you're allowing the dough to proof in the pan prior to dressing and baking. In this case reduce the time by 10-minutes and bench mark from there.

Tom Lehmann/The Dough Doctor

[Re: a bit too much oven spring](#)

3187

From the pictures I see that you are using screens to bake your pizzas on, and from the sounds of things you're using an air impingement oven. The edges of the crust appear to be browned but the rest is still pretty light colored here are a few things to consider:

- 1) Are your screens seasoned to a dark color? Light colored/bright screens can cause the issue you're experiencing.
- 2) What brand oven do you have, did you buy it new or used?
- 3) If you bought it used do you have any idea of what the finger configuration is for both the top and bottom?
- 4) Did this problem just recently begin or is it a problem right from the start?
- 5) The inclusion of 2% sugar in the formula might help too.

Due to your urgency, please give me a call tomorrow morning (1/29/18) at 10:30 a.m., my telephone number is 785-537-1037 (we are in the same time zone (Manhattan, Kansas) as you are so that we may discuss in greater detail.

Tom Lehmann/The Dough Doctor

[Re: Urgent Help Needed](#)

3188

You can get both aluminized steel as well as tin plated steel pans. The non-stick coating on the pans is a silicone based coating that is baked onto the pan, it is known as "glaze". All commercial bakery pans are glazed to aid in the release of the baked product from the pan. A few things to keep in mind about glazed pans, the glaze will have an expected release life of about 350 releases after which you will need to treat the pan just as you would any other pan. The glaze is not a true non-stick coating, but instead it facilitates improved release properties so you will still need to use oil in the pan, but here's the catch, silicone glazed pans DO NOT fare well with polymerizing oils, those oils which work well to season a pan should be avoided if you want to retain the properties of the glazing. Because the pans in question appear to have a bright finish (they can also be had in what is referred to as a "bake prep" finish which is darker in color) they should be seasoned but it is important that ONLY the outside of the pan be seasoned in the conventional manner, you DO NOT want the inside of the pan seasoned. The glazing on your pan cannot be replaced from a practical point of view, to recondition a glazed pan it must first be stripped in a chemical bath, then cleaned and straightened if

necessary, the new glaze is applied and baked to set the glaze. The process is so environmentally unfriendly that to the best of my knowledge, there is only one facility in the U.S. doing this so most of the work is farmed out overseas.

Tom Lehmann/The Dough Doctor

[Re: Tin Plated Steel - American Metalcraft](#)

3189

When you find it let me know as I've not discovered it yet. Dates are a sticky situation no matter how you "cut" it. If ya just gotta have them in bits 'n pieces you can buy them as chopped dates and save yourself a lot of trouble, that's how we did it in production when we made date nut cakes and muffins.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)

3190

Nope, no tricks, the only way to do it is just as you are planning to do...with brute force.

Tom Lehmann/The Dough Doctor

[Re: Question about pizza oven installation](#)

3191

Beth;

Yes it does. When I use dates though I just tear them apart with my fingers. I like the larger, irregular size pieces I get that way as it adds interest and flavor to the pizza experience.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)

3192

What do you place the pizzas on for the steam-off period?

Another reason for a soggy bottom soon after baking is insufficient bottom bake on the pizza which can be caused by baking at too high of a temperature or not baking the pizza long enough. The most common cause of this is use of sugar or too much sugar in the dough formula which results in fast crust color development which in turn results in short baking of the pizzas.

Tom Lehmann/The Dough Doctor

[Re: Soggy pizza on plate](#)

3193

Bill;

I agree with your concerns if mixing large size doughs in the KA mixer, but for those mixing smaller size doughs it might be just the ticket. If anybody opts to get one it might be wise to start small and then begin working up the dough size gradually until you know how it impacts the mixer. The outer scraper works just like the scraper used in the Hobart VCM mixers so one might say that this little device turns an average KA mixer into a hybrid cross between a VCM and a spiral mixer, leaning a bit more on the spiral mixer side of the equation. It looks to be a pretty nifty device.

Tom Lehmann/The Dough Doctor

[Re: Very Interesting new product](#)

3194

The problem we used to experience occasionally was when using strapped pans

and baking at a temperature high enough to melt the tin, with strapped pans you have 4 to 7-loaf pans joined together using a box frame around the top of the pans. If a formed (molded) dough piece was not dropped into one of the pans at the panning station (panner) it would go into the oven empty which would allow that pan to over heat in the oven which usually resulted in some melting of the tin plate which in turn ruined the entire strap of pans as the damaged pan would not release properly after being damaged resulting in loss of the entire strap (about \$45.00) and that was a good number of years ago.

Without anything in the pan to absorb heat the pan will continue to heat until it reaches the temperature of the oven, or until it is removed from the oven. The steel substrate has a melting point of around 2200F so it isn't going to melt. The dough that we put into a pan seldom rises above 206F, in some bakes the finished product temperature can rise to as high as 210F but that's about as hot as I've ever measured anything coming out of the oven.....the one exception being the time I left an angel food cake in the oven and forgot about it. The cake, if you want to call it that, was totally black and essentially welded itself to the aluminum tube pan it was being baked in but it never got above 385F which was the temperature that we were baking at. As long as there is moisture in the dough it will continue to cool itself through evaporative cooling, but once all the moisture has been baked out of the product the temperature of both the product and the pan rise quickly. Pizzas, by the way, come out of the oven at about 209 to 210F for thin crust and about 206 to 208F for thick crust, loaf breads come out at about 205 to 206F.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Tin Plated Steel - American Metalcraft](#)

3195

Cool!!! It looks like it effectively turns a planetary mixer into a spiral mixer complete with the breaker bar....could be a game changer.

Tom Lehmann/The Dough Doctor

[Re: Very Interesting new product](#)

3196

When making whole-wheat crust only whole-wheat flour should be used (100% whole-wheat flour). When making a "wheat" crust you can use any amount of whole-wheat flour you want to but best results will probably be had using 25 to 30% whole-wheat flour with the remainder being your regular strong white flour. Whole-wheat doughs DO NOT like to be fermented for long periods of time so limit the cold fermentation to not more than 48-hours. If making a multi-grain dough the multi-grain blend should be 25 to 30% of the total flour. Only the whole-wheat flour or multi-grain blend are used in the soaker. If you do not use a soaker it is impossible to get enough water into the dough and still be able to handle it. This is why I gave the procedure for finding the absorption of the whole-wheat flour or multi-grain blend. When making any kind of dough containing whole-wheat flour keep in mind that there are two basic types of whole-wheat flour used in bread and pizza baking, that made from hard red wheat varieties and that which is made from hard white wheat varieties. The flour made from hard white wheat varieties aka whole hard white wheat flour, is vastly superior flavor wise to that made from hard red wheat varieties. When formulating a whole-wheat/wheat/multi-grain dough use butter for the fat source for improved flavor.

Tom Lehmann/The Dough Doctor

[Re: Whole wheat](#)

3197

June;

The Infrared thermometers only read the surface temperature, not the internal temperature which is what you actually need to be measuring. In any case, those pizzas really look GREAT! Good Job! :chef:

Tom Lehmann/The Dough Doctor

[Re: What do I do with dough after the 3 day cold rise](#)

3198

We used to get all of our parts directly from Hobart in Troy, Ohio. You might contact Hobart (the only number I have for them is 937-332-2218) to see about parts and while you're at it, ask them if they can give you a date or year of manufacture based on the serial number. You might need it anyway to make sure you get the correct parts. An Internet search might show up a reverse spiral dough hook (cast aluminum alloy). Be wary of any coming in from Mexico as most of them are made from melted down automobile pistons which makes them hard and brittle...just what you don't want. Yes, they do have a splendid reputation for breaking.

Tom Lehmann/The Dough Doctor

[Re: Thinking about buying broken Hobart a120](#)

3199

I've worked with tin plated steel pans most of my professional career (more years than I care to admit to) in the baking industry. While tin does have a melting point of 600F you can safely bake pizzas in a tin plated steel pan at temperatures above 600F without fear of melting the tin off of the steel substrate, this is because we have dough in the pan which acts like a heat sink and prevents the pan from getting that hot. Just don't put an empty pan in an oven over 600F long enough for the pan to get heated up to oven temperature.

Unless you have good reason for not doing so, don't forget to season those tin plated steel pans for improved baking and release properties.

Tom Lrhmann/The Dough Doctor

[Re: Tin Plated Steel - American Metalcraft](#)

3200

You will want to take the dough out of the fridge and allow it to warm up to 60 F (whatever length of time that may take). Use a stem/dial type thermometer and insert it into the center of the dough ball to get an accurate temperature. Once the dough ball is at 60F you are ready to open the dough ball into a skin at any time within the next hour or so.

Tom Lehmann/The Dough Doctor

[Re: What do I do with dough after the 3 day cold rise](#)

3201

If you're mixing the dough until the gluten film comes "clear" you are over mixing your dough, this is especially true for a sourdough formula. Instead I suggest mixing the dough "just" until the dough begins to take on a smooth appearance, more mixing than that is not necessary nor desirable.

Tom Lehmann/The Dough Doctor

[Re: Sourdough pizza dough](#)

3202

In my opinion, the last two images show pizzas that are just barely done on both

top and bottom.

Tom Lehmann/The Dough Doctor

[Re: What am I doing wrong with my dough?](#)

3203

Welcome to the wonderful world of "J" hooks! Now you know why I hate those silly things. They only really work well when mixing a full size dough for the bowl capacity. BTW, it's perfectly normal for a dough mixer to jump around (we call it walking) while mixing a dough. This is why the larger Hobart bench top mixers are all designed to be bolted to the bench top. Even the floor mixers have provision for bolting them to the floor to keep them from walking. Most of the time we just glue the large floor models to the floor using a silicone adhesive as it works just as well. You can also do this with many of the smaller mixers to if they have a tendency to roam. Use a piece of 3/4-inch or 1-inch plywood a little deeper and wider than your mixer (the larger the better) and glue the mixer to it using any good quality silicone adhesive. You can buy 2 X 2 pieces of plywood at most box lumber stores, I just bought a piece at Menards for \$7.00. Remember, this does add a new dimension to the portability of the mixer though.

Tom Lehmann/The Dough Doctor

[Re: Problem when using a dough mixer](#)

3204

Depending upon the presentation you can also heat the plate to help REDUCE the amount of condensation. Pizza Hut used to do something like this many years ago when they served their deep-dish pizzas in the pan to the table with a hot disk under the pan. In a restaurant setting the easiest thing to do is to allow the pizzas to steam-off for a minute or so before serving, this helps tremendously as previously mentioned.

Tom Lehmann/The Dough Doctor

[Re: Soggy pizza on plate](#)

3205

I use 3 to 5% oil depending upon the protein content of the flour I'm using. My family says it eats like cotton candy, it's that tender. We like to reserve the chewiness for the thin crust pizzas and tenderness for the deep-dish and Detroit style pizzas.

Tom Lehmann/The Dough Doctor

[Re: Why No Oil - Detroit Style](#)

3206

One of the ingredients used in enrichment blends, like that added to flour or provided in tablet form, is reduced iron aka rust. The only issue I've ever encountered using rusty pans or baking directly on a rusty surface is a bit of a "funky" rust like flavor when the rust adheres to the product, like Craig said though, it's not dangerous though.

Tom Lehmann/The Dough Doctor

[Re: Can't keep my pizza steel from instant rusting](#)

3207

I like to slice before boxing but the majority of stores that I go into slice in the box.

Tom Lehmann/The Dough Doctor

[Re: Do you slice Pizzas in the box](#)

3208

I've made plenty of them too, usually forgetting to add an ingredient but once forgot a pizza in the oven until the smoke alerted us to the fact that something might be wrong in the kitchen. Always said "I sure won't do that again" WRONG! The good news though is that those mistakes, while far from perfect, were still edible.....except for the smoky one, it was beyond salvation. :-D

Tom Lehmann/The Dough Doctor

[Re: Ever make Dough Mistakes?](#)

3209

When using dates I normally don't chop mine, I just cut them cross wise into slices about 1/8-inch thick and put them on the pizza just like that.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)

3210

Whenever we added oil to the dough during the mixing process it just coated the outside of the dough ball which caused it to just slide around in the bowl getting essentially no mixing action at all.

Tom Lehmann/The Dough Doctor

[Re: New KitchenAid Mixer Dough Hook Question](#)

3211

With regard to terminology, proofing/proving the dough takes place after the dough has been formed for making the final product. For example, bread dough is formed into a loaf shape and placed into a bread pan and allowed to proof aka rise for approximately 60-minutes before it is baked. Deep-dish pizza dough is opened, placed into a pan and allowed to proof/rise for a period of time before being dressed and baked.

If the discussion is on "fermentation", while the word is all encompassing meaning that fermentation is taking place from the time the yeast begins feeding and generating leavening gas (carbon dioxide, alcohol, and acids) until it is killed when it reaches the thermal death point in the oven (about 145F/62.7C) in conversational terms we refer to fermentation as the time the dough is exposed to the effects of fermentation beginning when the dough is removed from the mixer until it is formed in some manner and placed into a container and allowed to "proof" or "rise" prior to baking.

The amount of fermentation that the dough is exposed to will impact the flavor and aroma of the finished product as well as the mastication properties due to its weakening effect upon the wheat proteins. Too much fermentation can result in a strong, or sharp flavor (think sourdough as an extreme), it can also result in dough that is overly extensible and difficult to impossible to handle or open into a skin, and when it comes to baking, an over fermented dough might run out of nutrient for the yeast to feed upon which will result in a "dead" feeling dough that is overly extensible and exhibits little or no oven spring properties during baking. On the other hand, a dough which is subjected to less fermentation, or too little fermentation may exhibit excessive dough memory/snap-back during the opening/forming process, it may also be overly prone to bubbling or exhibit too much oven spring during baking. Finished crusts will typically have less flavor or lack what many describe as a "complexity in flavor" which in many cases is described as "bread like". Because the protein hasn't been as affected by fermentation the finished crust may exhibit unwanted toughness or chewiness. This is especially evident in thick crust/pan style pizzas.

What influences fermentation? More than I can cover here, but the basic drivers are dough temperature, environmental temperature, time allowed for fermentation, amount of yeast, condition/quality of the yeast, nutrient availability, and salt level are the main drivers.

All things being equal, the lower the protein content of the flour the more impact you will see due to fermentation within any given period of time, this is why we typically see doughs that will be subjected to long fermentation times being made using a high protein content flour, usually in the 13 to 14+% range.

Tom Lehmann/The Dough Doctor

[Re: I need to understand over and under proofing](#)

3212

Like cast iron, steel will also rust but a good seasoning (not removed or ever washed) will do an excellent job of preventing the rust as it forms a type of varnish on the entire surface which seals it from air/oxygen thus preventing the formation of oxidation/rust.

Tom Lehmann/The Dough Doctor

[Re: Can't keep my pizza steel from instant rusting](#)

3213

We really need more information on your "bakery" oven. For example, what kind of oven is it (traveling, reel, deck, etc.)? What kind of deck/shelf surface does it have (steel, composite, grid)? Direct fired or indirect fired? Is it gas or electric? Any pictures? Once we know what kind of oven you have we can make better recommendations as to what you will need to do to improve the quality of your pizzas.

Tom Lehmann/The Dough Doctor

[Re: Using a bakery oven for pizza](#)

3214

She's just being a purist, that's all.

Tom Lehmann/The Dough Doctor

[Re: Is this really a thing?](#)

3215

When it comes to controlling yeast activity/fermentation rate temperature trumps dough absorption every time. Plus changes in dough absorption will also impact other physical crust characteristics much more than changes in temperature will when looking at the big picture.

Tom Lehmann/The Dough Doctor

[Re: Impact of Dough Temperature When Opening the Dough Ball for Baking](#)

3216

I never have been nor do I plan on becoming an advocate for pizza delivery due to any number of reasons from pizza quality, store space required, insurance costs to liability (what are your chances of being named in a suit if your driver is involved in an accident?). With a delivery only store you don't have many options but you can reduce your liability by contracting your drivers through a service which makes sure the drivers have safe/inspected vehicles, sufficient insurance, are properly licensed, etc. The bonus is, in the event of an accident, they will take the brunt of the litigation costs and responsibility, not you. Get a contract in writing and have your attorney check it over.

My two cents worth.

Tom Lehmann/The Dough Doctor

[Re: Delivery practices?](#)

3217

For small dough sizes a food processor is hard to beat in both performance and price.

Think of it as a glorified VCM (vertical cutter mixer) or Robot Coupe Mixer.

Tom Lehmann/The Dough Doctor

[Re: Need help choosing KA mixer...](#)

3218

The older A-120s (more than 50-years old) had really good motors, much better than the newer ones) but they also had a fiber type sacrificial main drive gear. This gear, while being sacrificial, was actually pretty stout and held up quite well, much better than many of the "plastic" gears being used today. There is a distinct possibility that this might be the only problem if the motor is running but power is not going to the agitator shaft. When I was at AIB we had one of these gears fail back in the early 70s so we replaced all of the sacrificial gears in both of our A-120 mixers with a replacement bronze gear and they were still running fine when I retired several years ago, mind you that these mixers were mixing all kinds of bread doughs on a daily basis so that speaks highly for these mixers. I might note that when we moved from Chicago to Manhattan, KS in the mid 70's we got new A-120s to replace our old ones but soon brought our old mixers out of retirement as the new ones were what we fondly referred to as "gutless wonders" in reference to the motors with which they were equipped. The "new" mixers were relegated to mixing cake batters and cookie doughs, a task for which we felt they were well suited while our old A-120s were put back into use for mixing bread doughs a task for which we felt they were well suited.

Just my experience and observation.

Tom Lehmann/The Dough Doctor

P.S.

Does the mixer you are looking at have the bowl and any attachments? The bowl and all attachments are dedicated 12-quart accessories specific only to the A-120. Also, there is a reverse spiral dough mixing are available for the A-120 too, a HUGE improvement over the "J" arm/dough hook supplied with the mixer.

TDD

[Re: Thinking about buying broken Hobart a120](#)

3219

In adding "another log onto the fire" dates are something else that really works well on pizza, you don't even recognize them as dates when they are use as a pizza topping. I used them first when I was working in Saudi Arabia and then I used them again when working for a pizzeria in southern California, it was date season (fall) and we wanted to promote dates.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)

3220

Actually, the more sugar you can add to a dough that is to be frozen the better the dough will be. This is because both salt and sugars are solubles which depress the freezing point of water which helps to mitigate some of the ice crystal damage to the yeast cells. It is not just a number game though, remember, all of those

damaged yeast cells will be releasing the glutathione contained within each cell, this glutathione will act on the protein to weaken the dough much like L-cysteine (PZ-44) does. This is even available commercially and is known as "dead yeast aka RS-190". This weakening of the dough by the glutathione is addressed, in a commercially frozen dough through the addition of oxidation to the dough which is usually in the form of micro-encapsulated ascorbic acid, azodicarbonamide, potassium bromate (though not very well accepted by consumers) and bromate substitutes/replacers which are far more consumer friendly.

Tom Lehmann/The Dough Doctor

[Re: Freezing Pizza dough](#)

3221

A great 5-quart capacity dough mixer is the Hobart N-50 mixer. It has 3-speeds, all metal gears and it is considered to be the Clydesdale of all the small Hobart mixers. We used them for many, many years at AIB and never once did they ever require any servicing.

Tom Lehmann/The Dough Doctor

[Re: New KitchenAid Mixer Dough Hook Question](#)

3222

We work with thin slice apples all the time and they work just great! Be sure to soak the apple slices in some lemon water though to prevent them from browning after slicing. Granny Smith apples are the preferred apples, but just about any apple will work. Be sure to leave the peel on for the added flavor.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)

3223

The problem stems from a poor hook design...other mixers with a plain "J" hook design similar to yours have the same problem. A couple of things you might try;

1) Mix at a higher speed.

2) Initially use a agitator designed for batter (NOT the whip) and when the dough begins to develop change to the hook and mix at a speed just fast enough to through the dough off of the hook.

3) In many cases the problem can be diminished by mixing a larger size dough.

I would try #1 first. The higher speed will not harm the dough, it will actually give you better gluten development, but listen to your mixer, it will tell you if it is working too hard to mix the dough.

If you use #3 begin your mixing at a lower speed to see if things improve (many time it will) and go to a higher speed ONLY if the dough continues to cling to the hook. Be careful though as the larger dough will put a greater load on your mixer, especially when you mix at a higher speed.

Tom Lehmann/The Dough Doctor

[Re: Problem when using a dough mixer](#)

3224

And don't forget that a lot of the success with frozen dough depends upon how long the dough is frozen. Assuming that the dough is slow/static frozen with the temperature range of +10 to -10F the dough will exhibit a frozen shelf life of 10 to 15-days during which it will produce acceptably consistent performance characteristics, with storage times beyond that performance becomes spotty and inconsistent at best. In order to achieve maximum frozen shelf life (12 to 21-weeks) the dough must be blast frozen either mechanically (-20 to -35F) or cryogenically

using an industrial cryogen gas such as liquid carbon dioxide or nitrogen (-50 to -65F). The lower freezing temperatures allow for the development of a smaller ice crystal size within the yeast cells which is less damaging to the cells. In a home setting we also have to take into account the impact of freeze-thaw which is induced by the frost-free feature of our 5-star energy rated freezer. The effect of constant freeze-thaw (as many as 24-cycles in a 24-hour period) is extremely deleterious to the viability of the yeast in a dough after frozen storage.

Tom Lehmann/The Dough Doctor

[Re: Freezing Pizza dough](#)

3225

It does sound like you are putting a lot of work into rounding the dough balls, I fold the dough three, maybe four times at the most and then finish rounding on the counter top. With that said, my dough NEVER leaves the counter top for the entire rounding process. If you pick the dough up during rounding it is much easier to round the dough too tightly. I've never worried about the gas bubbles in the dough when making pizza, bread dough yes, but not pizza dough as those bubbles will help to give me the open, porous crumb structure in the finished crust that I'm looking for. If you go to my web site <www.doughdoctor.com> you will be able to view one of my videos/How to Make Pizza Dough/Part-2 and see a demonstration on dough rounding. In the video you can see how we do not round the dough ball very tightly.

Tom Lehmann/The Dough Doctor

[Re: air pockets in my dough balls](#)

3226

Mitch;

That sounds right to me too.

The dough was easier to open because of both the additional fermentation (yeast ferments faster as the temperature rises) and due to the temperature effect upon the wheat proteins (making them softer and more extensible).

Tom Lehmann/The Dough Doctor

[Re: Impact of Dough Temperature When Opening the Dough Ball for Baking](#)

3227

Is there a possibility that you might be trying to ball the dough too tightly? When I make bread I follow a procedure similar to what you are doing, I ferment the dough in a lightly oiled bowl, and invert it onto a lightly floured surface, I then slap (spanking the dough is what my wife calls it) a few times to degas and relax it, I then ball it while incorporating as little work into the dough as possible and this works fine for me. When opening the dough into a skin try the same procedure. If the dough ball doesn't deflate to some extent when you begin opening it into a skin the dough is either not yet ready to be opened or it might be that it has been over fermented and now getting "bucky", a condition where the dough is no longer extensible but is too elastic to be opened, and if you should succeed in opening it into a skin it will exhibit pronounced memory/snap-back characteristics.

Just a thought.

Tom Lehmann/The Dough Doctor

[Re: air pockets in my dough balls](#)

3228

When dough balls are opened after they have reached a higher internal temperature it is because of the impact of the temperature directly upon the

dough. As wheat based doughs warm they become softer and more extensible until they begin to break down at about 100F. This is NOT due to the release of glutathione but instead it is due to the disassociation of the wheat protein (gluten) at the higher temperatures. This is why commercial bread proofers operate at 100 to 103F. This temperature allows for the maximum expansion rate of the dough but still allowing it to retain sufficient strength to withstand the mechanical transfer points on the production line, even then, dough strengtheners are commonly added to supplement the dough strength and improve oven spring properties.

For glutathione to be released from the yeast cells you must, in some manner, collapse the cell membrane, this can be done in a number of ways:

1) slow/static freezing the yeast after it has been feeding/fermenting for a period of time (large, angular ice crystals puncture the cells allowing for the release of glutathione).

2) Exposure to heat, temperature above 135F will kill the yeast and allow for the release of the glutathione (this is how products like RS-190/"dead yeast" are made.

3) Starving the yeast will result in the yeast cannibalizing and feeding upon other yeast cells thus resulting in the release of glutathione.

These are the most commonly encountered ways that glutathione is released from the yeast cells. Letting the dough warm from 65 to 75F will not result in the release of glutathion.

Tom Lehmann/The Dough Doctor

[Re: Impact of Dough Temperature When Opening the Dough Ball for Baking](#)
3229

Sounds interesting! To thicken the sauce you might try using grated Parmesan cheese, giving you something a little like an Alfredo sauce, as for dressing the baked pizza with spinach....sounds GREAT!

Keep us posted.

Tom Lehmann/The Dough Doctor

[Re: Would this topping combination work?](#)
3230

I don't use added salt either, I haven't for more than 25-years now and indeed, most prepared foods are WAY too salty for my taste, and I totally agree that you can pick-up on flavors that you previously couldn't detect. Because of this I was one of the more "popular" persons on our sensory panel as I could detect things that were un-noticed by many of the other panel members. Since I don't add any salt to my sauces (only to the dough) I always advise people to feel free to use the salt shaker if they so desire as I have not used any salt in the preparation of their pizza.

Surprisingly, very few people do add any salt to the pizza as the natural flavors carry the flavor profile (think Mrs. Dash) and in reality, the cheese provides all of the salt needed for a well rounded flavor profile.

Tom Lehmann/The Dough Doctor

[Re: Sauce: To salt or not to salt](#)
3231

What does the bottom of your pizza look like? Also, if you can provide a picture of a cut slice of the pizza which is taken as a side view so we can see what the crumb (grain) structure looks like this would help in determining if the dough fermentation is correct.

Your scaling weight is OK for a 30cm/12" diameter pizza.

If the side view of the crumb structure shows any collapse this might be a cause for the toughness/chewiness being experienced. The bottom color would also provide

an indication as to whether the pizza is being properly baked. This is important as an under baked pizza quickly takes on tough, chewy mastication properties. If you are just trying to impart a more tender eating characteristic to the pizza the inclusion of 2% oil/fat to the dough formulation will also help (fat is classified as a tenderizer). Think of the eating properties of French bread (no fat), now think of white pan bread (4 to 6% fat).

Tom Lehmann/The Dough Doctor

[Re: What am I doing wrong with my dough?](#)

3232

Need more information:

- 1) What is the dough weight and what size skin are you opening it into ?
- 2) What is your baking platform (deck, screen, disk, pan, etc.?)
- 3) What is your baking temperature?
- 4) Typical baking time to get a "cooked"/baked pizza?
- 5) Can you provide us with any pictures (top and bottom) of your pizzas?
- 6) You do realize that you are using 5% salt...right? This is about twice the amount normally used in making pizza dough.

Tom Lehmann/The Dough Doctor

[Re: What am I doing wrong with my dough?](#)

3233

While some may combine dough balls to make different size pizzas I don't like to do it because it always results in variations in the dough as it is more difficult to open than a single dough ball of the correct weight, the biggest issue we have seen is in getting an even thickness across the dough skin. My recommendation is to make dough balls of specific weight for each size pizza you intend to make. When properly managed you can make and use the dough after 1, 2 or 3-days without any problem, if you don't intend to use the dough balls prior to the first or second day after mixing the dough you can extend the holding time out to 4 or 5-days. It just depends upon how much refrigerated space you have for dough storage and how you want to manage the dough.

Hamburgers and hot dogs with pizza? We have found that these items are in direct competition with pizza so what you end up with is doing three times the work and equipment investment for (pizza, hot dogs and hamburgers) the same in sales as you would get from just the pizza alone or depending upon your customers, either one of the other two. If it were me, I'd do just the pizza, mighty fine pizza too, but that's just me.

Tom Lehmann/The Dough Doctor

[Re: Space between pizza table and electric oven.](#)

3234

To answer the question on why the sauce became watery after an extended frozen storage period this is most likely due to the effects of a frost free freezer on the cells of the tomato product used in making the sauce. Slow/static freezing results in a very large ice crystal formation which destroys the cells in the tomato which hold the juice (some refer to these as "juice sacks"), similar to what we see in citrus fruits (remember that the tomato is a fruit). The simple act of just slow/static freezing the tomato will destroy many of those juice sacks, but when you add in the impact of defrost and freezing MANY times such as is the case with a frost free freezer (the higher the Energy Rating the worse it is) the sauce becomes almost like water and you can see this in the syneresis that take place if you put a spoon full of sauce on a china plate and wait about 15-minutes. This is why those of us

who grow our own tomatoes in an area where freezing temperatures signal the end of the growing season ALWAYS pick the last of our tomatoes prior to the first frost of the season.

Tom Lehmann/The Dough Doctor

[Re: Nwin's pizza journey](#)

3235

All planetary mixers are NOT created equal, some are better suited to mixing tough doughs than others, if I was going to look for a planetary mixer for mixing a tough pizza dough I would limit my search to either of two Hobart mixers, the P-660 (40-qt.) or the M-80 (80-qt. and scarcer than hens teeth) or the newer model of the M-80, the M-802. These mixers have the guts to mix doughs based on up to 50-pounds of flour weight, any other mixer in my opinion is really just a light duty or medium duty mixer. Keep in mind that the M-802/M-80 mixers can also be fitted with smaller size mixing bowls using a bowl saddle and correct agitator. Make sure you get a reverse spiral dough arm too if you look to buy a used mixer.

Tom Lehmann/The Dough Doctor

[Re: Fork mixers](#)

3236

If that will be your prep area it is much too small. Can you tell us what your product mix (other products aside from pizza) is going to be? What size pizzas are you planning to make? Will you be using a baking platform or baking right on the deck?

Tom Lehmann/The Dough Doctor

[Re: Space between pizza table and electric oven.](#)

3237

Something you might want to try, we have done this commercially with sourdough and it works reasonably well. When you open the dough into skins place it into a lightly oiled pan, a cutter pan works quite well for this (be sure the pan is well seasoned) and set it aside to proof for an hour or more, then dress the skin in your normal manner and bake just long enough so you can slide the pizza out of the pan to finish baking on the oven deck/stone. The proofing time won't give you tons of oven spring (I don't know what your expectations are) but it will help to open the crumb structure producing a "lighter" textured finished crust.

Tom Lehmann/The Dough Doctor

[Re: sour taste + oven rise, how can we have both ?](#)

3238

Planetary mixers by design have a difficult time mixing stiff doughs due to the fact that the agitator is being driven through the dough whereas the spiral design mixers are only mixing a small portion of the dough at any one time so there is much less force applied to the mixing agitator (spiral), this is also why they can be had in large capacities (for a bowl type mixer) and they are possibly the most trouble free of all the mixers.

Tom Lehmann/The Dough Doctor

[Re: Fork mixers](#)

3239

Angelo;

Google "ARTOFLEX DOUGH MIXER" this is a type of mixer that emulates hand mixing much in the same way as a "fork" type mixer does.

Tom Lehmann/The Dough Doctor

[Re: Fork mixers](#)

3240

If you are constantly cutting the dough off of the agitator just go up to the next higher speed. Variations in dough absorption as well as dough size are what have the greatest influence on ability to mix at the higher speeds.

Tom Lehmann/The Dough Doctor

[Re: New KitchenAid Mixer Dough Hook Question](#)

3241

Nice looking pizza! Great bake on it too!

Tom Lehmann/The Dough Doctor

[Re: The dreaded sliding cheese.....](#)

3242

The bay leaf approach might work if we were concerned over insect infestation from the outside but what we are really concerned about is infestation from the inside. Most home flours have been sitting in a storage depot or on the shelf for some period of time so they are exposed to conditions ripe for infestation, plus there is also the probability that all of the existing insect eggs were not destroyed during the milling/processing of the wheat into flour, these eggs will hatch within a month or so at warm temperatures to produce the larvae that is commonly referred to as "worms", these mature into adult, breeding insects which then lay eggs and the cycle begins. A common infestation, aside from flour and cigarette beetles is the Indian Meal Moth, this little critter forms a web in the flour causing it to clump or have the appearance of clumped flour, when you see this you know you have a problem. Aside from insect infestation we also have flour oxidation to contend with, this is a very real phenomenon which results in a change in the flavor profile of the flour as well as a change in the way it performs. In this case the oxidized flour performs as a much stronger flour which could be good or bad. In home pizza making this flour acts like an over bromated flour which when made into a dough exhibits excessive memory/snap-back characteristics. This characteristic is even present in some freshly milled flour which was milled at the end of the crop year (spring wheat flour is planted in the spring and harvested in the fall so the end of the spring wheat crop year is in June, July and August for the most part) this is because the wheat used to make the flour has been in silo storage since harvest and has already oxidized to a great extent, then when the wheat is milled into flour the surface area increases tremendously opening the door for even more oxidation to take place between milling and final use.

Can you buy a small chest freezer? I've got a small one that I picked up a couple of years ago at a thrift store for only \$50.00. It's smaller than the desk that I'm typing this from but it stores all of my pizza making supplies with some room to spare. Right now I've got about 35-pounds of flour in there (portioned into plastic bags) with 5-pounds in each bag, Some cheese that I picked-up recently on sale, frozen tomatoes as well as dehydrated tomatoes from our summer garden and a few containers of sauce from when I made calzones for the family over Christmas (a tradition in our house). Because I'm not into the freezer all the time the top of it also serves as a storage space for a couple of plastic milk crates containing my pizza making utensils and a bunch of old towels for clean-up and an assortment of pans, screens and disks.

Tom Lehmann/The Dough Doctor

[Re: Flour repackaging ideas solicited](#)

3243

Being a "south sider" I grew up on Ed and Joe's pizza (still in business today) in Tinley Park (175th street/south). Another good place to see this type of pizza is at one of the Beggar's Pizzerias (the one we used to go to was located at about 150 south on Cicero Avenue in Oak Forest.)

Tom Lehmann/The Dough Doctor

[Re: Best method to add IDY to 35-37% hydration dough?](#)

3244

I'll be at Pizza Expo as I'm on the program...stop in at my presentation and say "Hello".

Another excellent, though not as large, but cheaper to attend and it is pretty well open to anyone, is the show sponsored by the Ohio Restaurant Association. Since I'm not participating in that show I don't have any particulars but you can get the show details directly from the Ohio Restaurant Association web site. Their show is coming up real soon. I believe that Norma may have attended the show a few years ago?

Tom Lehmann/The Dough Doctor

[Re: Pizza Expo](#)

3245

I agree with Andy, you are probably using too much sauce. The use of a sauce that is too watered down can also contribute to the problem too. The next time you make pizza use only half as much sauce on your pizza(s) to see if that works for you. If it does and you still want more sauce begin increasing the amount of sauce on your pizzas until you find the "sweet spot" where you have the maximum amount of sauce but the cheese doesn't slide off with the first bite. Since all pizzas are different the amount of sauce for any one size pizza will vary, you just need to find the amount that works for YOU.

Tom Lehmann/The Dough Doctor

[Re: The dreaded sliding cheese.....](#)

3246

If anybody is interested in learning a lot about fermentation, function of ingredients and different commercial bread making processes (many of which are very similar to what is used in making bread and pizza at home) look into getting a copy of Baking Science and Technology by E.J. Pyler. You should be able to find it on Amazon or even in your local library. This book was required reading by our Baking Science and Technology (resident) students when I was employed by the American Institute of Baking (AIB).

Tom Lehmann/The Dough Doctor

[Re: 0.06% IDY](#)

3247

When I was at AIB we once had a Director in our Food Safety Group that used to say "If it wasn't for the oven, bakers would have poisoned mankind thousands of years ago" People get sick (the lucky ones) eating raw cookie dough and raw cake batter (had a case in the news resulting from eating raw cookie dough last year) but ever notice that no one ever gets sick eating the baked cake or cookies.....unless they eat too many, but that's a different story. Fire is indeed our friend when it comes to food safety!

Tom Lehmann/The Dough Doctor

[Re: Extended autolyze for Square pie](#)

3248

After baking allow the crusts to cool to between 95 and 105F / 35 and 40.5C before wrapping them. Due to the HUGE surface area of the edges you will always see more moisture loss from the edges during the baking and cooling period. There isn't much you can do about the bake loss but by wrapping then within this temperature range you will do a lot to help retain some of that water the gums are carrying for you in the dough. This is why we do the same thing with sliced bread and hamburger/hot dog buns, to help retain moisture.

Tom Lehmann/The Dough Doctor

[Re: Parbaking Thick Crust](#)

3249

Irishboy;

The only similarity between oil and water in a dough application is that they are both liquids at "normal room temperature". Water combines with the proteins in the flour (glutenin and gliadin) which when agitated, forms that rubbery stuff which we call "gluten", oil on the other hand can soak into the flour and the proteins but gluten will not be formed no matter how much the dough is mixed. Water is lost during the baking process (bake out) but oil is not lost so any oil added to the dough is still there after baking regardless of how much the dough/pizza is baked. So how does oil get tossed into the dough absorption bag? Remember, they're both liquids and as such both contribute to the viscosity of the dough, so if we are talking ONLY about the viscosity of the dough you might say that oil and water are similar and part of the absorption picture but that's where all ends, beyond that if you add too much water to the dough it isn't catastrophic as some of that water will be baked out. Actually, the average finished moisture content of a thin pizza crust is about 30% regardless of the amount of water that is added to the dough (absorption) but as oil is not baked out it also serves to make the finished (baked) crumb portion of the crust softer and if too much is added it will make it down-right gummy (pasty). In dough formulation oil is known as a tenderizer and also as a crumb softener, due to the fact that it repels water it also impacts the mouth-feel and mastication properties of the crust making it seem less dry and more tender eating (tenderizer). The ability of the oil to repel water also reduces the ability for moisture from the top of the pizza to migrate down into the dough both during and after baking and in that manner help to mitigate the development of that old "dreaded gum line" in the finished pizza, especially if we per-sauce or pre-dress the pizzas in advance of baking. This is why I do not consider oil as part of the dough absorption value, it just has too many other functions in the dough which are very unlike those provided by water.

Additionally, when formulating a dough in bakers percent flour is ALWAYS 100% then we decide how much water we want/need to use and divide that amount by the total flour weight to show it as a bakers percent, then we do this with each of the other ingredients, including the oil, and show the amount used in bakers percent.

I might also add that as oil will soak into the flour (proteins) rendering them unable to create "gluten" we developed the delayed oil addition method of dough mixing where the dough is mixed without the oil just until the flour has absorbed all of the water, we then add the oil and continue mixing until the dough is "just" smooth. This allows the flour to "hydrate" on only the water to give consistent gluten development.

Tom Lehmann/The Dough Doctor

[Re: Hydration %](#)

3250

Don't forget to include your dough formulation too.

To add to what "the1mu" said, sometimes we get desensitized to flavor after a while (it happens to the experts too) and we lose track of where we're at with regard to developing the flavor we're looking for, this is where a good base line comes into play as it can be used as a reference point in determining exactly where one is at flavor wise. Then too, maybe you need to go the sourdough route to get the flavor profile you're looking for??

Tom Lehmann/The Dough Doctor

[Re: NY Pizza Dougg](#)

3251

Mixed with cold water, stored at room temperature or under refrigeration? How many hours?

Tom Lehmann/The Dough Doctor

[Re: Extended autolyze for Square pie](#)

3252

Adam;

I'm sorry but I can't help you on this one as I have relegated myself to using only plastic food bags/bread type bags for storing my dough in. Nothing to clean and nothing to store, plus one size fits all. I'm sure others here will be able to direct you to the dough storage tins you have requested.

Tom Lehmann/The Dough Doctor

[Re: Metal dough retarding tins](#)

3253

Lou;

Personally, I like to add it to the water.

Toim Lehmann/The Dough Doctor

[Re: mixing dry ingredients with food processor](#)

3254

One could sauce all the way out to the edge? If bubbles and char are the issue I would look more closely at how the pizza is being baked, maybe lower the temperature a little, or experiment using a screen under the pizza for part of the bake, then to look at the dough formula, maybe deleting any sugar, milk, eggs or other ingredient which would encourage crust browning would help. A number of years ago I consulted with a fellow who wanted to develop a pizza with a lot of sauce (maybe similar to yours) but he objected to the sauce rolling off of the pizza during baking. Our solution way to begin baking the pizza in a well seasoned cutter pan (40-degree raised shoulder on the pan) and then transfer the pizza to the deck to finish baking, it worked well as the now raised edge was off of the deck so it didn't get too much color but the bottom was nicely browned. Do I see some experimenting in your future? :chef:

Tom Lehmann/The Dough Doctor

[Re: A little more crisp...](#)

3255

Since the purpose of an autolyze is to allow time for the flour to fully hydrate if the flour is being fully hydrated in 1-hour you most likely won't see any real difference

after 10-hours. If you hold it at room temperature you conceivably could be making a petri-dish out of the autolyze and growing? This is especially true when no yeast is used. When yeast is used there is also fermentation which impacts the flavor of the finished crust as well as potentially impacting the handling and performance characteristics of the dough and the acids formed by the yeast during fermentation help to control any unwanted microbial growth. A way to get around this is to place the autolyze in the fridge where temperature will help to stabilize it.

Tom Lehmann/The Dough Doctor

[Re: Extended autolyze for Square pie](#)

3256

Only if one were to get over zealous with the application of the oil. If you can see a shine on the surface of the skin you have enough oil applied. Too many people try this using a brush as if they're painting a house, or worse yet, they spray the oil on, you just want to "dry" brush the oil on, try to oil the skin while using as little oil as possible. We do this all the time and never have any problems....except when someone gets carried away with the oil addition, then the problem is oriented around the toppings slipping on the baked pizza, we have never seen a gum line result from excessive (within reason) oil addition.

By the way, this is the secret to making French bread pizza while keeping the sauce from being absorbed into the crumb of the bread.

Tom Lehmann/The Dough Doctor

[Re: A little more crisp...](#)

3257

Lou;

Keep in mind that if you use IDY or ADY it MUST be hydrated/activated prior to addition when the total mixing time is less than 4-minutes. Even when we use CY (compressed yeast) in a VCM (vertical cutter mixer) I like to suspend the CY in a portion of the dough water prior to addition. CY can be suspended in cold water BUT ADY or IDY MUST be hydrated/activated in 100F water for ADY or 95F water for IDY (about 5-times the weight of the dry yeast as warm water is sufficient).

Tom Lehmann/The Dough Doctor

[Re: mixing dry ingredients with food processor](#)

3258

Actually, it is more effective than using oil/fat in the dough formula since it puts less oil into the dough and it puts the oil exactly where it's needed to prevent moisture migration from the sauce and toppings into the dough/crust.

Great point, I'm glad you brought it up. :)

Tom Lehmann/The Dough Doctor

[Re: A little more crisp...](#)

3259

There is no benefit to trying to refrigerate a bulk dough mass much over 2-Kg. in total weight as it will literally take days in the cooler to stabilize the rate of fermentation. My suggestion is that you handle a few dough balls in this manner from your next dough just to see if you like what it provides for you, then you can decide if you want to make a change and buy another cooler or stay with what you are presently doing.

Tom Lehmann/The Dough Doctor

[Re: No knead "foolproof" pan dough.](#)

3260

Absorption is the amount of water that you add to the dough to achieve a desired dough consistency. The math looks like this: 12500 X 62 (press the "%" key and read the amount of water to add in the display window (the answer will always be in the same weight units as the flour is shown in) so in this case the answer is 7,750 g.

Those holes are nothing more than gas bubbles resulting from the fermentation process. If you want to use a different process try this one:

- 1) After mixing the dough allow it to rest for 30-minutes.
- 2) Turn the dough out of the tub and scale into desired weight pieces.
- 3) Form into balls.
- 4) Oil each dough ball and place into individual plastic food bags (DO NOT USE ZIP-LOCK BAGS).
- 5) Twist the open end of the bag to form a pony tail and tuck it under the dough ball as you place it into the cooler (they can be placed on a sheet pan for easier handling)
- 6) Allow the dough to cold ferment for 24-hours. It can be fermented for as long as 48-hours if kept in the cooler.
- 7) To use the dough, roll the bag down to the dough ball and invert the dough ball allowing it to fall free from the bag onto a floured surface. Bags can be reused.
- 8) Lightly oil your hands and carefully open the dough to fit into your pans.
- 9) Place opened dough into pan and fit to the pan.
- 10) Set pans aside for 30-minutes (cover with a sheet of plastic) to further relax.
- 11) Final fit the dough to the pan and set aside again to final proof to the desired height, dress and bake.
- 12) If you want to hold the pan proofed dough in the fridge only PARTIALLY proof the dough (DO NOT GIVE IT FULL PROOF) as it will continue to proof in the cooler for some undetermined time. Every shop is different so you will need to experiment to find the correct amount of pan proof for YOUR shop. After the dough has been partially proofed (normally around 20 to 30-minutes) place the pans of dough in the cooler (UNCOVERED) for one hour, then cover to prevent drying. Placing the pans in a wire tree rack and covering with a plastic bag is an excellent option for covering the dough. The dough will keep for the remainder of the day or if made at the end of the day it can be used FIFO on the following day.
- 13) To use the panned dough just remove from the cooler, dress and bake.

NOTE:

Those "bright" silver colored pans are not the best for a deep-dish or pan style pizza, they really need to be seasoned to achieve a darker color which will absorb heat rather than reflect it during baking.

Tom Lehmann/The Dough Doctor

[Re: No knead "foolproof" pan dough.](#)

3261

When our boys were MUCH younger than they are now we used to visit Pizza Hut twice a month to get a large (16") deep-dish pizza. I discovered if we went there on Friday night (our usual pizza night out) after 7:00 p.m. they would be out of 16" dough ready to use (remember, this is when they mixed the dough, panned it and proofed it all right in the store) so they would substitute two regular deep-dish pizzas (12") for the 16". Let's see....16" pizza = roughly 201 square inches and two 12" pizzas = 113 square inches each for a total of 216 square inches. For the same money the two 12" pizzas gave us about 8% more pizza. Remember, we can use the same math to estimate dough weights for different size pizzas as well as sauce and cheese weights too.....ain't math GREAT?!!!!

Tom Lehmann/The Dough Doctor
[Re: Pizza Size - bang for your buck](#)
3262

For what you are doing I think your dough absorption might be a little high at 68.75%, I would suggest dropping it back to maybe 62%. Also, you don't indicate what the finished dough temperature is. It should be between 75 and 80F for what you are doing. The pictures which you provided show a very undeveloped dough. Biochemical gluten development is used to develop the gluten in doughs like this BUT you need to allow sufficient time for this to take place. Typically, you will need a minimum of 6-hours to get sufficient gluten development. After 6-hours bulk fermentation at room temperature scale and ball the dough then set the dough balls aside to continue fermenting until the dough is sufficiently relaxed to be opened easily to fit the pan. Then lightly grease the pans and then add your oil...yes, use both shortening (grease) and oil. once the dough has been opened and fitted to the pan set it aside for about 20 to 30-minutes and re-fit the dough to the pan (it will have most likely pulled away from the sides of the pan), allow the dough to proof in the pan for about 20-minutes (time will be variable) then put the panned dough into the fridge (uncovered) to cool for about 1-hour, cover or place into a wire tree rack and cover with a food contact approved plastic bag to prevent drying. The dough can easily be held for the better part of a day in this manner. I have a dough formula and procedure for making this type of dough in the Recipe Bank at PMQ. It's shown under pizza dough/home made.

Tom Lehmann/The Dough Doctor
[Re: No knead "foolproof" pan dough.](#)
3263

When we use a poolish using whole-wheat flour we typically use no more than 0.05% IDY. The idea here is to allow the flour time to fully hydrate, you really don't want to allow the whole-wheat flour to ferment very much at room temperature as this will allow for enzymatic activity as well as bacterial activity (whole-wheat flour tends not to be as clean as a patent type bread flour). This is due to the presence of the outer seed covering aka bran. One other thing to keep in mind is to use only freshly milled whole-wheat flour as it contains the germ portion of the wheat berry which is not very stable and turns rancid quite fast. This is why in previous posts I've highly recommended that if you open a freshly milled bag of whole-wheat flour the remainder should be frozen for best keeping properties. The baking industry considers the shelf life of whole-wheat flour to be not more than 2-weeks from time of milling. This is one of the reasons why it is commonly reported that freshly milled (home milled) whole-wheat flour provides a better flavor to the finished crust than commercially purchased whole-wheat flour which by the time it has gone through the distribution channels might be a month or more old.

Tom Lehmann/The Dough Doctor
[Re: Whole wheat mix](#)
3264

Weight wise you're spot -on.

The oil is referred to as a tenderizer with regard to ingredient performance. Deleting the oil will enhance moisture loss (bake-out) during the baking process which should result in a crispier finished crust. Without the oil though you might find that the finished pizza has a little less flavor and will tend to absorb moisture from the sauce and toppings faster than if oil were used in the dough formulation.

Tom Lehmann/The Dough Doctor

[Re: A little more crisp...](#)

3265

I DO NOT recommend an overnight poolish at room temperature, a couple/few hours is ok but I don't recommend overnight as you have no idea of what you might be growing in there, nothing wrong with putting it in the fridge for use on the following day, this will "kill two birds with one stone" it will allow for complete hydration of the whole-wheat flour and it will be sufficiently cold to help control your finished dough temperature after mixing. Bread and pizza doughs made with whole-wheat flour should be mixed a little on the cool side anyways. I always target for a 70 to not more than 75F finished dough temperature when making a dough with whole-wheat flour.

Tom Lehmann/The Dough Doctor

[Re: Whole wheat mix](#)

3266

You have several options available to explore;

- 1) Increase the dough absorption a couple percent, this will give you a dough that might be better suited for your baking temperature and what you are trying to achieve.
- 2) You could reduce the oven temperature and shoot for a 90-second baking time.
- 3) I would delete the oil from the dough formula.
- 4) When you described your dough mixing you used the words "nice and soft", to me this could mean that you are actually over mixing your dough, remember, you want to mix it JUST until it takes on a smooth appearance.

Tom Lehmann/The Dough Doctor

[Re: A little more crisp...](#)

3267

The GMFS (General Mills Full Strength) will work just fine. The reason for using only 33.3% absorption on the added flour is to help address the softer dough condition resulting from the old sourdough. If you find that the dough is a little too tight/stiff for your liking don't hesitate to add a little more water. Hand mixing is fine but you might want to make sure you chop/cut the old sourdough into smaller pieces to ensure a more uniform dispersion in view of the hand mixing.

Tom Lehmann/the Dough Doctor

[Re: Reballing as salvage](#)

3268

What I mean by "when the dough doesn't tighten up" it will look a lot like wet, soupy oatmeal. When it tightens up it will have a congealed appearance. This method yields a good, working dough absorption for making most types of pizzas but like everything else, you can adjust the total dough absorption for specific applications. The accepted industry definitions for absorption and hydration are as follows. ABSORPTION: A characteristic property of flour to take up and retain water or other liquid. Absorption is determined by measuring the quantity of liquid needed to produce a dough of desired consistency. It is expressed as a percent. The percent is the number of pounds of water or other liquid needed per pounds of flour. HYDRATION: The absorption or uptake of water by solid materials, e.g. flour. In bread making, two aspects of hydration are important: the total amount absorbed (hydration capacity) by the flour and the rate at which it is absorbed (rate of hydration). A good example of this is in comparing a regular, patent grade white flour (which has a fairly fast rate of hydration) against a whole-wheat flour (which

has a much slower rate of hydration). This is why I don't like to use the terms interchangeably.

Tom Lehmann/The Dough Doctor

[Re: Whole wheat mix](#)

3269

Bill;

With a regular yeast leavened dough you could have most likely gotten away by just re-balling the dough and waiting for it to loosen up again for opening but with a sourdough one never knows for sure so here is what I like to do when trying to save an old sourdough from the trash bin.

Gather up the dough and weigh it. calculate 15% of the dough weight and use this for the amount of fresh flour that you will weigh out and add to the mixer, then add water at the rate of 1/3 of the amount of flour you just put in the mixing bowl, stir together for a few seconds and add your old sourdough, then mix the dough JUST until the dough begins to smooth out a little....DONE MIXING. Immediately scale and ball, RF for use on the same day or CF for use on the following day.

Tom Lehmann/The Dough Doctor

[Re: Reballing as salvage](#)

3270

You have been discussing canned tomato products but how do you handle eating a fresh, ripe tomato...skin and all? Remember, tomatoes are an acid fruit and this does give some people stomach problems but when we get into canned or commercially prepared tomatoes additional acid (citric acid) is sometimes added as an additional preservative step which will make the tomatoes even more acid. How well you handle eating fresh, ripe tomatoes would establish a base line for you.

Tom Lehmann/The Dough Doctor

[Re: Tomato pizza sauce tummy attack](#)

3271

If we are talking about a commercial application here my advice would be to use between 40 and 50% white flour to hold the dough together and provide finished crust characteristics your customers will be able to relate to. As for which grains to use, I think I've used them all at one time or another, but due to increased consumer interest lately I've been doing a lot of work using a blend of "ancient" grains.

Tom Lehmann/The Dough Doctor

[Re: Pre-ferment without yeast or starter](#)

3272

I would start with a 70/30 blend of white and whole-wheat flour. To arrive at the correct dough absorption it must be calculated separately for both the white flour (65%) and the whole-wheat flour that you are planning to use. To find the absorption of the whole-wheat flour tare a small bowl on your scale, add 10-ounces of whole-wheat flour, Add 70% absorption to the whole wheat flour and stir well (DO NOT MIX). Allow to hydrate for 1-hour and check the consistency, you want to see a consistency about like that of stiff oatmeal, add additional water in 15-gram/ml increments, stir in and allow to hydrate for 1-hour. Repeat this until the dough doesn't tighten up during the 1-hour hydration period. Divide the weight of water that you added (in ounces) by the weight of the flour (in ounces) and multiply by 100, now subtract 5 from that percentage and that is the percent absorption to use with that particular whole-wheat flour. So now all you need to do is to use that

number to calculate the amount of water to add for the amount of whole-wheat flour you've opted to use and add that to the amount of water added for the white flour and that is your total dough absorption. Keep in mind that doughs made with whole-wheat flour, either in total or in part, will be slightly tacky immediately after mixing, this is normal and it will diminish as the bran portion of the whole-wheat flour absorbs the water. If you do not do this the bran WILL absorb water after mixing and give you a finished crust which is dry and has a poor mouth feel.

If you go back in the archives you will be able to find where I've covered this in detail before. I've also written an article on it in PMQ Magazine.

NOTE: If you wish to work in metrics I suggest using 300-grams of flour (or any amount you wish to use), the math will be the same.

Tom Lehmann/The Dough Doctor

[Re: Whole wheat mix](#)

3273

Brent;

It's called an "autolyse", it is typically used in high absorption doughs to help the flour absorb more water without becoming a soupy mess. The main enzymes present are amylase and some protease. The amylase breaks down (hydrolyzes) starch into sugar for the yeast and bacteria to feed upon while the protease enzymes break down proteins making the dough soft and extensible. The enzymes are, for the most part, triggered into action by a lowering of the pH resulting from the onset of yeast or bacterial fermentation.

Since there are already yeast spores in the flour (unless your flour has been irradiated) you might see a slight amount of fermentation taking place due to the presence of those yeast spores. If you want to encourage the bacterial fermentation side of the equation adjust the finished dough temperature to 90F/32.2C and maintain it at that temperature for the duration of the fermentation time BUT DO NOT eat any of the raw dough as you will have no idea of what bacteria you have cultured....not all bacteria present are "good" bacteria. The use of yeast in the dough creates a yeast rich environment which acidifies the dough to effectively prevent the growth of these other less desirable organisms.

Tom Lehmann/The Dough Doctor

[Re: Pre-ferment without yeast or starter](#)

3274

Assuming your "normal" yeast is IDY?

Tom Lehmann/The Dough Doctor

[Re: Bread Machine instant Yeast](#)

3275

One and the same.

Tom Lehmann/The Dough Doctor

[Re: Deck oven temperature](#)

3276

As a bonus, the Marsal ovens are generally a bit cheaper (in cost, not quality) than comparable ovens from other manufacturers.

Tom Lehmann/The Dough Doctor

[Re: Marsal and Sons](#)

3277

A "reel" oven is one where the shelves rotate like a Ferris Wheel. To see what they

look like you can Google Fish Ovens or Reed Oven Company. Many Chicago shops use the Middleby-Marshall reel ovens which they get from Cobblestone Ovens (they rebuild/refurbish the Middleby-Marshall reel type ovens).

Tom Lehmann/The Dough Doctor

[Re: Deck oven temperature](#)

3278

Mitch is "spot-on", that's what we used to do when experimenting with starters.

Tom Lehmann/The Dough Doctor

[Re: Changing the flour in my starter](#)

3279

Recovery time???? :-D What are you talking about??? :-D Ain't no recovery time, trust me, we kept ours 100% full for a minimum of 3-hours and never saw any difference in bake. As for warm-up time if I remember correctly it was about an hour.

Tom Lehmann/The Dough Doctor

[Re: Marsal and Sons](#)

3280

An infrared thermometer will work fine for measuring the mixed dough temperature but for all other temperatures, such as measuring the temperature just prior to opening the dough balls, will require the use of a stem/dial type thermometer as you will be looking for internal temperature as opposed to surface temperature.

Tom Lehmann/The Dough Doctor

[Re: PLEASE HELP pizza dough](#)

3281

I'm not at liberty to discuss pizzerias or specifics but as a rule, those pizzerias using reel type ovens are baking their pizzas at 450F to 500F. with baking times approaching 30-minutes.

Tom Lehmann/The Dough Doctor

[Re: Deck oven temperature](#)

3282

Carlos;

I'm not sure about your dough management procedure so here's an outline.

- 1) Remove dough from breadmaker, scale to desired weight and form into a ball.
- 2) Oil the dough ball and place it into a plastic bag (like a bread bag), twist the open end to close and tuck it under the dough ball as you place it into the fridge to cold ferment.
- 3) Allow the dough to cold ferment (CF) for 24 to 76-hours.
- 4) Remove dough ball from fridge, place on counter top and allow to temper AT room temperature until the dough ball warms to 50F/10C.
- 5) Turn the dough ball out of the bag by rolling the bag down onto the dough ball and inverting it allowing the dough ball to fall out of the bag onto a floured surface.
- 6) Pick up the dough ball and flour the entire piece (don't get carried away with the dusting flour, a little is all you need).
- 7) Begin opening the dough ball into a pizza skin by your preferred method. If you don't know how to open a dough ball into a pizza skin this has been covered many time here before in previous posts.
- 8) Once opened, the skin is now ready for dressing (sauce and toppings).

Note:

As no information was provided on dough formulation, type of pizza being made or how you are baking your pizza I cannot comment on those aspects.

By the way, dough (prior to forming/shaping) is referred to as being fermented but after final forming/shaping it is referred to as being proofed. In the case of pizza production the dough might be bulk fermented (as the whole dough) or it might be subdivided into individual dough balls which are then fermented either at room temperature (RF) or in the fridge (CF) this is all referred to as "fermentation" BUT after the dough has been opened into a skin any further resting or fermentation of the dough is referred to as "proofing" unless you're British, then you refer to it as "proving". Thick crust and pan style skins are always proofed as are some types of thin crust pizzas, especially where a thicker finished crust is desired.

Tom Lehmann/The Dough Doctor

[Re: PLEASE HELP pizza dough](#)

3283

I got a SD-448 (single deck) to replace an aging Bakers Pride oven and we couldn't have been happier with our new oven. As I've mentioned before:

1) DO NOT install an additional gas regulator. Unless things have changed, the Marsal ovens come with an internal gas pressure regulator already installed, the addition of a second gas pressure regulator will prevent the oven from baking as it should (in a big time way I might add). Check the installation instructions sheet just to make sure they haven't changed.

2) Regardless of what they say, you DO need to move the pizzas around on the deck during baking UNLESS you put the pizzas into the oven, close the door and don't open it until the pizzas are done, which seldom happens in an active pizzeria.

3) Look at their Firebrick option to if you want to achieve a brick oven type of bake.

Tom Lehmann/The Dough Doctor

[Re: Marsal and Sons](#)

3284

Lou;

Using a dough mixer with All Trumps flour and 60% absorption I don't really see any benefit unless you want to catch up on some reading during those 30-minutes. If you are mixing the dough by hand it will help to give you a more manageable dough during the kneading process.

Tom Lehmann/The Dough Doctor

[Re: autolysis with NY style dough](#)

3285

As you increase or add gum to the dough formulation you will also need to increase the dough absorption but gums are all over the board when it comes to absorption. This is why we blend the gums to achieve a better uniformity between different lots of the same gum. When working with "raw" (unblended) gums you will need to experiment to find the correct absorption adjustment when using the gum, for the most part you will probably want to start at about 2.5% absorption for each 1% gum added but keep in mind that since you are dealing with "raw" gums this absorption adjustment, once identified, will, in all probability, change again with a new lot of the same gum.

The procedure is to make a fresh baked crust without any gum, allow to cool on a rack for EXACTLY 20-minutes, then wrap in a polyethylene film and set aside to equilibrate for 20-minutes before adding measuring the moisture content in the

crust portion. Make a note of this moisture content as it is your goal to achieve this same moisture content using a par-baked crust made with gum(s). The par-baked crusts are to be baked, cooled for 20-minutes, wrapped in polyethylene film and set aside to equilibrate overnight they are then unwrapped, a standardized sauce at a standardized rate/amount per crust with standardized toppings are applied, bake for a standardized length of time at a set temperature, allow pizzas to cool for 20-minutes and measure the moisture content on ONLY the crust portion. Once you have a moisture content on the control pizza you can begin working with the gum(s) and increasing dough absorption following EXACTLY THE SAME PROTOCOL for determining the final moisture content. Once you have achieved the same finished moisture content with a par-baked crust as compared to the fresh baked crust/pizza you have accomplished your mission.

Tom Lehmann/The Dough Doctor

[Re: Parbaking Thick Crust](#)

3286

Probably not. Flour is quite variable in protein quality and quantity and there are quality characteristics specific to the wheat used to make the flour that can/will affect the dough absorption this is why I always say "pick a flour, any flour, then optimize the dough absorption and you're good to go". This sure beats trying to keep the dough absorption at a fixed amount. They do it in dry mixes all the time but instead of manipulating the flour they add ingredients which can be used to increase or decrease the mix absorption, these ingredients include things such as gums, soy flour, potato flour and sometimes pre-gelatinized starch or fiber.

Tom Lehmann/The Dough Doctor

[Re: tangzhong water roux pizza for higher hydration](#)

3287

It depends upon the type of crust you're trying to make.

Tom Lehmann/The Dough Doctor

[Re: autolyse](#)

3288

The crushed tomatoes SHOULD be sufficiently acidic to control the growth of clostridium...I say "should" because today we have some low acid tomatoes which are not sufficiently acid to control growth if clostridium....this is a very important point to remember if canning pizza sauce.

Tom Lehmann/The Dough Doctor

[Re: Is microwave-extracted garlic safe to use in pizza sauce that sits in the fridge for days?](#)

3289

Years ago I had some fun with my students, I gave them unidentified bags of dough mix and told them to add 0.5% IDY and as much water as needed to make a pizza dough, at the end of the exercise everyone had pretty good pizzas on the table. What was so different? Each group of students was given a bag of dough mix formulated to make a different product: French Bread, Vienna Bread, Bagels, Kaiser Roll/Hard rolls, Pretzels and Pizza Dough. The number one question asked was "How can you make such a good pizza from a bagel dough?" The point I was making was that all of these doughs are what we called "ancient" doughs made using typical formulas which, by the way, are all VERY SIMILAR, this is why pizza dough is so versatile in making different kinds of baked goods, dip it in boiling (actually near boiling) water and bake to make a bagel, or brush it with an alkali

(dilute sodium hydroxide / 2% solution) , sprinkle with pretzel salt and slow bake to make a pretzel, the rest are nothing more than forming techniques....like I said, pretty versatile.

Tom Lehmann/The Dough Doctor

[Re: Bake bread](#)

3290

Unopened: a year or more.

Opened: not more than 24-hours. Transfer it to a plastic pail/container for storage in the fridge for up to 4-days.

The Dough Doctor

[Re: Dough management question](#)

3291

When you place a warm dough into a cold environment you will get condensation forming inside any sealed container, if your dough is 80F and the room is 75 or 80F you can lid the bowl without getting excessive condensation (not much temperature differential to cause condensation), but remember to put a vent hole in the lid to bleed off excessive gas pressure.

The Dough Doctor

[Re: Pizza dough](#)

3292

It looks like your IDY might have a very LOW tolerance to salt (like the SAF or Fermipan Gold Label) which is intended for use in high sugar products.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3293

Joeborg;

To answer your questions:

- 1) At least 50 par-baked crusts would not be too many.
- 2) If you mean how long can the dough be left to rise (proof) in the pan prior to baking, the answer is no longer than necessary to give you the finished crust you are striving for. If you leave it proof for a longer time the finished crust will be texturally different, ditto for short proofing the dough.
- 3) I'm confused? 20 skins out of the cooler in the dough boxes? We normally DO NOT bring the dough to room temperature (whatever that might be), instead, when we remove dough balls from the cooler we temper them AT room temperature until they reach an internal temperature of 50F before we begin opening the dough balls. Yes, once the dough balls have been tempered to 50F they do need to be used not just in the same day, but within a 3-hour period of time. It sounds like you are talking about doing a mix of fresh bake and par-baked....don't do it, do either one. Once the dough balls have been opened and the dough fitted to the pan, allowed to proof for the necessary amount of time and then par-baked, the crusts should be allowed to cool on a wire rack until they reach an internal temperature of 100 to 105F, at that point the par-baked crusts can be packaged, and stored at ROOM temperature for use over the next 4-days.

Tom Lehmann/The Dough Doctor

[Re: Dough management question](#)

3294

Oh yes, using a poolish will allow you to get the maximum amount of water into the

dough.

Tom Lehmann/The Dough Doctor

[Re: tangzhong water roux pizza for higher hydration](#)

3295

What you have described is just making pre-gelatinized starch, it will allow you to add more water to the dough BUT the resulting bread or crust will also have a higher finished moisture content which can be tolerated in bread but in pizza crust it results in a soft, soggy crust soon after baking the pizza.

Tom Lehmann/The Dough Doctor

[Re: tangzhong water roux pizza for higher hydration](#)

3296

In wheat flour it is the protein and the fiber which carry the water, this is why dough absorption is tied to the protein content of the flour rather than just "flour". You can use a poolish to maximize the absorption but the difference in total absorption between a high and low protein flour will still be there.

Tom Lehmann/The Dough Doctor

[Re: tangzhong water roux pizza for higher hydration](#)

3297

If you go to www.pmq.com and go into the Recipe Bank you can search out my formulas for bake to rise pizza dough/crust. These can be made 100% without the addition of yeast by just doubling the amount of WRISE (fat encapsulated chemical leavening) but rest assured that the flavor will not be anything like that achieved using all yeast or a combination of yeast and coated chemical leavening. The combination of yeast and coated chemical leavening produces a crust similar to that used for the DiGiorno pizzas as well as the Papa Murphy's pizzas.

Tom Lehmann/The Dough Doctor

[Re: Dough Challenge Indeed](#)

3298

Please provide the amounts of ingredients that you are presently using to make your starter for your two pizzas. Please use weight measures as opposed to volumetric portions, we can then put the starter into "true" percent which will allow you to formulate any specific amount of starter you want to use.

tom Lehmann/The Dough Doctor

[Re: Large batches using a sourdough starter](#)

3299

The total amount of starter needed to make 50 pizzas using 95-grams in each pizza is calculated at 2.375-Kg.

What I need to know is what is the formula for your present starter for two pizzas, or whatever size you make?

Tom Lehmann/The Dough Doctor

[Re: Large batches using a sourdough starter](#)

3300

Welcome Jeff! There are plenty of us here who can help you, additionally, if you have not already done so, I'd suggest tuning in <www.pmq.com> and go to the Think Tank. The think tank is dedicated to pizzeria owners and operators as well as "newbies" as yourself. There's plenty of help out there, you just need to know where to find it....once again, welcome aboard!

Tom Lehmann/The Dough Doctor

[Re: Hello from Illinois](#)

3301

That wet, sticky dough that you are experiencing after the fermentation period is because you covered the containers of dough right away as you put them into the fridge, instead of covering them try lightly oiling the dough balls and place them into your containers BUT do not cover them, instead, allow them to remain uncovered for 3-hours, then cover. That should address the wet, sticky dough issues. You only state that you are using "dry yeast" but you did not indicate if it is instant dry yeast (IDY) or active dry yeast (ADY). With the dough mixing process you've described both types of yeast really need to be suspended in a SMALL (4 to 5 times the weight of yeast as 95 to 100F water) and allowed to activate for about 10-minutes, it can then be added directly to the remainder of the dough water. With regard to your "recipe" I would highly encourage you to convert it to a "formula" based on weight measures rather than volumetric portions as this is much more accurate and will give you repeatable and consistent results.

Tom Lehmann/The Dough Doctor

[Re: Pizza dough](#)

3302

Big Dave has been around for a long time, he is best known by pizzeria owners as his forte is store operations/marketing. You are correct in that the very low yeast level and dough absorption are most likely the result of not cross-stacking, I hope he doesn't mind working with wet and sticky dough which will do its best to exhibit its inconsistencies in performance, especially if he holds the dough past 24-hours. As for the formulation and DELCO, not necessarily, with only 1% salt flavor will be compromised and with 1.5% sugar he won't be baking the pizzas to their full DELCO potential and with 0.25% ADY he may or may not get sufficient oven spring to achieve a thorough bake-out which is so necessary for a DELCO pizza.

Tom Lehmann/The Dough Doctor

[Re: Pros and Cons of this recipe](#)

3303

No, a freezer will not work the same for cooling the dough balls as a walk-in or reach-in cooler. As for making your non flour based crust more crispy, there is no defined technology that I'm aware of and dough formulations are all over the board using a multitude of different ingredients so there is no way I can suggest any ingredient which would result in a crispier finished crust. The only thing whey protein whey protein concentrate (80% protein content) or isolate (92%+ protein content) will provide is additional protein content. Straight whey which contains about 13% lactose will provide crust color due to the lactose but it is only about 10% in protein content so protein contribution would be negligible. Wheat protein concentrate (WPC) only provides protein and the bulk of the proteins in WPC are non-gluten forming.

Tom Lehmann/The Dough Doctor

[Re: So many questions](#)

3304

Spraying/spritzing water onto the dough for hard, crusty breads is a common practice when steam is not available in the oven.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3305

There are a couple of things at play here, 1) they're two entirely different doughs so they will be hard to compare. 2) Without knowing the strength of your sourdough starter you will need to experiment with yeast levels. 3) Yeast and sourdough starter are two very different animals, your sourdough starter is comprised of different strains of yeast and bacteria while your yeast is a relatively purified strain of *saccharomyces cerevisiae*, designed to provide leavening power to yeast leavened doughs add to that the fact that your sourdough starter is highly acidified. The acidity of the starter can make it more active than regular baker's yeast, and in many cases the acidity will weaken the gluten structure to some extent making for a more extensible dough which will expand more readily thus appearing to be more fermented.

Tom Lehmann/The Dough Doctor

[Re: Don't hate me because...](#)

3306

No, when you open the dough balls just place the skin side (top) down and you will be fine.

Tom Lehmann/The Dough Doctor

[Re: Dried out skin?](#)

3307

CMC will work just fine, but since there are different strengths for the CMC be sure to get a recommendation from the supplier on how much to use in your dough for moisture retention. OR, if you want, you can just par-bake the crusts with 1/2 of the sauce applied and then apply the remaining half when you dress the crusts. As for your flour, it should work OK. As for potato starch, it is typically used at 2.5% of the total flour weight, or if you want, you can use dehydrated mashed potatoes, reconstitute according to the package directions and add directly to your dough at 7 to 10% (DO NOT ADD ANY SUGAR MILK OR EGGS WITH THE POTATO STARCH/MASHED POTATOES AS THE POTATOES WILL SIGNIFICANTLY CONTRIBUTE TO CRUST COLOR). You must allow the par-baked crusts to cool to at least 105F/40.5C prior to wrapping or you will have a wet, soggy crust which might collapse in the package.

Tom Lehmann/The Dough Doctor

[Re: Parbaking Thick Crust](#)

3308

Daybreak0;

The application of the oil to the top of each dough ball indeed protects the dough from drying out during the cross-stack period, failure to apply the oil can result in a crust or skin forming on the top of each dough ball. After the dough boxes are covered/lidded and down-stacked the oil is slowly absorbed into the dough. The dough management procedure referenced is designed to provide the most consistent quality dough possible over a 3 to 4-day period (with modification this can be easily changed if desired). The process which you outlined is extremely critical regarding finished dough temperature, especially out at 48 to 72-hours. The reason for this is because dough temperature is the driver of fermentation (the higher the temperature the more fermentation you will get within any given period of time), this is further compounded by your fermentation of the bulk dough which is then bagged (cannot use plastic garbage bags in a pizzeria, must be food contact approved), and placed into another container which further insulated the dough

resulting in a very lengthy and inconsistent cool down of the dough, add to that the fact that the dough is continually warming (even while in the cooler) due to heat of metabolism/fermentation to the tune of about 1F per hour. When the dough is subdivided into smaller pieces and formed into balls these dough balls are much easier to cool than a large bulk dough, and they cool at a much more consistent rate which means the dough will be more consistent in both performance and crust quality characteristics out beyond 24-hours. There are a bunch of other advantages to using dough balls as opposed to bulk fermentation in a pizzeria but time and space do not permit me to cover all of them.

By the way, baking soda will not give greater rise/height to your dough, just the opposite can happen as the soda (depending upon the amount added) can create a pH environment which is not conducive to vigorous yeast activity/fermentation (yeast is an acid (low pH) loving organism while baking soda is an alkali (raises the pH)). Even the use of baking powder is ineffective in a dough as the chemical reaction resulting in the generation of carbon dioxide is much too fast (much of it is lost during mixing) and that which isn't lost during mixing will have its soda component neutralized by the acids formed during fermentation so when it comes time for the pyro (heat) acting portion of the baking powder to generate leavening gas (carbon dioxide) there is no soda for it to react with so no leavening gas can be produced, add to that, the unreacted acid component of the baking powder, sodium acid pyrophosphate, sodium aluminum phosphate, or mono calcium phosphate (the most commonly used) can impact the flavor of the finished crust.

As for dough conditioners and volume enhancement, about the best you will get is about a 15% volume/height increase using DATEM, how thick is your crust? 1/4-inch thick? This is 6.5-mm and 15% of that will be 0.975-mm, let's be generous and call it 1-mm, I'm betting good money that your standard of deviation in crust height/thickness is more than 1-mm. That's why they don't work well in pizza for volume enhancement, they are designed for use in pan breads where the height might be as much as 5-inches(122.5-mm) and 15% of that is 18.375-mm or about 3/4-inch, you can see that, and that is why these additives are important to bread bakers.

Tom Lehmann/The Dough Doctor

[Re: So many questions](#)

3309

Nope, no stone deck, just an open grid deck that you bake on, yes, some form of baking platform is required such as a pan, disk or screen.

Tom Lehmann/The Dough Doctor

[Re: What on earth is an "air-deck"??](#)

3310

Peter;

You are correct in that more yeast is typically used when short fermentation times are employed (think Emergency Doughs). The reason for this is because yeast is the only variable which can be increased in the dough to provide an increase in flavor in view of a short fermentation time. While salt and sugar both impact flavor, you can only go so far before the finished crust begins tasting salty or sweet, but you can go amazingly high in the yeast level while imparting an acceptable flavor to the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Best method to add IDY to 35-37% hydration dough?](#)

3311

Bert;

By "wheat flour" I assume you are referring to "whole wheat flour". Since whole wheat flour has a higher absorption than your regular white flour and you said you used the same 80% absorption, your dough which was made with 20% whole wheat flour was actually under absorbed which resulted in a stiffer dough that did not expand during baking as readily as the dough made without whole wheat flour. You did not see this due to the slower absorption properties of the bran present in the whole wheat flour so the dough appeared normal at first but with time (about 30-minutes) the bran absorbed water and resulted in a slightly stiffer dough which is characterized by a smaller, tighter/closer crumb structure.

Tom Lehmann/The Dough Doctor

[Re: Air holes size in bread](#)

3312

Flours in the 12.2 to 12.8% protein range are probably the most common that I see being used in pizzerias across the country so it is no surprise that your local pizzeria is using something similar.

Tom Lehmann/The Dough Doctor

[Re: Pillsbury Best Bakers Patent Flour](#)

3313

Steve;

That about describes it. Garland came out with the oven many years ago, it seemed to catch on for a time but you don't see too many of them now, the last I knew they still had a presence at Pizza Expo.

Tom Lehmann/The Dough Doctor

[Re: What on earth is an "air-deck"??](#)

3314

I've seen flour at Sam's Club priced lower than you can buy it from a distributor. Look for Pillsbury Bread Flour aka Pillsbury Bread Machine Flour. It comes in at around 12.6% protein content. You can also use General Mills Rex Royal, Washburn's, Full Strength or Superlative as they are all very similar in protein content but the treatment does vary so keep that in mind.

Tom Lehmann/The Dough Doctor

[Re: Pillsbury Best Bakers Patent Flour](#)

3315

Sure, used one for quite some time a number of years ago when they first came out, in fact I did all of the preliminary testing on the oven.

Think of it as an air impingement oven without a conveyor. They're pretty nifty and work quite well providing the advantages of both a deck oven and an air impingement oven. If you make a pizza with a lot of vegetable toppings and need the flexibility of a deck oven the Garland Air Deck oven is hard to beat.

Tom Lehmann/The Dough Doctor

[Re: What on earth is an "air-deck"??](#)

3316

I've had good luck making dry, cracker type crusts using IDY in the dough. Just suspend the IDY in about 5-times its weight of 95F water, stir well, allow to hydrate/activate for 10-minutes, stir once again and add it to the dough water. The dough will ferment but you won't see much, if any, rise due to the tightness of the dough. I've always used a sheeter/roller to open the dough ball/puck into a skin.

Tom Lehmann/The Dough Doctor

[Re: Best method to add IDY to 35-37% hydration dough?](#)

3317

Strange that you should be trying Turkey Red in a gluten intolerant scenario. I had proposed exactly the same thing about 6-years ago, I wanted to see if the gluten intolerance issue is due to one or more of the wheat proteins or if it is due to changes to the protein which may have been introduced through the extensive breeding programs that wheat is exposed to. My proposal was to do a blind panel using Turkey Red from a certified grower and a modern day winter wheat variety. The majority of the wheat breeding that has taken place over the past 50-years or so, has been focused on increasing and/or strengthening the protein so as to achieve a stronger dough and I've always been curious as to whether the changes to the protein might have something to do with the gluten intolerance issue? As a kid growing up I don't recall any kids with any kind of reaction to gluten.

Tom Lehmann/The Dough Doctor

[Re: Is gluten off the hook??](#)

3318

Joe;

The pizza looks great! To address the bottom bake issue try par-baking the crust with a screen under it. The bottom color you want to target for on the par-bake is probably best described as a "sand" color. If the par-baked crust has too much bottom crust color you will always be fighting a dark bottom crust color on the finished pizza.

Tom Lehmann/The Dough Doctor

[Re: Yeast amount](#)

3319

We had two 8 X 10 walk-in freezers, one 15 X 20 walk-in freezer and two 10 X 20 walk-in coolers (retarders) that we stored materials in for both our various baking classes and our research group so if we lost every thing in any one of them it would put a big hurt on us.

Tom Lehmann/The Dough Doctor

[Re: Almost dead in the water](#)

3320

Walter;

When I was at AIB our maintenance guys installed a simple gadget (I think they got it at Radio Shack at the time) that would monitor the temperature of the cooler as well as the freezer and if the temperature fell outside of the preset range it would automatically send a signal to whatever cell phone number you had it programmed for. That thing saved our bacon more than once!

Tom Lehmann/The Dough Doctor

[Re: Almost dead in the water](#)

3321

If you plan on holding your sauce from one day to the next you might consider "nuking" /microwaving the onion and garlic powder in a small portion of the juice from the tomatoes. Nuke it until it just comes to a boil, this will denature the enzymes in the garlic and onion which are responsible for catalyzing the pectins in the tomato causing them to gel which can turn your pizza sauce into tomato jelly overnight.

Tom Lehmann/The Dough Doctor

[Re: Sauce Recipe 1](#)

3322

I'm in agreement with Peter, the amount of yeast given (1%) is even correct for compressed yeast (CY).

While there are different types of instant dry yeast (IDY), one is for breads, rolls, pizza, etc. This one is typically packaged in a red colored package. The other form of IDY is designed specifically for high sugar products like pastries and is usually packaged in a gold colored package. The "high sugar" version is intended for use where the sugar level will exceed 18% of the flour weight BUT it has poor tolerance for salt. If the salt level exceeds 1% the yeast will ferment VERY SLOWLY so if you are making a high sugar product with a salt level much over 1% you are better off using the red packaged IDY but if you are making a high sugar product with a salt level of 1% or less, the gold packaged product might perform better. This is a carry over from the baking industry in Europe (where the IDY yeast brands originally came from) as it is a common practice in Europe to reduce the salt to very low levels when high sugar levels are used and vice-versa.

Tom Lehmann/The Dough Doctor

[Re: Some help for recalculate Spontini recipe](#)

3323

As I indicated in my earlier post there is a possibility that the specific yeast that you are using is less active than what we are used to using here so my advice is to use 1% of your yeast and let's see what happens. Please be sure to take a few pictures of the dough ball just prior to placing in the fridge and then take a couple more pictures of the dough ball after 24-hours in the fridge. Target your finished (mixed) dough temperature for between 75 and 80F.

On a side note: How long are you mixing the dough? IDY should receive a minimum of 4-minutes mixing into the dough. If you are making a yeast suspension of the IDY please let me know exactly how you make the yeast suspension.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3324

If what you are saying is that again, the dough did not rise at 7C (44.6F) during a 24-hour period but the dough balls doubled in size within 2 to 3-hours at 20C, (68F) this is VERY strange 7C is high for refrigerated dough storage and 20C is low for such vigorous yeast activity. If your yeast is not tolerant to low temperatures then it would not be performing as it is at 20C. This leads me to believe that something is being overlooked with regard to either the finished dough temperature or the temperature of the fridge.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3325

Well, let's see;

50 cm = approximately 20-inches and a 20-inch pan has 314-square inches of surface area so $2530 \div 314 = 8.057$ -grams per square inch of pan surface area (this is the dough loading factor).

A 12-inch pan has 113-square inches so using this dough loading factor you will need $113 \times 8.057 = 910.441$ -grams of dough for a 12-inch diameter pan. You want to make two pizzas $910.441 \times 2 = 1,820.882$ -grams of dough needed.

Formula :

Flour: 1500.....100%

Water: 1000.....66.6%

Yeast: 15.....1%

Salt: 15.....1%

Total percent = 168.6%

Divide total dough weight (1,820.882-grams) by 1.686 (total percent divided by 100) = 1080-grams total flour weight needed for your new dough weight.

New Dough Formula:

Flour: 100%.....1080-grams

Water: 66.6%.....719.28-grams

Yeast: 1%.....10.8-grams

Salt: 1%.....10.8-grams

There's your new dough formula correctly sized for 2-12-inch pizzas.

Did I miss something in the formula which you provided? This is an awful lot of dough for a pan of this size. I am assuming that the formula given was for a single pizza as it only called for one pan.

Properly managed (finished dough temperature 75 to 80F) this dough should perform reasonably well at 24-hours but 72-hours might be pushing it with only 1% salt so I would suggest increasing the salt to 2% and the dough should be fine for use at 24 and 72-hours. Just be sure to follow good dough management practices. Peter has a copy of my Dough Management Procedure posted here if you want to get an idea of what I mean by "good dough management practices".

Tom Lehmann/The Dough Doctor

[Re: Some help for recalculate Spontini recipe](#)

3326

It's either the top of the oven or a heated/warming shelf. I've never seen anyone putting anything between the box and the top of the oven. If it's hot enough to cook the pizza or cause the box/bag to burn you might need to look into a new oven or oven insulation.

Tom Lehmann/The Dough Doctor

[Re: Keeping pizza's warm](#)

3327

Big Dave (Ostrander) used to make a killer Ruben pizza. When we made it during our pizza seminar we made the dough using 70% regular pizza flour and 30% dark rye flour plus caramel coloring (the color of rye bread without the coloring is a muddy gray color). In calculating the dough absorption use 60% for the white flour and 70% for the rye flour. Hopefully your rye flour has been stored in the freezer or fridge, as rye flour loses flavor very quickly when stored at room temperature. Remember, rye flavor is a unique flavor not to be confused with caraway which is commonly used in rye bread.

Tom Lehmann/The Dough Doctor

[Re: Pumpernickel or rye dough](#)

3328

Luis;

Those cinnamon rolls are really looking good! :chef:

The next time you make them, after the dough is rolled, use the heel of your hand to press the end of the curl into the body of the roll, this will give you a seam which should pretty well stay closed which will get rid of the "pig tail" on each of the individual rolls.

As for the bubbles, my advice is to make yourself a simple bubble popper, a piece of stainless steel rod or aluminum rod between 3/16 and 1/4-inch in diameter, bend a 90-degree angle on one end so the short leg of the angle is about 1 to 1.5-inches long, put a point on this as it will be the "bubble popper" trim the other end so it is long enough to reach into the far reaches of your oven and fashion a handle for the rod, now you have a bubble popper, most pizzerias have one. Those pizzas are looking GREAT! :chef:

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3329

Use a thin crust dough formula with a little extra sugar for color: Flour 100%, Salt:1.75%, Sugar 4% (variable), Oil 2%, IDY 0.15%, Water 60% (variable).

Mix dough 3-minutes past where the dough becomes smooth. Targeted finished dough temperature is 75F.

Scale and ball dough into desired weights and allow dough balls to rest on a lightly floured surface covered with a sheet of plastic for 90-minutes. Roll/pin out to size, place meat and fillings into the center and fold over so the fillings are enveloped in the dough skin, place seam side down and allow to rest for an additional 20-minutes, deep fry at 365F (preferable submerged), place on screen to drain and serve hot.

Seems to me that Taco Bell was doing something like this not too long ago but using their tortilla wraps.

Tom Lehmann/The Dough Doctor

[Re: Thin Dough for Deep Frying](#)

3330

I used to have some old P.H. pan which had a mark stamped into the side of the pan which indicated the height that they were to allow the dough to proof to prior to placing the pans into the cooler to stabilize for use during the course of the day. I works well but you've got to be on your game to achieve consistent results...GIGO is what it boils down to.

Tom Lehmann/The Dough Doctor

[Re: Parbaking Thick Crust](#)

3331

In response to your questions:

Increasing the absorption level will NOT decrease the moisture loss in the finished crust. The easiest way to apply oil to the surface of the dough prior to baking is to use a spray bottle and spray the oil onto the dough.

2) You must allow the crusts to cool to AT Least 90F/32.2C prior to wrapping, failure to do so will result in the crusts becoming excessively soft and most likely mis-shapen.

3) Contrary to what some might believe, par-baked crusts are actually FULLY BAKED, if they are not fully baked they will collapse upon cooling. The idea behind baking a par-baked crust is to bake it JUST until the structure is FULLY SET aka fully baked, it just hasn't been baked to the point of developing much, if any, crust color.

4) Most thick crusts/deep-dish pizza crusts can be par-baked in 5-minutes or a little less. Keep in mind though that a lot will depend upon the weight of the pan, the color of the pan, the amount (weight) of dough in the pan, and the size of the pizza pan (diameter) as well as the type of oven being used and the overall baking efficiency of that oven.

5) Yes, guar gum can be used but since guar gum is a raw material it is almost always quite inconsistent in quality which is why it is standardized by extensive blending of different lots of guar gum to blend out the inconsistency or reduce it to a tolerable level. Use the guar gum at 1% of the flour weight and disperse it in the cold dough water prior to addition. As there is no way for me to know the viscosity of the guar gum that you are planning to use keep in mind that you will need to experiment with both the total dough absorption as well as the amount of guar gum used.

Tom Lehmann/The Dough Doctor

[Re: Parbaking Thick Crust](#)

3332

Well put Steve. :)

Tom Lehmann/The Dough Doctor

[Re: Humidity During Dough Proofing/Fermentation](#)

3333

I used to explain it to my students like this: Putting your foot on the brake pedal will not stop your car (time), it's the pressure applied to the pedal (length of time dough is exposed to fermentation) that actually stops the car. These are two different actions, putting your foot on the brake pedal is one and the other is applying pressure.

Tom Lehmann/The Dough Doctor

[Re: Humidity During Dough Proofing/Fermentation](#)

3334

Time, by itself, has no impact upon the rate of fermentation (time is not a driver for fermentation) the rate of fermentation is pretty constant over time unless influenced by an outside stimuli such as temperature. At some point in the fermentation process the rate of fermentation will begin to diminish due to lack of nutrient for the yeast to feed upon or the creation of sufficient alcohol (at about 12% alcohol bakers yeast will begin to shut down). The amount of time that a dough is exposed to fermentation has a great effect upon the dough and finished product characteristics.

I hope this clears things up.

Tom Lehmann/The Dough Doctor

[Re: Humidity During Dough Proofing/Fermentation](#)

3335

The effects of relative humidity are well documented in books such as Baking Science and Technology (E.J. Pyler). Time has no effect upon fermentation BUT the time that a dough is exposed to fermentation or proofing (fermentation after the product has been formed from a piece of dough) has a significant impact upon the finished product. Relative humidity has essentially no impact upon the rate of fermentation as its only effect is to keep the dough soft and pliable/extensible allowing for expansion without bursting as well as maximum dough expansion properties during proofing and oven spring. It has been well established that a relative humidity of 84 to 86% is ideal for breads and rolls, yeast raised donuts are

typically proofed at 75 to 78% R.H. as this helps them retain their shape and the skin formed during proofing is what gives the donuts their characteristic "inner-tube" appearance which is necessary to control fat absorption during the frying process. In reality, it is not necessary to control relative humidity as the dough will regulate the R.H. to a point where evaporation from the dough is stopped through the development of a carbon dioxide blanket over the dough when fermented in a container of correct dimensions for the size of the dough. This is almost universally done in commercial bakeries where the dough is fermented in "troughs" which are size appropriately so the dough will rise to within about 12-inches of the top of the trough at full rise, thus retaining a blanketing cover of carbon dioxide throughout the fermentation process (carbon dioxide is the main leavening gas produced by the yeast during the fermentation process, since it is heavier than air it collects on top of the dough creating a blanket which protects the surface of the dough from both heat and moisture loss, you might know it as the "green house" effect. In commercial practice the dough troughs are wheeled under a suspended shelf about 4-inches above the top edge of the troughs which helps to retain the carbon dioxide by eliminating any drafts which might disrupt the blanket of gas over the dough. This leaves us with temperature as the main driver of fermentation. In dough systems optimum yeast fermentation rate is achieved at a temperature of between 95 and 100F. At this temperature you will get optimum yeast fermentation rate resulting in the most fermentation in the shortest time period. At one time the baking industry USED to use temperature - humidity controlled rooms for fermenting their doughs but the humidity was next to impossible to control over the fermentation period resulting in inconsistent fermentation rates as well as the occasional development of a tropical rain forest within the fermentation room (dripping of water from ceiling, walls and puddling on the floor) due to condensation resulting from temperature differentials between the room and the structure. Add to this the fact that the other by-products of fermentation are alcohol and acids (acetic, lactic and propionic) and when the moisture within the room condenses it creates a form of acid rain which literally eats away at the floor and the entire structure (yes, even stainless steel). These are the reasons why fermentation shelves are in common use today. The shelf itself is made from black iron as is the dough trough though occasionally you do see stainless steel troughs in use. The troughs are not as prone to acid attack since there is no condensation forming inside of the troughs which due to evaporation concentrates the acids which create the problems. With the fermentation shelf approach there is no condensation in or around the troughs.....problem solved, no need to replace expensive troughs and fermentation rooms every few years, the fermentation shelf approach seems to last forever.

Tom Lehmann/The Dough Doctor

[Re: Humidity During Dough Proofing/Fermentation](#)

3336

Well, let's pick it apart;

The "improver" is intended for bread (in which the dough is managed very differently than the way we manage pizza dough). The amylase is hydrolyzing a portion of the starch in the flour thus releasing the water it is holding while creating sugar at the same time, this is why the dough is becoming softer and tacky or possibly a little sticky, especially after a couple of days. The ascorbic acid is a moderately fast oxidizing agent in the dough which helps to reduce initial stickiness and the DATEM is there to enhance the oven spring properties of the dough. The dough softening due to hydrolyzing of the wheat starch continues over several days (even under refrigeration but at a slower rate than at room

temperature) so this is why you see the dough becoming progressively softer with time.

As for #2, this might be nothing more than drying of the dough...what is the temperature of the dough when you are rolling it out?

#3 would be using the improver more along the lines for which it is designed to be used (within about 6-hours of mixing), if you leave it ferment at room temperature until the following day the dough "could" become so soft as to be unusable. A lot would depend upon how your flour holds up as well as the finished dough temperature (temperature after mixing).

My feelings on using this "improver" are that it is probably a waste of money and as far as performance is concerned you are probably not getting much, if any, benefit from using it. With that said, if you want to use the dough within the same day that it is made you will probably see some benefit from the improver since that is the type of dough system that it is designed to be used in. As far as flavor is concerned you aren't getting any benefit from it at all. You're going to find that you get the biggest "bang for your buck" flavor wise through fermentation and temperature control (dough management). Within reason, the longer the dough is allowed to ferment the more flavor you will notice in the finished crust BUT you MUST be able to control the dough temperature throughout the process (effective dough management) or your crust flavor will be all over the board (inconsistent) as will the handling properties of the dough.

Tom Lehmann/The Dough Doctor

[Re: Use of Bread Improver for Pizza Dough](#)

3337

Lou;

As long as you are using a normally malted flour you should be OK. As there will be no sugar in the dough formulation, as the dough slowly ferments during the CF period it will acidify which inhibits crust color development so you will need to make sure your oven is hot enough to achieve crust color development or your finished crust might end up looking more like sourdough bread (very light in color).

Tom Lehmann/The Dough Doctor

[Re: no sugar](#)

3338

Thank you for reading my articles and putting the knowledge to good use.

For deep-dish pizzas you really don't need to use a "high gluten flour", whatever that is (there is no definition for it). You can use any good flour which has a protein content in the 12 to 12.8% range (think General Mills Superlative/Full Strength).

To answer your questions:

1) If the par-baked crusts are made from a fermented dough it WILL have a perfectly good flavor. The idea that par-baked crusts are devoid of flavor or have a poor flavor stems from the commercial practice of using a no-time or short-time dough for making the par-baked crusts which is pretty typical for commercial par-baked crusts...just try a crust from one of those frozen pizzas with a par-baked crust and you will see what I mean.

2) Your dough formula, as shown, should work just fine for making par-baked crusts.

3) Par-baking with not more than 1/2 of the sauce applied will help to control moisture loss during the baking process but presents challenges in how to store the crusts as they will need to be stored either flat or stacked in a vertical wire tree rack (my preferred method). There is no need to refrigerate the baked crusts as they are perfectly room temperature stable even with the sauce added.

If the crusts are to be baked without the addition of sauce it will be necessary to include a fiber material to help retain moisture in the par-baked crust (Ticaloid Lite, TIC Gums Company). The advantage here is that you can wrap or stack the par-baked crusts which has a distinct advantage for a pizza chain or retail sales where distribution of the crusts must be addressed.

Tom Lehmann/The Dough doctor

[Re: Parbaking Thick Crust](#)

3339

I tend to agree with csneck but without knowing the thickness of the tiles I cannot say for sure but I can say this, if the bottom of your pizza was charred black after only 6-minutes, and on a screen to boot, I'm betting that the actual temperature of the ceramic tile was a lot hotter than 600F. This is where an infrared thermometer comes in handy as it allows you to adjust your grill flame to get the tile temperature to, in your case, 600F. This is assuming that your dough formulation didn't have and sugar, milk or eggs for whatever reason.

Tom Lehmann/The Dough Doctor

[Re: burned dough](#)

3340

In a "big operation" the objective is to get the entire dough scaled, balled/rounded, into the dough boxes and into the cooler within a 20-minute period of time beginning when the dough mixing cycle is completed. The reason for this is because yeast exhibits a 20-minute lag period after which fermentation will begin to change the density of the dough, making it less dense and more difficult to cool. Normally, when someone mentions allowing the dough to rest (correctly referred to as "intermediate proof") prior to scaling and balling they are referencing much longer periods of time (an hour or more), hence my previous response. A ten minute intermediate proof time is completely within good dough management guidelines.

Tom Lehmann/The Dough Doctor

[Re: resting time after mixing is complete](#)

3341

About 20-minutes.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3342

I find it interesting that they recommend using 1 to 2% of their IDY. Here in the U.S. our IDY is used at between 1/3 and 1/2 of the compressed yeast level. This means that we are typically looking at 0.25 to 0.5% in pizza dough. Possibly your IDY needs to be used at a higher level? You might try using your IDY at a higher level the next time as well as capturing some pictures.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3343

Can you provide any pictures of the dough balls just as they are going into the fridge and just as you take them out? This might help in figuring out what is going on. Also any information and/or pictures of the IDY container would also help.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3344

Lets talk about making some procedural changes before changing dough formulation.

- 1) Allow the dough to warm to 60F (internal ball temperature) before beginning to open the ball into a rectangle.
- 2) After rolling and cutting into individual rolls allow the dough to final proof (rise) for 45 to 60-minutes (be sure to allow enough space between the individual rolls on the pan).
- 3) After final proofing, brush the rolls with melted butter.
- 4) Bake at 375 (not more than 400F) until lightly browned.
- 5) Brush baked rolls with melted butter as soon as they are removed from the oven.
- 6) Allow to cool for 15-minutes and apply a powdered sugar-water icing, make it thick so it can be applied much like creamy peanut butter.

If the rolls are still too tough after this you have two options, 1) increase the fat content of the dough to at least 15% or 2) Change to a lower protein content flour.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3345

There are many differing opinions on this but in my world it accomplishes nothing at all except to make the dough more difficult to cool and to cool at a consistent rate which upsets the entire dough management procedure which I use. For others using a different dough management procedure they may/will have a different opinion. The issue lies with the dough beginning to ferment prior to going into the fridge which results in a change in dough density which in turn affects how the dough cools down in the fridge, especially the rate at which it cools this is further compounded by any variances in the finished dough temperature so you never really know what the dough density will be after the rest period hence you don't know the rate at which the dough is being cooled add to that the fact that the dough is warming up as a result of fermentation taking place (heat of metabolism) so under some conditions the heat being generated combined with the insulating properties of a less dense dough can result in the dough blowing or becoming over fermented, then to address that the yeast it sometimes reduced to a point where there is insufficient leavening power during the oven spring period of baking to support the weight of the toppings resulting in collapse of the dough which in turn manifests itself as a "dreaded gum line" (development of a pasta like layer just under the sauce in the baked pizza) which contributes to a tough, chewy eating characteristic as well as loss of crispiness in the crust.

Tom Lehmann/The Dough Doctor

[Re: resting time after mixing is complete](#)

3346

After you rolled the dough and cut it into individual pieces and panned the dough pieces how long did you allow the dough to proof (rise) for before baking?

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3347

Filtered;

In addition to all that's been said, the ingredients can be more accurately scaled for a larger dough than a small one like would be used for a single pizza. This is due to

the accuracy of the scales most of us have. Using bakers percent and a laboratory balance (very accurate for weighing amounts much smaller than 0.1-gram) you can easily put together a dough with a total weight of only 50-grams (just under 2-ounces), I've done it many times when doing research on different types of doughs. The scales that most of us have will weigh to either 1-gram or preferably 0.1-gram which makes it much more accurate when weighing amounts of 0.1-gram and more. Look at it this way, if my dough requires 227.2-grams (roughly 8-ounces) of flour to make a single 12-ounce dough ball and the amount of IDY needed is 0.375% the amount that you will need to accurately scale will be 0.852-grams. Easy if your scale weighs to the tenth of a gram but next to impossible to do accurately using volumetric portions. However, if we were to make the same dough for 3 dough balls at 12-ounces each the amount of flour needed would be $227.2 \times 3 = 681.6$ -grams and the IDY at the same percent would equal 2.556-grams which is easier to accurately scale in view of the fact that our scale will not weigh to the second, much less third decimal place so we will need to round off those numbers and while there is always an error when rounding, the error has less impact upon the dough/crust when working with larger dough sizes. This does not mean to say that you cannot make a dough based on volumetric portions or sized to make just one pizza, indeed you can, it is just harder to replicate that dough for future pizzas which explains why so many people ask what ingredient changes need to be made to double a "recipe" in size. When converting a recipe to a "formula" based on bakers percent you can manipulate the dough to any size you want with precision accuracy and repeat ability with no special changes, think of it like counting money, if you have five dimes and you want to double the amount, how many dimes would you need?

Additionally, that pizzeria that you ordered your pizza from didn't make just a single pizza dough for your order, their dough size was probably based on 50-pounds of flour weight and they made upwards of 100 dough balls from that dough, one of which was used to make your pizza. As for the steak, that's precisely what my wife and I do, we buy a 16-ounce steak and divide it between us (8-ounce steaks are hard to come by here and when you do find them they're much too thin for use to grill properly). Try your hand at making some great bread sticks or garlic knots, or how about making a calzone or a loaf of bread from the extra dough, that's what many of us do with any surplus dough, or you can keep it in the fridge for another go around at making pizza on the following day, that's the fun of making your own dough. Great food, and you can say that you made it yourself, just as YOU like it.
:chef:

Tom Lehmann/The Dough Doctor

[Re: Can someone tell me why dough recipes call for dividing into multiple balls ?](#)
3348

That's the best part of making YOUR OWN PIZZA. You can make exactly what YOU want and what YOU like. Everyone has different tastes so no one is offended that you have a preference for crusts made without much fermentation time.

Fermentation develops acids which impart a level of tartness in the finished crust and sourdough is the epitome of this, you said that you do not like the flavor from a sourdough starter so you probably have a sensitivity to tartness which causes you to prefer crusts made with short fermentation times where there isn't much development of acidity. You might also look into trying a commercial frozen dough to make your pizza skins/crusts as these are made with essentially no fermentation time at all and probably come fairly close to what you are presently doing with PZ-44.

Tom Lehmann/The Dough Doctor

[Re: Pz44](#)

3349

Most likely you will need a person for plating and boxing.

Tom Lehmann/The Dough Doctor

[Re: Number of decks?](#)

3350

The General Mills Full Strength flour comes in at about 12.6% protein content, while the ADM Commander comes in at 13 to 13.3% protein content. The Full Strength flour is right about where you're presently at. The store brand VWG should work well, just be sure you're buying Vital WHEAT Gluten. There is also corn gluten which is just another word for corn protein....they're not the same and they're not interchangeable. Of the three flours being discussed here I really don't you'll see any difference in performance between them.

Tom Lehmann/The Dough Doctor

[Re: sourcing flour in Atlanta area](#)

3351

Problem solved with the oven and learning curve!

Looks like all you need to do now is to keep practicing your techniques and working to maintain consistency in time and temperature controls...that's a good place to be as it appears that you have all the hard stuff behind you now. :)

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3352

Luis;

You're doing the right thing in finding out what your prospective customers want in their pizzas. As you well know there are many different types of "salsa picante" in Mexico, use what the local tastes dictate as they will be able to relate to it better. I do not recommend making a spicy sauce unless you want to offer it as an option which is very easy to do since it keeps for several days under refrigeration. Instead, you might think about placing bottles (squeeze bottles) of the spicy sauce at the tables which the customer can add themselves to their liking, but if you will go into the DELCO side of the business the two sauce option makes better sense. Keep in mind that what you are presently doing is just practice in making pizzas and getting a feel for what your market wants in a pizza, when you go to a commercial pizza oven the pizzas will bake entirely differently and the learning curve will start all over again but hopefully it will be a bit shorter.

One of the most popular items that I made when in Mexico was a dessert pizza made using mango.

Cream cheese (queso crema) 500-grams

Huevos: 2

Azucar en polvo: 250-grams

Crema acida o crema Ricotta: 250-grams

Procedure:

Blend the above ingredients together until smooth, thin out with cream to give the mixture a soft spreading consistency.

Spread onto a pizza skin not more than 2 to 3-mm thick, add slices or pieces of mango and bake as you do your regular pizzas. You can modify this by adding other fruits and coconut. After the dessert pizza has cooled for about 5-minutes apply a

powdered sugar - water icing (azucar en polvo y agua) just place the powdered sugar in a bowl, add a small amount of water and stir, keep adding water VERY SLOWLY just until the icing has a "just" pour-able consistency, then transfer to a plastic squeeze type condiment bottle. to apply to the pizza just squeeze a portion of the icing onto the pizza in a decorative pattern. Pizzas can be served hot or cold. We used to make them before hand (without the icing) and store in the fridge, then cut into slices for serving. To serve we would ask if they wanted it hot or cold. If hot just place into the oven for a minute or so to reheat the slice, add the icing and serve, if cold just add the icing and serve, for a little extra profit offer it warm with a scoop of ice cream...really good! Remember...DARE TO BE DIFFERENT!

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3353

Vital wheat gluten is indeed an option and no, it doesn't add anything unsavory to the finished crust if used correctly. With your flour coming in at about 12.7% protein content (you are correct) and All Trumps coming in at approximately 14.2% protein content you will need to increase the protein content of your flour by 1.5%. Each 1% VWG that you add to your flour will increase the protein content by 0.6%, so if we divide 1.5 by 0.6 we get 2.5 which means that you will need to add 2.5% VWG to the flour you have to get a protein content equivalent to All Trumps. Two things to remember (1) Dry blend the VWG into the dry flour before adding any liquid, this is to prevent the VWG from pilling/clumping when you add the water. (2) For each percent VWG you add you MUST add additional water to compensate for the absorption properties of the VWG. The amount of water you will need to add is 1.75% for each 1% VWG, so in this case you will need to add $2.5 \times 1.75 = 4.375\%$ additional water along with the VWG.

The main reason why All Trumps is used for N.Y. type pizza is because it provides the desired chewiness to the slice. If you do not want to have the chewiness best to stay with the flour which you are presently using.

Tom Lehmann/The Dough Doctor

[Re: sourcing flour in Atlanta area](#)

3354

A special order is the person who walks in and orders five pizzas or more for a party or ten or more for an office party, and then you have a kids soccer team coming in after practice or a game ordering five or ten pizzas, and don't forget about the catering event where a food caterer contacts you to provide pizzas for a "special" event, I've seen these orders come in at 20 or more pizzas, mind you.....this is all in addition to your regular pizza production. For the operation as you have described it so far I would estimate that, behind the counter, you will need one person opening skins and dressing skins and one person as an oven tender and one person plating or boxing the pizzas and a cashier. You will also need a wait staff to take care of the table service on the other side of the counter, and if you don't have a commercial dishwasher you will need to have an additional person behind the counter for washing dishes.

Tom Lehmann/The Dough Doctor

[Re: Number of decks?](#)

3355

In one word, yes, but you will need to decide if the flavor is right for you as the dough will not have nearly as much fermentation on it (only something between 60 and 120-minutes).

Tom Lehmann/The Dough Doctor

[Re: Pz44](#)

3356

What kind of pizza/pizzas are you trying to make that you need a higher protein content flour for?

Tom Lehmann/The Dough Doctor

[Re: sourcing flour in Atlanta area](#)

3357

Both of you are making Detroit style pizzas though which admittedly poses some issues with the Lloyd pans. Other types of pan pizzas do not suffer the same fate.

Tom Lehmann/The Dough Doctor

[Re: Lloyd pan issue - help](#)

3358

Luis;

First off....let me say that your pizzas look great! Don't worry about the rims, that's pretty normal for pizza. Try baking at a lower temperature, around 525 to 550F to reduce the bubbles in the rim, but if it were me, I wouldn't change a thing! The dough balls look great too! You cannot have a dough ball temperature that is any colder than the coldest part of your cooler....yep, you really do need a new thermometer. As for the "ideal" CF temperature, it is the specified temperature that is required to be considered "refrigeration" which puts us between 33 and 40F. Since there is too much of a probability of freezing the dough when you're operating at 33F most operators run their coolers at 36 to 38F, it sounds like that beer cooler might be just the ticket for holding your dough for CF.

Normal mixing time for a pizza dough is best defined as mixing the dough JUST until it achieves a smooth appearance, more mixing than that is not needed nor desirable. I normally figure on mixing a dough for around 8 to 10-minutes so your 9-minute mixing time looks to be OK.

Again, great looking pizzas!

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3359

It all depends upon the strength (acidity) of your starter, your flour strength, and how much sourdough starter you're adding in total. You might be better off just adding a little yeast to the dough and enjoy some pizza for dinner, then make sure the starter is ready to be used before adding it to the dough the next time. We all learn from our mistakes and get to enjoy a few good pizzas along the way too. :)

Tom Lehmann/The Dough Doctor

[Re: sourdough not rising. can I still use it?](#)

3360

PZ-44 is what is referred to as a "reducing agent". It breaks the gluten forming protein chains at specific (S-H) bonding points on the protein chain. In plain language, it weakens the dough making it more extensible. It has some application in no-time doughs aka emergency doughs but its main use is in pressing skins where it creates a sufficiently relaxed dough so it doesn't snap-back immediately after pressing. You DO NOT want to use it in doughs which will be fermented for any period of time much over about two hours as the dough has the potential to become excessively slack/extensible and weak. The same effects of PZ-44 can be

achieved using sufficient fermentation with the added benefit of vastly improved flavor in the finished crust due to the fermentation.

The two ingredients in PZ-44 are dairy whey (used as a diluent and carrier) and L-cysteine hydrochloride (the active ingredient). The amount of L-cysteine present in PZ-44 at a 2% dosage provides about 35-ppm (parts per million based on the flour weight) of L-cysteine. One major advantage of L-cysteine in commercial frozen dough is that it significantly reduces the total dough mixing time (commercial frozen doughs are mixed to full gluten development), this is one reason why commercial frozen dough is typically quite extensible after slacking-out (thawing).

Tom Lehmann/The Dough Doctor

[Re: Pz44](#)

3361

It might also be the technique you're using to open the dough balls, there were some good videos here showing this recently. One thing that I used to teach my students for opening the dough balls was to use a rolling pin/pastry pin to open the dough to about 75% of the finished diameter and then finish opening it to full diameter by either table stretching, hand stretching or hand tossing or any combination of these (I like to use both table stretching and hand tossing to open my dough into skins)

Some other possible causes might include:

Flour too weak (insufficient protein content)

Insufficient gluten development.

Insufficient fermentation time.

Dough too warm or too cold when opening the dough balls.

Dough over fermented resulting in a soft, weak dough which has become overly extensible.

The type of work surface that you're opening the dough on can also impact the way the dough handles during opening, this was also discussed here quite recently. I think the consensus was that wood and stainless steel were the best materials.

Tom Lehmann/The Dough Doctor

[Re: Dough tears](#)

3362

Those pizzas need to be baked as long as possible to help control the moisture issue, we have found that baking on a stone helps with a "normally" dressed pizzas but when loaded/over loaded with toppings the stone works against you in that it creates a bottom crust color that is too strong or many times actually burnt given the longer baking time. The trick is to allow the extra baking time to help get rid of some of that moisture with the longer baking time we have never experienced any problems with getting the crust thoroughly baked with a moderate amount of toppings, but when the water begins to filter down into the dough from an over abundance of toppings it's all but impossible to achieve a properly baked crust. I think par-baking the crust is probably the best option in this case as that will address the unbaked crust issue, and then as stated earlier, a "swamp pizza" is not an issue. Baking with some kind of airflow in the oven would definitely help with getting rid of some of the moisture too...great idea!

Tom Lehmann/The Dough Doctor

[Re: crust soggy wet and raw even after baking for double the amount of time.](#)

3363

While the Lloyd Pans will stand-up to washing without a problem they really don't

like to be washed, we always just wiped them out with a clean towel for the next use.

Tom Lehmann/The Dough Doctor

[Re: Lloyd pan issue - help](#)

3364

Kinda hard to tell from the photo but it looks like it might have been due to the dough being too elastic, that dough just doesn't look very relaxed to me. Was the dough ball well floured before you began opening it?

Tom Lehmann/The Dough Doctor

[Re: Dough tears](#)

3365

They're sticky because the dough boxes were covered right away (which is also the most likely reason why the dough balls are flattening out), instead of covering them right away, immediately after you place the dough balls into the box, wipe them with a little salad oil and place the box into the fridge UNCOVERED, this will allow the dough balls to cool much more efficiently and at a MUCH more consistent rate. After 3-hours place the lid on the box and you're good to go to whatever CF time you elect to use. To use the dough, remove from the fridge and leave in the covered box until the INTERNAL temperature of the dough balls reaches a minimum of 50F (55 to 60F works well in a home environment), then remove the dough balls from the box and open into skins by your preferred manner. A good finished/mixed dough temperature to target for is in the 70 to 75F range. This is achieved through adjustment of the temperature of the water that you are adding to the dough (usually a water temperature between 60 and 65F provides a finished dough in this temperature range. Following this procedure you should find that the dough balls are not sticky and they will probably hold their shape much better too while providing more consistent crusts at the same time.

Tom Lehmann/The Dough Doctor

[Re: Flat pizza balls](#)

3366

Are the dough pieces sticky when you first open the dough box?

Tom Lehmann/The Dough Doctor

[Re: Flat pizza balls](#)

3367

Same issue applies as with the graduated cylinder. When measuring fermentation first full rise is the bench mark that we look for as everything is based on FFR (it is a constant for any specific flour), so fermentation is always expressed as FFR plus or minus a specific period of time which when you add up the FFR and the +/- time you get the fermentation time that you see recommended for a specific product using a specific flour. To measure the FFR you don't need anything graduated, you just need a clock, but as stated previously, if you are wanting to only measure the RATE of fermentation then a graduated cylinder works fine.

Tom Lehmann/The Dough Doctor

[Re: graduated cylinder](#)

3368

Try to get a temperature of the dough immediately after mixing, if the temperature is above 80F that might be contributing to the problem, also how do you store the dough balls in the fridge? Plastic bag, bowl, box? Do you leave the container

(except for the bag) open for a couple of hours or do you lid the container right away? This can have a significant impact upon the dough.

Tom Lehmann/The Dough Doctor

[Re: Flat pizza balls](#)

3369

Dough weight? Dough temperature when you open it into a skin? Diameter? Thickness? You say you roll it out for as thick crust, do you allow the shaped skin to proof/rise prior to dressing and baking? If not, place the dough onto an oiled pan and tent it with a large bowl or piece of foil, allow it to proof/rise for a minimum of 30-minutes then dress and bake. (60-minutes might be better). An old trick that we use a lot of times when a LOT of toppings are used is to apply the toppings so they are VERY sparse in the center section of the pizza and heavier out towards the rim/edge, this will allow the center to get a better bake and as the pizza bakes the toppings will flow back into the center. When all is said and done though the pizza is still going to be "swampy" due to the overloading of the sauce and toppings. Those toppings are approximately 90% water and as the pizza bakes they release the water which drains down into the crust where it makes everything wet and soggy...sound familiar?

Like Mitch said, we really need more detailed information.

Tom Lehmann/The Dough Doctor

[Re: crust soggy wet and raw even after baking for double the amount of time.](#)

3370

After thoroughly cleaning the pan oil it for the first two or three uses, after than use it as you normally would. Even Lloyds recommends that you wash the new pans and then oil it for the first use, afdter that there is no need to oil it for each use.

Tom Lehmann/The Dough Doctor

[Re: Lloyd pan issue - help](#)

3371

Ditto! Not much not to like there!

Tom Lehmann/The Dough Doctor

[Re: another cold fermented sour dough experiment](#)

3372

Also, just recently there have been a number of posts on small size (counter top) spiral mixers which were VERY reasonably priced, might go back and check them out, I was impressed with them.

Tom Lehmann/The Dough Doctor

[Re: Decent mixer suggestion for around 1000\\$ or under?](#)

3373

It might be the starter that's to fault. If the starter is more acid than usual the acidity will break-down the protein causing the dough to become more slack (softer) than usual which would allow the dough balls to flow out rather than hold their shape. Dough temperature? Amount of mixing? Any one of these will also have an impact of how well the dough ball holds its shape during the CF period. Try re-rounding the dough balls to see if that works, if it doesn't I'd be suspicious of the sourdough starter.

Tom Lehmann/The Dough Doctor

[Re: Flat pizza balls](#)

3374

And don't forget October 8-10, 1871.....a lot of things got cooked during that time period in Chicago. :-D

Tom Lehmann/The Dough Doctor

[Re: Important Dates in Chicago Pizza History](#)

3375

You can use it but it won't give you a very accurate idea of the first full rise time or how the dough performs with extended fermentation time. There must be some type of round cooking bowl at least twice that diameter??? 11-cm is just over 4-inches which is actually smaller than our cereal bowls. I don't know what you have available, but a pasta bowl (8.5"/21.5-cm diameter X 1.5"/ 3.75-cm high) would be close to perfect. The cost is very reasonable for one of these too, only about \$5.00 each is what we paid for ours.

Tom Lehmann/The Dough Doctor

[Re: graduated cylinder](#)

3376

All of the EarthStone ovens that I've had the opportunity to work with were great baking ovens. If you plan to use this type of an oven you might want to develop the habit of "doming" all of your pizzas for a few seconds just before removing them from the oven. The reason for this is to help dry off the top of the pizza which will be a critical aspect of having a decent carry-out pizza.

Tom Lehmann/The Dough Doctor

[Re: new pizzeria advice](#)

3377

Joe;

Your dough formulation looks good as does the IDY. I suggest using between 0.375 and 0.5% for the IDY level in most of my pizza dough formulas. A couple of comments on the photo though that might shed some light on your last question. The crumb structure is quite close/dense, especially for a par-baked crust and it also appears that the bottom of the crust might be pretty dark. This might indicate that the dough is not being sufficiently proofed in the pan prior to baking, so you might try letting the dough proof for an additional 15-minutes to further open the crumb structure which will allow for a better bake both as a par-bake and when baked from raw as a pizza. The dark bottom crust color would indicate that the pizza is possibly being baked on a deck/stone surface which can result in short bake times further compounding the close/dense crumb structure issue mentioned above. Try baking both your pizzas and par-baked crusts with a pizza screen under the pan if this is the case or just place the pan directly on the oven rack without anything under it. The pizzas might also be baked at too high of an oven temperature or too low in the oven (where the pizza gets more bottom heat). Pan pizzas (made on a raw dough skin) are best baked at not more than 450F. Par-baked crusts are best baked at 400F to not more than 425F. In my home oven I find it necessary to bake the pizzas (on raw dough) for the better part of 20-minutes and move the pizza from a lower rack position to a middle rack position about half way through the baking cycle (whole pizza made on raw dough). When par-baking you can just place the proofed dough in a middle rack position and bake right on the rack or with a screen between the deck/stone and the pan. Keep in mind that these are only estimates as you will need to determine exact times and temperatures for your specific oven, pan color, pan weight/thickness and material. One final note: When baking your pizza using a par-baked crust do not bake on the

deck/stone, bake in a center to slightly high rack position, and bake at 450F, the baking time will usually be around 10 to 12-minutes.

Let me know how this works for you.

Tom Lehmann/The Dough Doctor

[Re: Yeast amount](#)

3378

When properly set-up they will do a pretty decent Neo style pizza. The problem is that most operators using air impingement ovens are only interested in making "pizza", not a specific style, their only distinction is in the level of crispiness and thickness. You would be amazed at how few operators actually have a working concept of air impingement baking. That's one of the things that allows me to "keep the lights on".

Tom Lehmann/The Dough Doctor

[Re: new pizzeria advice](#)

3379

Stone hearth ovens as you are considering may not be your best option where carry-out is involved as the pizzas notoriously do not hold-up all that well when stuffed into a box. The air impingement ovens such as what Domino's used are much better suited to a DELCO application.

You really need to be talking to people to find out what they like as far as pizza is concerned, if you want to make something like a Domino's I'd suggest going with a conventional deck oven, if appearance is important to you they are available with a brick facade making them look a lot like a wood fired oven, or if this option is not available to you I'm betting that with a little ingenuity you can construct your own brick or tile facade to get the look you want. Just in case you're wondering...Domino's got their start using deck ovens.

Tom Lehmann/the Dough Doctor

[Re: new pizzeria advice](#)

3380

If you are using an air impingement oven there should not be an issue however if you are using a deck oven or a home oven you need to remove the larger pieces of sausage from a number of baked pizzas and pick them apart to make sure they are fully cooked, then you need to begin REDUCING the baking time in 30-second increments and do the same thing again until you find that the sausage is showing some pink (especially in the larger pieces), now, look at the pizza and ask yourself if the pizza is visually under baked. If it is you can now say, with a high level of assurance, that so long as the pizza is baked (as determined by appearance) the sausage is being fully cooked. The problem with home ovens is the great variability in how they bake pizza which is a function of oven design and how/where the pizzas are placed in the oven. This might seem like a lot of fuss over nothing but when you consider how many people get sick (those are the "lucky" ones) from eating improperly cooked ground meat every year you'll feel better about eating your pizzas after this little exercise.

Tom Lehmann/The Dough Doctor

[Re: Questions about raw sausage](#)

3381

Are you planning to include DELCO (delivery and carry-out) in your store concept? What kind of pizzas do your customers (anticipated customers) like, crispy, chewy, etc.? How many pizzas will you need to make to break even (estimate)? What we

really need to know is what your store concept is, and if possible what kind of space will you have available (approximately), or will you be building a new structure from the ground up? With this information there are plenty of us here who can help you fill in the blank spaces.

Tom Lehmann/The Dough Doctor

[Re: new pizzeria advice](#)

3382

That's IDY, the constituent ingredients are correct and the suggested method for adding it is pretty correct too, I just don't understand the high recommended use level, but that might be due to a difference in activity or possibly they are trying to establish a use level based on what they have found consumers to be doing. In any case, start at 0.5% and see how that performs.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3383

Luis;

I would increase the fresh yeast/levadura fresca/compressed yeast to 1% as I think 0.5% may be too low. I looked at the information on the instant yeast that you provided but the use level of 11-grams per 250-grams of flour calculates at 4.4% while 11-grams per 500-grams flour works out to 2.2% both levels are significantly higher than what we typically see for IDY which is 40% of the fresh yeast level. I wouldn't let this keep me from testing with it though. If you can get a bag of it and provide us with the use directions (how to add it to the dough as well as how much to use when replacing levadura fresca we might be able to provide you with some insight in its use. Lacking that, I'd suggest starting at 1/2 (50%) of the amount of levadura fresca normally used (add it directly to the flour just as it comes out of the bag) and bench mark from there.

Tom Lehmann/The Dough Doctor

P.S.

When I was working in Mexico we had a brand of IDY called Montana...are you familiar with this? It may have been bought by another company and re-named.

TDD

[Re: Dough formulation with Mexican flour](#)

3384

That's absolutely correct, the garlic and onion will cause the pectin in the tomato to gel resulting in the thickening which you are seeing. You can either add the onion and garlic at the time of serving or you can "nuke" the onion and garlic in some water and then add it to the sauce as you presently are. The heating of the onion and garlic to 180F or above will deactivate the enzymes responsible for the thickening. I usually tell people to heat the onion and garlic until it boils so you know for sure that you reached a minimum temperature of 180F. The heating process will also serve to release (pop) the flavors from the onion and garlic too.

Tom Lehmann/The Dough Doctor

[Re: Pizza sauce become incredibly thick overnight](#)

3385

In Chicago the sausage is always added as raw sausage to both thin as well as deep-dish type pizzas. To do this you MUST bake the pizza sufficiently long to get the sausage completely cooked, this is done by baking the pizzas at 475 to 500F

and this explains why thin crust pizzas have a 30-minute wait time and the pan style pizzas have a 40 to 45-minute wait time. If you feel the need to bake faster at a higher temperature you will need to use pre-cooked sausage or experiment with putting the sausage on the top of the pizza as the last topping ingredient.

tom Lehmann/The Dough Doctor

[Re: Questions about raw sausage](#)

3386

It looks like the bag might be too small for your dough balls, even then, it really isn't all that difficult to make a round skin from the dough balls you have shown, but if you're really into having a round dough ball after fermentation try using a round bowl with a round shape bottom (think Tupperware) and leave the containers uncovered for the first 3-hours in the fridge, then cover BUT be sure to put some kind of small hole into the lid(s) as a pressure release. Be sure to oil the dough balls prior to placing them into the bowls for easier removal.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3387

An interesting option is the Pizzarette (Home Depot) for under \$200.00, or the Waring WPO 500 for about \$900.00.

Some places you might want to peruse ovens at are: Restaurant Supply.com; Webstaurant Store.com; and Home Depot.com.

Tom Lehmann/The Dough Doctor

[Re: Looking for Built in countertop pizza oven - Wood](#)

3388

Is it just me or do the dough "balls" look awfully flat? The dough might be a little over absorbed, I don't know if I could get my dough balls that flat or not. In any case, I'm betting that those thin dough "disks" or patties are being cooled too fast resulting in insufficient or less fermentation during the 20 to 22-hour CF period. Putting the dough into "balls" and placing into bread type bags (pulled snug but NOT tight to the dough ball) will slow the cooling rate of the dough and allow for more actual fermentation to take place during the 20 to 22-hour period of time. Within reason, the longer the dough is fermented, the more tender eating the finished crust will be.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3389

So, not just a counter top oven but one that's rated to withstand the outdoor elements...right?

Tom Lehmann/The Dough Doctor

[Re: Looking for Built in countertop pizza oven - Wood](#)

3390

The most flavorful part of the tomato is in the "velvet" which is located immediately under the skin, for this reason I only use unpeeled tomatoes for my sauce whenever possible as my default, but when I have the option I always elect to use fresh, ripe, whole tomatoes sliced about 3/16-inch thick and placed on the skin instead of a traditional sauce resulting in superb flavor and texture not to mention appearance. But that's just me.

Tom Lehmann/The Dough Doctor

[Re: Whole Peeled Tomatoes - Puree vs Juice packing?](#)

3391

A "true" N.Y. style crust is made using All Trumps flour (14+% protein content) and the resulting crust IS somewhat tough/chewy so if you are looking for a more tender eating finished crust a lower protein content flour will work well for you. Adding vital wheat gluten will just make the finished crust tougher and more chewy. Your flour just as it is with 12+% protein content should work fine. Adding 1 or 2% sugar to the dough formulation will result in faster crust color development during baking but normally a longer baking time results in a more thorough bake and a more tender and crispy eating crust. N.Y. style crusts are not crispy, but instead they are more on the tough and chewy side. You didn't mention anything about how you make your dough or how you manage the dough. Toughness is many times due to an under fermented dough. If you will share your dough making process and dough management procedure we can see if there is anything you can do to address the issue and achieve a more tender eating finished crust. Just for the record, I see that you are only using 0.5% compressed yeast, this is about 1/2 of where I normally see the compressed yeast level at when making a N.Y. style crust. If you have dough problems with higher yeast levels this might be due to a finished dough temperature that is too warm. For home baking we usually see a finished dough temperature in the 70 to 75F range combined with 2 to 3-days of cold fermentation. In a commercial pizzeria setting the finished dough temperature is usually in the 75 to 80F range combined with 1 to 2-days cold fermentation time.

Tom Lehmann/The Dough Doctor

[Re: Dough formulation with Mexican flour](#)

3392

It looks like an early model Dough-Pro hot press. Only the head is heated, the platten swings out for placement of the dough ball and removal of the pressed skin, the platten is not heated. Typically the head temperature is set at around 200F and a seven second dwell time is used. A very soft and extensible dough ball is needed to be pressed or it will snap-back as the head is raised. In some cases the use of a dough relaxer such as PZ-44 or "dead yeast/RS-190 is required to address the snap-back issue. The press produces its own unique finished crust characteristics, not like hand tossed/slapped/stretched, or sheeted.

While the hot press is typically used for thin type crusts it really shines when used to make thick crusts (thick skins) where the heat applied to the dough serves to help jump-start the yeast activity when the dough is panned and allowed to rise prior to dressing and baking.

Don't forget to oil the dough ball as well as the platten when using this type of press. The head is flat so it will produce any size skin up to the diameter of the platten. The adjustment on the top is used to adjust the desired thickness of the pressed skin. Pressed skins are almost universally docked after pressing (thin crust skins only), thick crust skins do not need docking if properly pressed.

There has been some previous discussion here on pressed crusts. I've also written on it in PMQ Magazine if you want to learn more about it.

Tom Lehmann/The Dough Doctor

[Re: Pizza press.](#)

3393

Built-in counter-top?

Tom Lehmann/The Dough Doctor

[Re: Looking for Built in countertop pizza oven - Wood](#)

3394

Remember, if you go with a Marsal and Son's oven you do not need to add a gas pressure regulator as the oven already has one installed internally. If you add an external pressure regulator in addition to the on-board one the oven will not operate correctly.....that's the number one problem I've encountered with the Marsal ovens, NOBODY READS THE INSTRUCTIONS, otherwise it's one of my favorite ovens.

Tom Lehmann/The Dough Doctor

[Re: Pizza oven question](#)

3395

Your finished dough temperature was 80F, what was at 7C (44.6F)? Is this the temperature of the cooler/fridge? Even then, after 24-hours you should be seeing some increase in the size of the dough balls and the dough should open pretty easily. If the dough is tough and elastic when opening there is a problem with the yeast.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3396

The finished dough temperature is a reflection of the dough management procedure being used. You are correct in that the higher the temperature the more rapidly fermentation will progress and a lower finished dough temperature slows/retards the rate of fermentation.

If you were to use a 60F finished dough temperature and manage the dough properly you would find that there was insufficient fermentation to make a decent pizza after 24-hours and only marginal after 48-hours but you would begin to see better results after 3-days with a "sweet spot" at 4 or 5-days. With a 75 to 80F finished dough temperature and effective dough management the dough should be "just" ready to begin using after 24-hours with a "sweet spot" at 48-hours and a useful life of 72-hours. So, it all depends upon what you are looking for and how you are managing your dough. Of course if you have a high yeast level or low salt level or poor dough management practices a colder dough temperature will always be a good default temperature option.

Tom Lehmann/The Dough Doctor

[Re: 80 degree end mixing temp](#)

3397

Jeff;

As long as the dough doesn't collapse due to fermentation or during baking the protein content is OK with that said, the higher the flour protein content the greater the POTENTIAL crispiness of the finished crust.....but keep in mind with thick and pan style crusts the higher the protein content the tougher/more chewy the finished crust will be with a single baked pizza, however with a par-baked crust the good news is that the impact of the higher protein flour is only minimal on the finished crust with regard to chewiness/toughness.

Tom Lehmann/The Dough Doctor

[Re: Looking for light and airy.....help](#)

3398

Werty20;

With 0.3% IDY and 24-hours at room temperature with an 80F finished dough

temperature and NO RISE your yeast is "kaput". Freezing bad yeast won't make it any better. To save unused IDY, leave it in the original bag, roll the bag down tightly onto the yeast and secure with a rubber band and store at room temperature.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3399

It's only really needed for the thin crust types which have a propensity to cross the line from pizza into pita. Thick crust and pan style typically does not need the sauce application or docking if the dough has been fermented properly. I do like to invert the par-baked crusts though immediately after baking for cooling as this helps to flatten the top making for a better final presentation.

Tom Lehmann/The Dough Doctor

[Re: Looking for light and airy.....help](#)

3400

JPB:

But remember the poolish is a constant so the RF and CF are the test variables which really set the stage for flavor development several days out.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent results with RT/CF](#)

3401

Three days, four at the max (mold development is the issue here). Best way to store them is at room temperature. Allow to cool thoroughly, plastic bag and store as you would a loaf of bread.

Tom Lehmann/The Dough Doctor

[Re: Looking for light and airy.....help](#)

3402

Actually, quite a bit is happening during the CF period, it may not look like it but bacteria is thriving and acids are degrading the proteins both of which are major flavor contributors. Is it possible that the flavor you are looking for is due entirely to either CF or RF? An easy way to find out. Make several dough balls form a single dough (finished dough temperature 75F) ball, oil and bag the dough balls and place in the fridge, allow to CF for 48, 96 and 120-hours. Test one dough ball at each time interval to see if you like the flavor profile being developed. Then repeat using RF for 24 and 48-hours to see if you like that flavor profile. Fine tune the CF or RF to optimize handling and flavor characteristics. Whichever one you like begin incorporating some CF or RF into the procedure and monitor the flavor as it develops with an increase in time.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent results with RT/CF](#)

3403

How thick is the deck material?

Tom Lehmann/The Dough Doctor

[Re: Pizza oven question](#)

3404

After pressing the dough out into the pan set it aside to rise (proof) for 45 to 60-minutes. A temperature humidity controlled cabinet (proofer) operating at 95F and

85% R.H. is best but many times I've used a wire tree rack to hold the pans and cover with a food contact approved plastic bag to retain humidity thus preventing drying during the proofing stage. Once the dough has proofed and is about 1-inch thick, par-bake in in a deck oven placing the pan on a pizza screen to hold it up off of the deck. Baking temperature should be between 400 and 425F. Bake time will be right around 5-minutes. As soon as the crust is sufficiently par-baked immediately remove it from the pan and place it onto a pizza screen for cooling. If you should see what appears to be oil spots in the par-baked crusts, these are NOT oil spots, they are areas of dough collapse due to insufficient baking, meaning that you will need to bake your par-baked crusts a little longer.

Tom Lehmann/The Dough Doctor

[Re: Looking for light and airy.....help](#)

3405

Andy;

If you use a walk-in cooler or even a reach-in cooler all you will need to do is to work at maintaining a CONSTANT finished dough temperature throughout the year. I don't know of any pizzeria that changes its dough formulation to accommodate seasonal changes in temperature. At one time we used to see then changing the amount of yeast used but anymore the only adjustment they make is to the water temperature which is adjusted accordingly to give a finished dough temperature which is CONSTANT throughout the year. Most pizzerias target a finished dough temperature in the 75 to 80F range when they are planning to use the dough within a 24 to 48-hour period after mixing.

Procedure:

Mix.

Immediately scale and ball.

Place into dough boxes.

Lightly oil the top of the dough balls.

Cross-stack in the cooler walk-in or off-set stack in a reach-in cooler.

Depending upon dough ball weight cross-stack time will range from 2 to 4-hours.

Down-stack and kiss the dough goodnight.

To use the dough, remove from cooler and allow to warm until the CORE temperature of the dough balls reaches 50F.

Dough can be used over the next 3-hours.

Tom Lehmann/The Dough Doctor

[Re: Bread Proofer Cabinet](#)

3406

My personal belief is that you don't hire a manager, you train a qualified person for the position. If you are not delegating to a manager within the first year, in all probability you're not going to make it for five years and for sure you are going to be locked into 1 store, the second store will burn you out....three is out of the question. I have a very good friend who has been in the pizzeria business for 10-years now, he has three stores which are all very successful. Did I fail to mention that he was getting away from the shop for a week or more a little over a year after he opened his first store, now he steps out whenever he feels the urge unless there is some dire issue he has to address at one of his stores, in fact right now he is in NYC getting ready to run in the marathon tomorrow.

Tom Lehmann/The Dough Doctor

[Re: Relying on manager](#)

3407

!0: Failure to adequately train the manager(s).

15: Owner's habit of micro-managing.

Tom Lehmann/the Dough Doctor

[Re: Relying on manager](#)

3408

If it were me, I'd go with two of the large decks for the added capacity to accommodate future growth. You can leave one deck turned off if not needed. You will also be glad you have two decks when you begin getting special orders on top of those from your dine-in.

Tom Lehmann/The Dough Doctor

[Re: Number of decks?](#)

3409

Aluminum or stainless steel flat stock 2.5 to 3-inches wide by 1/8-inch thick bolted to the edge should work well but might be expensive. A lower cost alternative might be a few pieces of Formica covered wood either screwed or glued onto the table would also work well and be a lot cheaper to boot. You could get fancy and make the back high enough to hold some of your tools or make shelves for dusting flour, scrapers, cutters, etc.

Tom Lehmann/The Dough Doctor

[Re: 24½x48½ stainless steel table help.](#)

3410

For a typical dough formulation made with 3% salt (too salty for me :() and 48 to 72-hours at 7C I would opt for 0.5% IDY. But depending upon the actual temperature of the fridge (they do vary) this might need to be adjusted by 0.1% in either direction. This is assuming the dough is properly managed too.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3411

John;

If you should find that the top is too springy for your liking flip the table over and glue a piece (1/2 sheet) of 3/4 or 1" plywood to the underside of the top.

Tom Lehmann/The Dough Doctor

[Re: 24½x48½ stainless steel table help.](#)

3412

It all depends upon how well the dough is managed.

Tom Lehmann/The Dough Doctor

[Re: Can I keep dough in the fridge for 4 days?](#)

3413

Just one...why haven't you bought it?????

It's a treasure and a steal at that price! Great for opening your dough balls into skins on, or use as a prep table.

I wish I found that at our thrift store! :)

Tom Lehmann/The Dough Doctor

[Re: 24½x48½ stainless steel table help.](#)

3414

When I was a kid I remember washing the cast iron frying pan.....just once!!!

Let me say that my mother was NOT a happy camper! She ended the episode by giving me firm and easily understood (even by me) instructions on how to clean that prized, well seasoned frying pan. In short, when you're finished using it allow it to cool a little and then just wipe it out with a clean towel or piece of newspaper. We always had plenty of newspaper laying around as it served double duty in the outhouse. Come to think of it, bacon/pork fat/lard was the main fat we had for cooking. As a kid, and even today, I think bliss is a piece of dark rye bread slathered with cooking lard (and I do mean "slathered") and then salted and consumed with a few garden fresh green onions :chef:

Tom Lehmann/The Dough Doctor

[Re: How to avoid gunking up cast-iron Dutch oven](#)

3415

Many times that roughness will come out with fermentation time, but even then, I like to mix the dough a bit longer, just enough to smooth it out.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent results with RT/CF](#)

3416

What's a few hours out of several days? :)

Shouldn't hurt at all.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent results with RT/CF](#)

3417

7C is actually too low to see much, if any, yeast activity (it's the temperature of the fridge), whereas 22 to 24C is the temperature at which we typically mix our doughs to so we get much better yeast activity at that temperature. Additionally, 3% salt with 0.16% IDY is most likely exhibiting a suppressing effect upon yeast activity, especially at 7C/44F.

Tom Lehmann/The Dough Doctor

[Re: no raise](#)

3418

You certainly want to control the temperature of the poolish, keeping it constant. As for using ice water in the dough, you only need to adjust the water temperature to give you your desired/targeted finished dough temperature (70 to 75F?).

Immediately after mixing scale and form the dough balls, done right this will also serve as some stretching and folding., and place into lightly oiled containers (the oil is to aid in the removal of the dough from the containers (once you see what biochemical gluten development does for you you will question the need to knead the dough). When I mix my dough by hand, which is pretty common as I seldom ever use a mixer, I just mix the dough using a wood spoon and then turn out of the bowl onto a lightly floured surface and then proceed to knead the dough a few times just to get it more cohesive, I then scale and ball it, oil the dough balls and drop into individual plastic bags, twist the open end to form a pony tail, tuck the pony tail under the dough ball as I place it into the fridge and kiss it goodnight. I usually use the dough after 24 or 48-hours. To use the dough just remove from the fridge and place on the counter top, allow to rest in this manner for 90-minutes, then strip the dough ball(s) out of the bag(s) allowing the dough ball to fall onto a floured surface, turn the dough piece over to get the entire piece floured and begin opening the dough into a skin.

If you wanted to give the dough additional RF, instead of dropping the dough ball

onto a floured surface you would just allow it to fall into a lightly oiled bowl of sufficient size and allow it to continue fermenting at room temperature for whatever period of time you elect to incorporate into your dough management procedure (I like to lightly oil a piece of foil to cover the bowl in which the dough ball is fermenting) just LIGHTLY crimp the foil over the bowl and you're good to go. When the RF is completed just invert the bowl over a floured surface allowing the dough to fall with a pleasing "plop", then turn the dough piece over so it's completely floured and begin opening it into a skin.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent results with RT/CF](#)

3419

Let's look at bulk fermenting the dough v/s dough ball fermentation. In a home setting I'm convinced that there is no such thing as "bulk" fermentation unless you're using something to the magnitude of 5-pounds or more flour to make your dough. Bulk fermentation is indeed different BUT you need to have sufficient dough mass to truly have bulk fermentation, anything less than that is just dough ball fermentation in my books. When using a combination of CF and RF my findings are that the RF provides the dominant flavor profile to the finished crust, meaning that the CF is providing a convenience more than anything else. Yes, there is continued flavor development but the flavor is not the same as 100% CF. The reason for this is due to the MUCH greater microbiological activity in the dough at RT.

As to the slimy dough, I'm putting my money of gluten destruction either due to enzyme activity or acids formed during fermentation. When we're dealing with very long fermentation times the finished dough temperature plays a MUCH more critical role in determining how the dough performs at the end of the fermentation period. Remember, we're dealing with microbiological activity so a change of even just a couple degrees F. can have a rather dramatic impact when projected out over 4 or 5-days, and just because the dough goes into the fridge doesn't mean that it is actually being cooled. Due to heat of metabolism the yeast is generating heat (as much as 1 F. per hour) which further complicates things as a fermented or fermenting dough is changing in density (becoming less dense) which further insulates the dough (especially the core) from any loss of temperature. This is why I do not recommend doing a RF prior to CF, it's a crap shoot as to what you'll have going into the CF period (even re-balling really doesn't help any in this regard). If you want to work with a combination of CF and RF my advice is to do the CF first followed by the RF and I think you will achieve more consistent end results as long as you do your part at achieving a consistent (targeted) finished dough temperature.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent results with RT/CF](#)

3420

You will also need to add salt to your dough formulation. A good number would be 2%. I would also suggest keeping your finished dough temperature in the 70 to 75F range and plastic bag the dough balls. If you plan on using containers lightly oil the containers and allow the dough to cool in the fridge for about 2-hours before applying the lids (make sure you allow for pressure release by putting a small hole in the lid(s)) and you should be good to go.

Tom Lehmann/The Dough Doctor

[Re: Can I keep dough in the fridge for 4 days?](#)

3421

After you get it seasoned just don't wash (soak) it in water as this will result in the seasoning lifting off. If you need to wash it do so using a soft plastic bristle brush, immediately followed by a rinse and IMMEDIATE wipe to dry and then heat it to force dry.

Tom Lehmann/The Dough Doctor

[Re: How to avoid gunking up cast-iron Dutch oven](#)

3422

Randy;

The reason why you see dough balls made from frozen dough as being softer than dough balls not made from frozen dough is because of the L-cysteine added to the frozen dough to allow for complete gluten development at low dough temperatures (65 to 70F) required to make commercial frozen dough. Additionally, some of the yeast is damaged due to the freezing process and temperature abuse which naturally occurs between manufacture and use of the frozen dough, the damaged yeast releases glutathione which is very much like L-cysteine (a reducing agent used to make the dough softer and weaken (mellow) the gluten structure. This glutathione is the same glutathione that is present as the active ingredient in "Dead Yeast" used to soften dough and reduce dough memory (snap-back).

Tom Lehmann/The Dough Doctor

[Re: Dough balls spreading](#)

3423

Strange that I should have just opened this question and I just recently submitted a Dough doctor Article for Pizza Today Magazine on exactly the same topic.

DELCO (delivery carry-out) pizzas take a terrible beating from being literally steamed in the box during the period between store and home.

In my opinion, anything gained by using a wood fired oven, or baking at thigh temperatures is totally lost once the pizza goes into the box or goes into DELCO. Air impingement ovens rule supreme in this arena as they offer excellent moisture control on the finished pizza making for a drier pizza to start with which CAN possibly result in a better customer experience once the pizza arrives at the customer's home. With that said, IF your customers have access to a pizza stone AND they re-freshen the pizza using the stone once they get the pizza to their home they CAN have a better experience with a pizza of the type which you describe. Even without a pizza stone a bit of consumer education will go a long ways in making your pizzas all that much better in the eyes of your customers. How to get pizza stones into the hands of your customers? Give them one for free.....well, not exactly free. Have on hand a supply of pizza stones, here's the offer, buy a pizza stone for (\$10.00/your cost or whatever it is) and get \$1.00 off on each of your next ten pizza purchases, or make it \$2.00 off on each of the next five pizza purchases....you see the picture. They will buy the stone, hopefully they'll use it (be sure to provide directions for YOUR pizzas) and then at \$2.00 off on each of their next five pizza purchases they will come back to you for their pizzas, hopefully you can get them "hooked" on your pizzas with five purchases.

Tom Lehmann/The Dough Doctor

[Re: Equipment for new business?](#)

3424

If your finished crust is a bit too chewy your best bet is to ferment the dough longer or use the same fermentation time but increase the yeast level slightly. With a good, strong flour I personally think 24-hours fermentation in the fridge is about the minimum time needed, I normally figure on 36 to 48-hours as the "sweet spot"

for my fermentation time. Try to target for 75F/24C finished dough temperature, and after the fermentation period bring the dough out of the fridge and allow it to warm until the core temperature of your dough ball(s) reaches a minimum of 50F/10C, I have been using 55 to 60F/12.7 to 15.5C lately with good success when making pizza at home. When in a pizzeria I still use 50F/10C though.

Tom Lehmann/The Dough Doctor

[Re: Dough Tears](#)

3425

If you are asking "Is it safe to use?" The answer is yes, if you are asking "Will it make the pizza I am trying to make?" The answer is maybe, the only sure way to find out is to actually make the pizza. Many time our mistakes taste as good as our successes. :)

Tom Lehmann/The Dough Doctor

[Re: Unrefrigerated Dough for 24 hours](#)

3426

It's generally not advised to mix the dough to a specific temperature as the best pizza doughs are significantly under mixed. Instead, adjust the water temperature to give you a dough coming off of the mixer at not more than 70 to 75F while mixing the dough JUST until it begins to take on a smooth appearance. More mixing than this is not needed. Your dough temperature may be too high for the long cold ferment in a home fridge so the lower dough temperature may help if the problem is due to over fermented dough. Did you allow sufficient time for the oven deck to become fully heat saturated? If the bricks were not fully saturated placing a pizza skin onto them will quickly reduce the temperature of the bricks resulting in poor bottom baking properties.

Can you provide any pictures of the top and bottom of your pizza?

Tom Lehmann/The Dough Doctor

[Re: Problems with even cooking](#)

3427

If you really want to make pizzas that will give you a thirst for beer or anything else for that matter, make your pizzas with L-cysteine (PZ-44) to provide about 90-ppm (parts per million) of L-cysteine. This will relate to about 2% PZ-44. The L-cysteine, in addition to being a reducing agent to reduce dough development time substantially, contributes to a feeling on the lips which mimics thirst. That is how Tombstone pizza got its start.

Tom Lehmann/The Dough Doctor

[Re: Beer Pies \(pies that make you want to drink beer - a.k.a. bar pies revisited\)](#)

3428

Please tell us about your oven and the pans which you have to bake them in.

Tom Lehmann/The Dough Doctor

[Re: deep dish pizza](#)

3429

You use the word "collapse" and when I hear this word in conjunction with a pizza crust it is indicative of a crust that has "collapsed" after baking. The center of a pizza is the last part to bake and if not baked properly it WILL collapse upon removal from the oven. To address this try baking longer (this might mean baking at a lower temperature too) and pay attention to how you are dressing the skin, DO NOT dump the toppings into the middle of the skin and spread them around,

instead, dress the skin so the toppings are a little heavier out towards the rim/edge of the pizza and sparse in the center, as the pizza bakes the toppings will flow to the center. This allows for the center to be better baked, all things equal. Too much toppings or sauce can also contribute to the problem. This is where the pics come into play as it allows us to see what the pizza actually looks like so we can more accurately determine what the cause is, once we know what the cause of the problem is it's pretty straight forward to figure out how best to address the problem.

Tom Lehmann/The Dough Doctor

[Re: Weak in the middle](#)

3430

The two BEST surfaces for working with dough are wood and stainless steel.

Tom Lehmann/The Dough Doctor

[Re: Work surface question](#)

3431

Higher protein content flour..the higher the better.

No fermentation.

Dough mixer to full gluten development

5% salt.

Optimum absorption for the flour.

If you plan to use the dough for a crust:

Higher protein content flour.

Limited fermentation (about 6-hours)

Dough mixer to near full development.

2.5% salt.

Optimum absorption for the flour, maybe a little more...

We used to open a 16-ounce dough ball to approximately 36-inches in diameter without it tearing.

It also helps a lot to know how to coax the dough out that far too.

There have been some competitions to see who could open a fixed amount of dough to the largest diameter.

Tom Lehmann/The Dough Doctor

[Re: Factors that cause dough strength](#)

3432

I've been on the judging panel a number of times at Pizza Expo, we are given a list of criteria to judge for such as appearance, bake, presentation, balance of toppings, taste and aroma, crust characteristics as well as correctness of the pizza to the type being judged at the moment, I've probably missed a few but these were the ones I could think of at the moment. The judges are also provided with descriptors for each type of pizza being judged and the pizzas are judged against those descriptors. The results are averaged for all of the judges on the panel for each type of pizza to determine the winner of each class. We are not to let our personal preferences influence our scoring.

Tom Lehmann/The Dough Doctor

[Re: How do Pizza Judges Judge Pizza](#)

3433

Florida9;

Welcome to the board!

I've always looked at a New Haven pizza as a New York style pizza but with a crispy crust. I make them in essentially the same manner but adjust the baking slightly to give me the characteristic crispy crust.

Tom Lehmann/The Dough Doctor

[Re: New Haven apizza](#)

3434

Easy E;

I think your dough needs more fermentation. Try this: Scale the dough into desired weight pieces and ball, oil each dough ball place each piece into individual plastic food bags (not Zip-Lock) twist the open end to form a pony tail and tuck the pony tail under the dough ball as you place it into the fridge. Allow the dough balls to ferment for 24 to 48-hours. To use, remove dough ball(s) from fridge, allow to warm to 60F, then turn the dough ball out of the bag onto a floured surface, do this by pulling the bag down around the dough ball and then invert the bag allowing the dough ball to invert the bag as it falls from the bag. Open the dough ball into a skin by your usual method.

By the way: No need to cook the sauce, cooking just reduces the flavor of the sauce. The sauce will be heated/cooked during the baking of the pizza.

Try one dough ball at 24-hours and the other one at 48-hours and let us know if this reduces the dough memory/snap-back you are presently experiencing.

Tom Lehmann/The Dough Doctor

[Re: Frustrating.... Just can't seem to get the dough right](#)

3435

We really need to see your dough formula and complete dough management procedure to determine what might be wrong. Your fermentation time seems to be OK so based on sheer speculation I'm guessing one of the following:

Yeast level too low.

ADY now correctly activated.

Dough temperature too low.

Not allowing dough to come to 60F before rolling it out.

As you can see, lots of speculation but once we see your dough formula and dough management procedure we can narrow it down considerably.

Tom Lehmann/The Dough Doctor

[Re: Frustrating.... Just can't seem to get the dough right](#)

3436

Jr07;

Can you provide any pictures of your pizzas? It sounds a lot like you are stretching the center of your skins to thin but pics would help to verify if this is indeed the problem or if it might be something else.

Tom Lehmann/The Dough Doctor

[Re: Weak in the middle](#)

3437

When short baking times are employed the temperature of the dough can have a significant impact on how it bakes. I'd say your reasoning is spot-on.

Tom Lehmann/The Dough Doctor

[Re: Split leoparding pattern](#)

3438

When you say "Can pizza dough be treated same as Baguettes or any other specialty bread?" Exactly what do you mean? Are you asking if pizza dough is made like the dough for breads? Just need a little clarification.

You came to the right place for pizza dough formulas/recipes. Just let us know what kind of pizza you want to make and maybe tell us something about how you plan to mix the dough, your oven, and something about your ingredients that you have available to you.

Tom Lehmann/The Dough Doctor

[Re: Pizza Making](#)

3439

Barry;

Anything under \$1,000.00 is a very good deal on that mixer if it is in decent condition. In my opinion, anything at or under \$750.00 would be a great deal. Remember, you're going to pay at least \$400.00 for a "stocking stuffer" (that's what my friend Big Dave used to call them) home type mixer which is no where the mixer that the A-200 is.

Tom Lehmann/The Dough Doctor

[Re: Hobart A200 Auction](#)

3440

A bowl 8 to 10-inches across the top can be used to determine the time for the first full rise with relative accuracy.

Tom Lehmann/The Dough Doctor

[Re: graduated cylinder](#)

3441

Barry;

One other thing.....BE SURE TO BOLT IN DOWN!!!!

The A-120 and A/AS/AST-200 are all top heavy and have a propensity to walk off of bench tops unless securely bolted down. There are provisions for bolting them down on the underside of the legs.

At AIB there are at least two mixers with damaged attachment hubs from when they walked off of the bench top while the students were using them. If for any reason you cannot bolt it down at least use a bead of silicone adhesive under each leg to secure it to the bench/counter top. It ain't no K-5A so forget the portability aspect and secure it properly to protect your investment as well as your own safety. If you just gotta have it portable (which is understandable in a home installation) make a GOOD, STURDY rolling cart for it with locking wheels BUT BE SURE the cart is AT LEAST a foot wider than the mixer in all dimensions to provide the stable platform needed, or the mixer will take the stand with it when it does a dive for the floor. The most popular place to put one of these mixes at home is in the garage on a well supported bench, a friend of mine has his installed there and it works out great, he scales ingredients in the kitchen right into the bowl, then takes it out to the garage to mix the dough and brings it back into the house when finished mixing to further process the dough, after washing the bowl he covers the mixer with a large plastic trash bag until the next time he uses it.

If your mixer has a tin plated bowl as opposed to a stainless steel bowl BE SURE to wipe the inside of the bowl with a little mineral oil after each use to prevent rusting. When you get your reverse spiral dough arm you will most likely need to re-adjust the agitator to bowl clearance. Failure to do this can result in a couple of

issues, 1) It can damage the dough arm as it slams into the bowl. 2) It can damage the bowl (dent it) due to the agitator hitting the bowl. 3) It will significantly impact the way the dough mixes/develops. The procedure has been discussed in previous posts.

Tom Lehmann/The Dough Doctor

[Re: Hobart A200 Auction](#)

3442

Due to the shape of the cylinder and increased support it offers to the dough you cannot accurately assess fermentation (aside from rate of fermentation) using a graduated cylinder as discussed.

Tom Lehmann/The Dough Doctor

[Re: graduated cylinder](#)

3443

It's a steal at that price! Sell the dough hook AKA "J" Hook for scrap and buy a decent reverse spiral dough arm. Might see if you can sell the wire whips too and get yourself a flat beater AKA paddle for mixing sauce.

Tom Lehmann/The Dough Doctor

[Re: Hobart A200 Auction](#)

3444

Istanbul used to be my favorite city for regional meetings when I was on the McDonalds International Task Force. I also did a fair amount of pizza work there too.

Welcome to the site!

Tom Lehmann/The Dough Doctor

[Re: Pizza Making](#)

3445

How high is the pizza off of the counter top when it is being cooled for a couple of minutes prior to slicing? A cold counter top (quarts or granite) and a hot pizza just above the counter top will allow steam to condense on the counter top. Try placing a piece of corrugated cardboard under the cooling rack to see if you still get the puddle. The cardboard will insulate the pizza from the counter top thus addressing the condensation issue, but if you still get a puddle under the pizza it most likely isn't due to condensation. I just can't believe at this time that changing the baking time and/or temperature would be the solution.

Tom Lehmann/The Dough Doctor

[Re: Crispy Bottom?](#)

3446

A puddle under the pizza when placed on a cooling rack? Was it water or oil? Do you remove the pizza from the pan IMMEDIATELY upon removal from the oven? A 20-minute bake time in a dark colored pan, even at 450 - 460F should be plenty to achieve a sufficiently thick bottom crust on your pizza. Getting back to that puddle.....there is no way your pizza crust should be giving up water like that so maybe it's coming from the sauce or toppings. Make another pizza but this time with about 1/2 of your normal amount of sauce and make it a cheese pizza only and let's see what happens after baking. If you find that the puddle is fat/oil it is possible that your cheese might be breaking down during the long bake time and oiling out resulting in an oil soaked pizza.

Tom Lehmann/The Dough Doctor

[Re: Crispy Bottom?](#)

3447

Werty;

The only thing you can show using the graduated cylinder are differences in dough response/fermentation rate due to variances in yeast or other ingredients such as salt, sugar, pH, etc.

Tom Lehmann/The Dough Doctor

[Re: graduated cylinder](#)

3448

The biggest factor in determining how long it will take to either cool or warm a dough ball is the density of the dough ball. Dough balls that are formed from fermented dough or which are allowed to ferment prior to being placed in the fridge will be less dense than dough taken directly from the mixer, balled and placed into the fridge.

By the way, we target 40 or 45F as the temperature to look for when placing the dough balls into the fridge. 40F is typically used when we are looking for a longer refrigerated shelf life and 45F is used when we are targeting 2 to 3-days shelf life. Your 3-hour finding is very close to what our findings were. We typically recommend 2 to 2.5-hours (75 to 78F dough temperature/dough ball weight 16-ounces and less) for the dough to reach 45F, add another hour to the time for dough ball weights in the 17 to 24-ounce range. Of course dough ball weight does have an influence on how long the actual time will be for the dough ball to reach 40 or 45F so times will vary with weight too, additionally, the shape of the dough piece will impact the cooling/warming time too, a round ball is the most inefficient shape to cool or warm but if you flatten the dough piece into a puck-like shape it will cool/warm more efficiently due to the reduced distance to the core/center of the dough piece. Soooo many things to consider.

Tom Lehmann/The Dough Doctor

[Re: Predicted progress to completion via Raspberry Pi](#)

3449

You can contact some of the distributors or go through an import-export broker. You purchase, have it shipped to the broker (U.S. side) and they ship either directly to you or a broker in the U.K. for your pick-up. I don't know about import duties on ovens in the U.K. so you will want to look into that first. If there are none you can also pay someone here in the U.S. to buy the oven and ship it directly to you. Look at your options first.

Tom Lehmann/the Dough Doctor

[Re: How to Power my electric oven?](#)

3450

Renchero;

If you can't find it ask Peter to see if he can locate it for you, he works magic when it comes to locating stuff! It's in a very recent posting so it shouldn't be too difficult to find.

Tom Lehmann/The Dough Doctor

[Re: Mixer recommendation](#)

3451

You will be baking at 500 to 550F/260 to 288C. Just make doubly sure that your generator can provide the necessary power. Most generators are rated at "peak"

power aka "starting power" and then there is the continuous power rating, this is the one you're interested in.

Tom Lehmann/The Dough Doctor

[Re: How to Power my electric oven?](#)

3452

If you're planning to mix only dough there has recently been some discussion here on a small size spiral mixer that is priced right and might be a better option than any of those listed....just something to explore.

Tom Lehmann/The Dough Doctor

[Re: Mixer recommendation](#)

3453

We have noticed that when spreading the sauce our students would naturally start in the middle of the skin and work outward pushing a ridge of sauce all the way out to the rim, it is this heavier ridge of sauce that promotes the cheese to "slip" that's what we called it at the time as the sauce was acting as a lubricant allowing the cheese to slide inward as the edge of the crust was rising during oven spring.

When using a Spoodle to spread the sauce we had our students flatten the Spoodle onto the skin so the flat bottom was in near full contact with the skin, this prevented the ridge of sauce from forming and allowed for a very thin layer of sauce out towards the edge of the skin which significantly helped to control the issue. Taking it a step further, if you don't sauce the edge at all the problem doesn't occur, and if you put too much sauce on the pizza the cheese seems to be very fluid during baking in that it moves around with the slightest provocation.

Tom Lehmann/The Dough Doctor

[Re: Keep getting a line of just sauce on the rim, what's going on?](#)

3454

We have used generators to power electric air impingement ovens for a good number of years now, but there is no way I'd ever call any of those generators "portable" unless you have it on wheels to be pushed around. Check with the oven manufacturer to see what their power requirements are and then get a generator which will be able to CONTINUOUSLY provide that power and a bit more. Propane is a much better alternative but it has some issues associated with it, location of propane tank(s) with regard to your store, generators can usually be located closer to a building but MUST be in a well ventilated area. This is something you might want to discuss with the "codes" department.

Tom Lehmann/The Dough Doctor

[Re: How to Power my electric oven?](#)

3455

In place of All Trumps? Doesn't make sense. Diastatic malt does not form gluten when mixed with water so you couldn't make a dough from it.

Adding diastatic malt to the flour is a totally different story from using it in place of the flour. In that case the question is: was the All Trumps or Sir Lancelot flour already malted? What was the degree Lintner (Lintner Value) of the malt used? How much was used? How was the dough managed? All of these will impact the way the dough handles when malt is added to it.

Tom Lehmann/The Dough Doctor

[Re: Bobs Red Mill Diatastic Malt](#)

3456

Two things we used to teach our students to address this issue are 1) Apply the sauce very thin closer to the edge. 2) we used to say to assemble/dress the pizza much like a volcano with more cheese and toppings out towards the edge of the skin as the sauce and cheese flow inwards during baking thus bringing the toppings with them.

Tom Lehmann/The Dough Doctor

[Re: Keep getting a line of just sauce on the rim, what's going on?](#)

3457

Peter and Craig are absolutely correct and to muddy the waters even more remember that any kind of "natural" pre-ferment using wild yeast as well as naturally occurring bacteria in the air of any specific locality can/will vary with the composition of the micro-flora present at the time the pre-ferment was made thus changing the entire flavor profile. To take it yet a step further, it is also entirely possible that a specific "natural" starter was purchased from some outside source which is being cultured and used by them. When a "natural" starter is purchased many times you can buy them like hot sauce with each one producing a different flavor in the finished/baked product. There are some "natural" starters which produce very acidic flavors while there are others which produce a more neutral or even sweet flavor. As a general rule, most "natural" starters do best in a room temperature/warmer environment as that is the type of environment from which they flourished in the wild, but it is also entirely possible to further culture the micro-flora so any which favor a cold environment will become more dominant and thus result in a starter which favors a cold environment....of course you would expect to see a flavor shift at the same time so that is also has to be part of the equation.

The good news though is that you can easily use a portion of any viable dough to seed/inoculate your own starter to make your own biga. Not knowing how the parent culture is being managed you would need to experiment with managing it at different temperatures to determine where it exhibits the most vigorous growth at which in all probability will be the temperature range at which it was cultured. The added benefit is also in knowing that you are working with the same or similar micro-flora which is a huge leap in the right direction. The only thing you need to watch for is the presence of bakers yeast in the dough, I've seen it done many times where the manufacturer will seed the dough with just a small amount of bakers yeast to preclude and further culturing of the micro-flora as the yeast will almost always take over and become the dominant micro-flora when further culturing is attempted. But then one cannot say 100% "natural" pre-ferment is used but I am not aware of any USDA regulations covering "natural" ferments so anything goes in this arena.

Tom Lehmann/The Dough Doctor

[Re: Biga](#)

3458

With the exception of adding some fresh basil and maybe some sliced garlic it sounds pretty good to me. As anyone who reads my posts will tell you I'm very partial to using slices of fresh tomato rather than sauce for dressing my skins.

Tom Lehmann/The Dough Doctor

[Re: Fairly new to pizza making, am I on the right track?](#)

3459

Use pizza boxes with Pizza Savors or ripple sheets stack on on top of another to help retain heat (possibly cover with a heavy blanket) Moving blankets are

reasonably priced and work well in this application. Definitely cover during transport. I think that's about as good as you'll get.

Tom Lehmann/The Dough Doctor

[Re: Multiple pies - keep warm?](#)

3460

Steve;

When changing from ADY to IDY you will use 20% (1/5th) less IDY than ADY.

Additionally, you do NOT need to suspend or activate the IDY in warm water as you do the ADY unless you are mixing the dough entirely by hand, in that case you will need to activate the IDY by suspending it in a small quantity of warm (95F) water prior to addition to the dough.

Tom Lehmann/The Dough Doctor

[Re: Yeast conversion question](#)

3461

The colder water temperature will slightly inhibit/slow the gluten development so assuming the same mixing time for both doughs the dough made with the colder water will be SLIGHTLY less developed than the one made using the warmer water. There are a lot of contingencies to that statement though, if you mix both doughs for a longer time the difference will be diminished or non-existent where as if the doughs were mixed for a shorter time the difference might be more apparent.

Tom Lehmann/The Dough Doctor

[Re: Effect of water temperature on the gluten formation](#)

3462

Looks to be a Caputo promo shirt, have you contacted them yet? If you plan on attending the Ohio Restaurant Assn. Pizza Show in February (Columbus, OH) you might visit with their rep, I'm sure they will have a booth there.

Tom Lehmann/The Dough Doctor

[Re: Can anyone help me find this shirt?!](#)

3463

From what I'm seeing in the pictures, both pizzas are somewhat under baked and the close cell structure would indicate that the doughs were under absorbed too. The bottom crust development appears to be marginal and the top crust color appears to be almost non existent.

Baking platform is possibly too thin or maybe it wasn't sufficiently preheated? It's the top color that is the most problematic though, maybe baking the pizzas in a higher rack position in your oven will improve the top color characteristics. I believe the flavor issues you're seeing are related to this under baking issue.

Tom Lehmann/The Dough Doctor

[Re: High Gluten Flour - Chicago](#)

3464

Having dealt with refrigerated bread dough for use in in-store bakeries for a good number of years I have seen where bread is made when the shaped loaf is taken directly to the oven from the cooler/fridge. You generally do get better oven spring due to the colder dough baking more slowly, allowing more time for oven spring to take place but the down side is usually in the crust setting up first and because bread dough is such a good insulator, the internal part of the loaf remains sufficiently cool to support yeast activity so now the crust has formed and set but the internal part of the loaf is still trying to expand and one of two things happen,

either a large hole forms in the loaf making for a completely hollow loaf after baking or the internal pressure created by the fermenting yeast causes the crust to break and tear apart with the internal dough oozing out of the fractured crust much like lave oozing out of a fissure in the earths crust, come to think about the mechanics are exactly the same...except for the yeast part. Additionally, because bread doughs are typically proofed to a much greater extent than pizza skins the bread doughs are much more subject to mechanical shock, this is where the loaf/dough will collapse in bumped or sometimes just placed into the oven, this is the reason why bread doughs are not fermented as long as pizza doughs. The larger the loaf the more dough response there is to mechanical shock, this is why we can make small bread type products from a long fermented dough but not a large type bread such as a pan bread or an Italian or Vienna loaf, round loaves owing to the arch support provided by the shape are the most resistant to mechanical shock but they are not immune to it.

Tom Lehmann/The Dough Doctor

[Re: Cold fermenting Bread dough](#)

3465

Most pine that we get today is pretty smelly (pine sap/tar) and there is a possibility of this "piney" aroma being transferred to the dough, especially when the box is still new. This is why less aromatic woods are preferred. If you have some pine that doesn't smell like a pine forest go ahead and use it, just make sure you use plastic implements in the box to prevent gouging or splintering the wood as pine is pretty soft and easily damaged.

Tom Lehmann/The Dough Doctor

[Re: wooden box for dough](#)

3466

Werty;

You're making extra work for yourself, why not do as I do and add the water to the bowl first, then add the salt and sugar (no need to stir), then add the flour and the yeast on top of the flour and begin mixing, mix until you don't see any dry flour in the bowl and add the oil, mix one more minute at low speed to ensure the oil doesn't splash out and then finish mixing at the highest speed possible with your machine. If you insist upon putting the salt and sugar into a portion of the water and adding it later, go ahead, but there is no real advantage to doing so and there is a possibility of forgetting to add the salt and sugar.

Tom Lehmann/The Dough Doctor

[Re: freezing flour](#)

3467

Werty;

But don't forget that the flour is "hopefully" still in a sealed bag even after you remove it from the freezer. once the flour has warmed to room temperature you can remove it from the bag and place it into an open container if you wish as once at room temperature the flour will not develop condensation which will increase the moisture content of the flour, at least temporarily. Variance in how the dough feels can be due to a number of things such as scaling error, use of volumetric portions, yeast quality, failure to consistently maintain the desired/targeted finished dough temperature, failure to use the delayed oil addition mixing method and time/temperature variances encountered during the dough management. Any of these will impact the dough as you have described.

Tom Lehmann/The Dough Doctor

[Re: freezing flour](#)

3468

Peter;

The name of the mill is Molinera Del Valle, located in Mexicale, MX.

I've worked with them many time over the years, Ramon Sanchez was in our wedding party (32-years ago today). Cesar Gallego is the mill owner (may have retired by now). I used to do work for the mill with Cesar's father while Cesar was was playing in the office (he was about 6-years old at the time. When his father retired Cesar took over operations of the mill.

They are also a major exporter of sesame seeds to the U.S. and they export their flour to the U.S. through San Diego.

Tom Lehmann/The Dough Doctor

[Re: looking for flour options in mexico](#)

3469

Hey Mitch....I bet that's one good flavored bread!

You do it almost the exact same way that I do it too, except that I let the dough rise in the basement where it's cooler, generally around the mid 60's.

We like to slice it and have it with butter but my wife really favors it when used to make French toast. :)

Tom Lehmann/The Dough Doctor

[Re: Bake bread](#)

3470

Sure, Zip-Lock bags will work just fine. Cold flour is slower to absorb water than warm flour so you will want to bring it out of the freezer prior to using it. What I do is to use the freezer for long term storage (I've got some in there right now that I've had for 3-years) and then bring out a bag that I will use over the next several weeks, I like to remove it from the freezer the day prior to using it and then store the unused portion in the kitchen on the counter top.

Freezing flour DOES NOT change the dough absorption, it just alters the rate of dough absorption while it is cold.

Tom Lehmann/The Dough Doctor

[Re: freezing flour](#)

3471

Most of the sourdough breads and rolls that we're accustomed to are allowed to rise for 8 to 12-hours after forming prior to baking which give the product greater volume/height, however a lot will depend upon the leavening strength of your sourdough starter too. You might try letting the bread proof longer (overnight) to see if that helps, if it doesn't you will need to experiment with greater amounts of your sourdough starter in combination with the overnight proofing.

Tom Lehmann/The Dough Doctor

[Re: Bake bread](#)

3472

Just a cautionary note here. Be sure to go back and revisit the posts regarding storage of flour. Flour should not be stored at room temperature for extended periods of time as it does change due to oxidation resulting in performance as well as potential flavor issues down the road. Additionally, you can also get infestation of your flour too. Any remaining insect eggs in the flour can/will eventually hatch resulting in a breeding population of beetles, the best way to address this potential

issue is to freeze the flour for a minimum of 30-days, I use 2-months for my flour, prior to putting it into containers for room temperature/ambient storage. The extended freezing of the flour will kill any intact insect eggs that might be present. Once you have done this all you need to do is to make sure you are storing the flour in something that is approved for direct food contact (I use small plastic bags, both Zip-Lock and food storage) which I store in a couple of metal cans which once held a bunch of popped corn. Still, if you want the best quality flour store in under frozen or refrigerated conditions, we have held flour this way for a number of years without any significant change in performance. If you opt to store the flour at room temperature try to turn it over by 6-months if you can.

Tom Lehmann/The Dough Doctor

[Re: Storing Flour in a Plastic Barrel/Drum](#)

3473

New York state, much like California strongly discourages the use of any flour containing potassium bromate, this is why we don't see bromated flours being used or sold in these twp specific states. Aside from that, unless you have some aversion to using bromated flour either bromated or non bromated AT flour will work just fine.

Tom Lehmann/The Dough Doctor

[Re: KASL vs AT?](#)

3474

While you can make a decent representation of an American style pizza using a press with a heated head, by far the best pizzas will be made by opening the dough into skins manually, this is how Domino's and Papa John's does it (possibly the two most visible American style pizzas on the international market). First you need to determine a location for your store (also known as a marketing region) then you need to study the pizza presently being marked in this area to determine what the people are looking for in pizza (be sure to visit some of the more successful pizzerias), then you will need to learn how to make pizzas and operate a business (sounds easy but it is the most difficult aspect of owning a pizzeria). Be prepared to give your 100%, maybe more, time to the store for at least 12-months to get it up and running while training a staff. Keep in mind that DELCO (delivery/carry out) pizzas are NEVER as good as a dine in pizza regardless of the ingredients used. And foremost, if you are a micro-manager, save your money, find something else to do as you will never make it in the restaurant business, micro-managers burn out in a year or two, losing their shop in the process. Train and delegate is what you want to do.

Tom Lehmann/The Dough Doctor

[Re: Big Question](#)

3475

Presses create a cell structure that is more like that of bread than pizza which is open and porous, especially true with New York style pizzas. The porosity of the crumb structure has a significant influence on the mastication and crispiness characteristics of the finished crust. Yes, it is possible to achieve a more open crumb structure using a press but it is achieved by allowing the pressed skin time to proof/rise after pressing (much like we proof bread prior to baking), for that reason pressed dough skins are wither pressed on an oiled pan (cold press) or placed onto an oiled pan (hot press) for proofing. There are some applications where presses are employed successfully such as in the fast casual concept and in making thick crust and pan style pizzas (the thick crust and pan style pizzas are

allowed to proof for 45 to 70-minutes after pressing to achieve the desired finished crust height and crumb structure characteristics.. If you want to see what a cold press crust looks like just go to your local supermarket and buy a couple of frozen pizzas such as Tombstone and turn them over, if you see a series of concentric circles pressed into the bottom of the crust you are looking at a cold pressed crust, for a hot pressed crust look for Home Run Inn or even Digiorno's as they are formed using a hot press.

Tom Lehmann/The Dough Doctor

[Re: Press pizza](#)

3476

For all practical purposes the yeast that we use in baking is all the same, that used in the brewing industry is of the same genus but it tolerates a slightly higher alcohol content.

Tom Lehmann/The Dough Doctor

[Re: No Yeast dough](#)

3477

I don't know if it's still out there yet or not but there is the old Chef Boyardee pizza kits, just add water to the flour mixture to make the dough, spread it out into a pan, add the supplied sauce and your choice of toppings and bake...Hummm, fine dining! The flour mix was nothing less than the dough ingredients but instead of yeast it was leavened with SALP (sodium Aluminum Phosphate) a single acting chemical leavening which was fat encapsulated through the old Durkote fat encapsulation process. You can do something similar by using Calumet baking powder (a single acting baking powder based on SALP) which is mixed into a small amount of Crisco (DO NOT use butter or margarine as they contain water which will prematurely activate a portion of the chemical leavening thus reducing its effectiveness) The amounts of Calumet and Crisco to use are going to be equal WEIGHTS of each, you can blend them together using a fork. The amount to use will be between 2 and 4% of the total flour weight. This provides a finished crust flavor much better than that achieved when using common, double acting baking powder based on SAPP (sodium acid pyrophosphate), MCP (monocalcium phosphate) and soda.

Tom Lehmann/The Dough Doctor

[Re: No Yeast dough](#)

3478

Mineral oil, aka "white mineral oil" is used by bakeries world wide as a lubricant for their dough dividers and dough rounders as well as all automated bun equipment. It is also the oil of choice for treating/sealing wood bench tops. Since you will be using only a small quantity (less than 500-ml. you can almost always find it at your local pharmacy (people take it as a laxative). If you Google "mineral oil" you will see many options.

Tom Lehmann/The Dough Doctor

[Re: dough storage](#)

3479

Yes.

Tom Lehmann/The Dough Doctor

[Re: Cheese Water Content Issue](#)

3480

Correct. I use Food Storage Bags that I bought at our local supermarket for a couple dollars for a roll of them. I've used reclaimed bread bags with great success too.

Tom Lehmann/The Dough Doctor

[Re: dough storage](#)

3481

Actually, the wood box does not conserve moisture in the dough but instead it manages the moisture in the dough helping to eliminate stickiness. The type of wood used is important as you don't want to impart a flavor from the wood like pine or cedar will. Maple or ash are good choices with ash being preferred. Once the box is built it will need to be sealed using mineral oil, don't forget to make a wood lid for the box too, but remember the box is going to take up quite a bit of space in your fridge. If your dough weights will be around 350-grams or less you will be able to get away using a box roughly 75-mm deep but if your dough weights are more than this it is advisable to go with a box closer to 125-mm deep. As for spacing the dough balls in the box size the box to allow for about 50-mm spacing between the dough balls to allow room for dough expansion.

Tom Lehmann/The Dough Doctor

[Re: dough storage](#)

3482

Can you share with us your entire dough formulation and dough management procedure. Please be sure to provide all times and temperatures.

Tom Lehmann/The Dough Doctor

[Re: High Gluten Flour - Chicago](#)

3483

Everyone does it differently but here is how I usually do it, after mixing take the dough to the bench and scale it into desired weight pieces, form each piece into round balls, lightly oil each dough ball (any kind of oil will work), then drop the dough balls into individual plastic bags, they might be easier for you to get than dough boxes, pull the bag snugly to the dough ball and twist the open end of the bag to form a pony tail, tuck the pony tail under the dough ball as you place it into the fridge. Allow dough balls to cold ferment in the fridge for 48-hours, remove dough balls from fridge, and place at room temperature, allow the dough to warm AT room temperature for at least 2-hours or until the temperature of the dough balls reach 10C/50F, then turn the dough ball out of the bag onto a floured surface, dust the dough ball on all sides with flour and begin opening the dough ball into a skin by your preferred method, once the dough ball is opened into a skin, dress it with sauce or slices of fresh tomato and desired toppings, bake at the highest temperature you can get from your home oven (260C?)

Tom Lehmann/The Dough Doctor

[Re: dough storage](#)

3484

We always wrap the cheese in bar towels after removing it from the brine, after about 30-minutes the cheese is ready to use, others may do it differently but that's how we always did it.

Tom Lehmann/The Dough Doctor

[Re: Cheese Water Content Issue](#)

3485

Scale your dough into 50-gram pieces or whatever weight you want to use. (we scale them from our fermented dough balls) roll each dough piece (like a hot dog), sometimes a light spritz of water on the bench top helps to roll the dough. Form each piece like a hot dog, about the same diameter and same length or maybe a little longer, tie into a single overhand knot and place on a lightly oiled sheet pan to proof for about 20-minutes, par-bake until very light golden color, store at room temperature up to 3-days in a covered dough box. To use, remove what you need, place on a screen and reheat, immediately after you remove them from the oven dip in a commercial garlic flavored oil or butter oil, sprinkle with grated Parmesan and you're good to go.

Tom Lehmann/The Dough Doctor

[Re: Garlic knots technique?](#)

3486

Take a look at the Marsal deck ovens which are now marketed by Middleby-Marshall. They're hard to beat. You can go to M-M or just Google "Marsal and Sons pizza ovens" to see their ovens and select something you might be interested in. Remember that you will also need to get a few short handle wood prep peels and some long handle metal blade oven peels as well as an oven rake/broom for periodically sweeping/cleaning the oven deck.

Note:

If you have an interest, Marsal ovens can also be had with a brick front so they look "old world".

Tom Lehmann/The Dough Doctor

[Re: Recommend ovens! Switching from conveyor oven to Stonebaked](#)

3487

The bread flour (para pan) is the one you will want to use.

Tom Lehmann/The Dough Doctor

[Re: looking for flour options in mexico](#)

3488

You will need to experiment with your sourdough starter to see how much you will need to use as there is no way to ascertain the strength of what you have. "True" sourdoughs will require upwards of 12-hours to leaven the dough (depending upon the crumb porosity desired). I wouldn't promote the crust as being made without yeast as there is most likely some wild yeast strains in your culture, but instead promote it as being made using only a sourdough for the dough leavening. Make DOUBLY, no, make that TRIPLY sure that you back up your starter in multiple remote locations to where you are storing the main starter at. Because starters are "natural" they are much like snow flakes in that no two are alike (if you find two alike save them as I would like to see them) :). This way if one is lost you will have more of the same culture to seed/inoculate a new starter with, thus retaining the same flavor, aroma and performance characteristics. Sourdough starters are not just a way to leaven dough, they are almost an art form, which if not handled correctly can be lost (change of micro-flora) so be sure you have VERY SPECIFIC directions for feeding, maintaining and using your starter which should include ALL pertinent times and temperatures. Losing a starter at home is one thing but losing it in a pizzeria is a whole different animal. NOTE: DO NOT ALLOW ANY YEAST IN YOUR STORE....ANY! It just takes a very small amount of yeast in your starter to develop a whole different micro-flora. Be especially aware of any fruiting trees or even ornamental fruit trees (they also set fruit) in your area as they are rich sources of wild yeast (no your friend). The problems crop up in the fall as the

fruit remains on the tree or on the ground and ferments and again in the spring as the last of the snow melts and exposes the fruit that was happily fermenting away last fall. When I worked at AIB I found that these were the two most troublesome times of the year for bakeries and pizzerias using sourdough starters as there was a continual stream of calls regarding issues with their starters.

Tom Lehmann/The Dough Doctor

[Re: First Sourdough Batch](#)

3489

Bummer! Here I thought we were going to get some great pizza. :-D

Let us know how things work out for you.

Tom Lehmann/The Dough Doctor

[Re: Stock with frozen dough. Question about prep](#)

3490

Matt;

Yep, yer mixing it too long before adding the oil. The "dough" isn't even cohesive when the oil is added so that's where the issue is at. Let me know if you continue to have problems with the delayed oil addition procedure.

Tom Lehmann/The Dough Doctor

[Re: Incorporating Oil When Mixing/Kneading All Trumps Bromated Dough](#)

3491

To that point, I have a number of dough formulas posted in the PMQ Recipe Bank <www.pmq.com> for chemically leavened crusts using Wrise. I developed these and posted them in response to a growing interest in take and bake pizza a number of years ago. You might also do a archival search of my articles (In Lehmann's Terms) in PMQ to find some of my articles on take and bake pizza. While many of these articles reference both yeast and chemical leavening (combination leavened crusts) you can just leave the yeast out and still make a decent crust BUT you will have different dough handling properties as well as a different flavor profile. A basic procedure is as follows, mix, scale, ball, rest 15-minutes, open into skins, dress and bake. There is no fermentation period as there is no yeast.

Tom Lehmann/The Dough Doctor

[Re: No Yeast dough](#)

3492

Two things, 1) The 1-minute mixing period after adding the oil is NOT to incorporate the oil it is only to distribute the oil so it doesn't splash out of the bowl. 2) If the agitator was just chasing the dough around in the bowl after adding the oil the oil was added too late or the mixing speed was too low (both are common mistakes). In any case, the dough receives little or no actual gluten development while being chased by the agitator so there is no fear of over mixing the dough, the key is to mix the dough JUST until it takes on a smooth appearance, at that point you're done mixing.

Tom Lehmann/The Dough Doctor

[Re: Incorporating Oil When Mixing/Kneading All Trumps Bromated Dough](#)

3493

Since you're using it tonight your best approach is to make sure it's completely slacked out in the fridge, remove it from the fridge now and place it into an oiled container, drape with a piece of plastic, and allow the dough to ferment for 3 to 4-hours. About 3-hours before you want to use the dough remove it from the bowl

and re-round it, lightly oil the dough ball and place it back into the oiled container, drape it with a piece of plastic and allow it to continue fermenting. To use the dough just invert the bowl allowing the dough to drop out onto a floured surface and open to the desired diameter, dress and bake.

Tom Lehmann/The Dough Doctor

[Re: Stock with frozen dough. Question about prep](#)

3494

Right now I'm using garden fresh, ripe tomatoes (variety is unimportant), sliced thin 3/16-inch, and placed over a lightly oiled skin with garlic and fresh basil. The tomato slices will cover the garlic and basil, from that point on dress the pizza as you would any other pizza. For me, nothing beats the fresh tomato flavor and texture provided by using fresh, ripe tomatoes. :)

Tom Lehmann/ The Dough Doctor

[Re: What's your go to pizza sauce recipe?](#)

3495

Sure, it's going to be somewhat different and you will need to make the skin very thin. It's called Matzo, Jews consume it during Passover.

We did some development work for a company in South America a number of years ago utilizing unleavened pizza crust for all of their products.

The best product is made using a lower absorption dough (around 55%) and then rolling it out using a rolling or pastry pin to about 1/4-inch thickness, then make a book fold (fold the two ends into the center of the dough piece and then close it as you would a book, hence the name "book fold"). Do this two or three times then wrap the dough in plastic and allow it to rest for 15-minutes, roll/sheet it out one more time but this time to about 1/8-inch in thickness and cut your pizza skins from the dough sheet. Dock the skins and par-bake at 425 to 450F until firm. NOTE: If you want the crust to brown you must add a reducing sugar such as dextrose (corn sugar) as table sugar in a non-reducing sugar so it will not contribute to the Maillard browning reaction for crust color development. If you don't have corn sugar you can also use honey or high fructose corn syrup (available along with corn syrup at most supermarkets). As there is no yeast for flavor development I suggest increasing the salt level to 3%.

Tom Lehmann/The Dough Doctor

[Re: No Yeast dough](#)

3496

The dough will be softer and because it's warmer it will begin fermenting both of which could be problematic, especially when working with a high absorption dough.

Tom Lehmann/The Dough Doctor

[Re: temper cold dough balls](#)

3497

Pizzerias typically use 50F as it allows for a longer use time for the dough balls once they are removed from the cooler. For home pizza making 60F works better unless you will want to use the dough balls over a 3-hour period of time (then go with 50F).

Tom Lehmann/The Dough Doctor

[Re: temper cold dough balls](#)

3498

Two to three days is a very realistic goal, I'd stay with that but make the change of not lidding the containers until they have been in the fridge for at least 2-hours to see if that helps any. One thing I learned in research many years ago is to change only one thing at a time.

Tom Lehmann/The Dough Doctor

[Re: Dough doesn't seem right after cold ferment](#)

3499

I like to use a rolling/pastry pin to pin the dough out to size, this does a good job of degassing the dough so you retain a thin crust with an even thickness all around the calzone. I'm normally looking for a thickness of 1/8 to 3/16-inch (at the very most).

Tom Lehmann/The Dough Doctor

[Re: Calzone Recipie](#)

3500

I'm guessing that your dough might be over fermented as you noted that the dough is very easy to open and has a tendency to tear (both potential indicators of over fermentation). What is your finished dough temperature (as it comes off of the mixer)? Ideally, it should be between 65 and 70F. You then place the dough balls into plastic containers, do you cover them right away? It is preferable to allow them to remain uncovered in the fridge for at least 2-hours before lidding the containers.

This might help if you are not already doing it.

Tom Lehmann/The Dough Doctor

[Re: Dough doesn't seem right after cold ferment](#)

3501

El Rosal "fina", Molinera Del Valle, Mexicale, MX. should work as it is also exported to the U.S. for making a variety of fermented baked goods. Due to their proximity to the border they have access to U.S. wheats for blending into their domestic wheat for producing a higher quality flour. Another option is to see if you can find out who is milling the bread flour for Bimbo Bakeries (there should be a Bimbo Bakery in just about every major metropolitan area of Mexico (at least it seems that way) and buy some of the same flour that Bimbo is using for their bread (pan de caja/pan Pullman/pan blanco) production.

Tom Lehmann/The Dough Doctor

[Re: looking for flour options in mexico](#)

3502

Many operators like to use their regular pizza dough for their calzones and it does work quite well, but to distinguish my calzones from my pizzas I like to use a richer dough formulation for my calzones. Herer is the formula that I regularly use.

Flour (12 to 12.8% protein) 100%

Salt: 1.75%

Sugar: 2%

Butter: 4% (margarine, lard, or olive oil can be used if desired)

Whole egg: 4%

IDY: 0.5%

Water: 58% (variable)

I handle and process the dough the same as I do my pizza dough, roll/sheet the

dough balls out to 1/8 to 3/16-inch in thickness, brush water around edge of the bottom half of the dough, add desired filling, fold the top half down over the bottom half with the filling, tightly crimp the crust together (use your fingers or a fork), then transfer to a baking platform (pan, disk, or screen) or a wood prep peel, cut a couple of slits into the top, or if you want to be fancy use a scissors to cut some delta slits (to vent steam), brush with olive oil or egg wash and bake at 450F until golden brown. As soon as the calzone is removed from the oven brush it with a garlic flavored oil and sprinkle with a blend of grated Parmesan and Romano cheese. I make these every year for my son over the Holidays.

Tom Lehmann/The Dough Doctor

[Re: Calzone Recipie](#)

3503

Woh! Don't mix the IDY with cold water! Two things can happen, 1) you cause the amino acid (glutathione) to flush out of the yeast cells. Glutathione is a reducing agent and it results in doughs becoming soft and extensible much like L-cysteine (PZ-44). 2) Due to the leaching out of the glutathione from the yeast cells the ability of the yeast to ferment is seriously compromised (this can be a real issue where small amounts of IDY are used). The best way for you to add IDY is to just add it directly to the flour, just weigh the IDY and drop it right on top of the flour...it's that easy. If you feel that you ABSOLUTELY must activate the IDY prior to addition to the dough, add the IDY to a small amount of warm (95F/35C) water, stir to suspend the yeast, wait 10-minutes and add the yeast suspension to the cold water in the mixing bowl (yes, it's OK to add the suspended IDY directly to the cold water).

You might want to go back and repeat this keeping the above in mind to see if you get any better results.

Tom Lehmann/The Dough Doctor

[Re: Making this Dough Fermentation better](#)

3504

Without knowing your dough formulation and management procedure the only thing that can be said at this time to address the issue is to par-bake your crust until it is "just set" (doesn't collapse when removed from the oven) If bubbling is an issue try putting about half of your normal sauce onto the skin prior to par-baking, this usually helps a lot. Par-bake at no more than 400 to 425F, finish dressing the par-baked crust with the remainder of the sauce (white sauce?) and other desired toppings and finish baking at 450F. We made pizzas a lot like yours for the U.S. Dehydrated Potato Board, a really good pizza, especially with bacon crumbles.

Tom Lehmann/The Dough Doctor

[Re: Need dough/crust advice](#)

3505

I don't drink beer...only Guinness. Pizza and Guinness, now that's fine dining! :)

Tom Lehmann/The Dough Doctor

[Re: Oktoberfest is here!! What's your favorite beer to drink with pizza](#)

3506

It's been pretty well documented that when you add yeast to a sourdough it completely over whelms the wild yeasts and bacteria which are responsible for the unique sourdough flavors resulting in more of a yeast leavened flavor. You still get the tartness but not the unique flavor of the sourdough. Yes, you can experiment with the amount of sourdough starter you add as well as the amount of yeast added

to make a dough which will respond more like a conventional dough but still have some of the tartness associated with a sourdough. I guess it all depends upon what exactly you are looking for flavor wise and what you are willing to settle for.

Tom Lehmann/The Dough Doctor

[Re: Can I reformulate my sourdough dough to bake pizzas on the fly?](#)

3507

Huh?

The way I look at it is like this, you can make just about any type of crust that suits your fancy using a laminated dough process of one type or another, laminating is just a procedural step, much like kneading the dough, as that, it is just a means to an end, you laminate the dough in an attempt to achieve some type of a specific finished crust characteristic. There are different ways to laminate the dough, one is with the use of a solid/plastic fat like butter, margarine, or a commercial roll-in fat, by this process layers of fat and dough are constructed which imparts a specific characteristic to the finished crust. Of you develop but just a few layers of fat and dough you end up with a pretty common looking crust but with large holes throughout the entire crust. If you develop many (90 to 120) layers you can have a crust that is much more flaky, think Danish pastry. The other process is called dry laminating, by this process no fat is used as a roll-in, instead, the dough is allowed to dry/crust over and then folded back upon itself as a layering/laminating process. This is the process that is used by many of the cracker manufacturers to make saltines and club crackers. This method is difficult to employ in a pizzeria as it requires the application of warm air to the surface of the sheeted dough to dry it in preparation for laminating but it is very well suited to a commercial production line. Lastly, there is what is referred to as the "blitz" method, by this method fat flakes or pieces of refrigerated fat (butter) are incorporated into the dough so that the fat pieces remain in the dough, the dough is then processed in a pretty normal manner for pizza dough. When the dough is baked the fat pieces (about the size of a pea) melt out and leave a void which creates the visual effect of having laminated the dough. If this method sounds familiar it's because it is essentially the same method used to make a flaky pie dough.

Tom Lehmann/The Dough Doctor

[Re: A new style?](#)

3508

I don't know what you have available to you in terms of ovens, but one oven that I've had good experience with is the Marra Forni rotating deck oven. I think it might work well in your application. As for 7K a week in sales I can't answer that, possibly someone else will be able to but since it will consist of an assortment of products, not just pizza your oven supplier/manufacturer might prove to be the best bet as they know more about the sales of stores where their ovens are in use. With that said, 7K a week is not a whole lot so my gut response might be to say that I wouldn't expect to see any problems...but that's just my "gut" talking. As to the decision between gas and electric, not even a close call.....gas all the way!

Tom Lehmann/The Dough Doctor

[Re: Recommend ovens! Switching from conveyor oven to Stonebaked](#)

3509

The simple answer is to ball the dough tighter, but it might be more than that so we'll need to know your dough formula and dough management procedure before adding any more than that. Also, please tell us what you can about your flour.

Tom Lehmann/The Dough Doctor

[Re: Dough balls spreading](#)

3510

If you can get some whole hard white wheat flour be sure to give it a try. I seldom ever use the regular whole wheat flours anymore (made from hard red wheat varieties). Also be sure to go back into the archives either here in in PMQ Magazine to find the procedure which I developed to find the correct dough absorption for the specific whole wheat flour or multi-grain blend you're using. If you don't get it right you will probably not be satisfied with the resulting crust characteristics.

Tom Lehmann/The Dough Doctor

[Re: What is the best source for local whole wheat flour? \(small mills\)](#)

3511

If the finished crust is too tough/chewy, the best way to address it is to go with a lower protein content flour. Using the exact same dough formula and the same dough management procedure, begin replacing the All Trumps flour with different flours having lower protein content. If you go to the supermarket you can find Pillsbury Bread flour which comes in at around 12.2% protein content. General Mills King Wheat flour will come in at around 11% and General Mills H&R flour at about 10.5%. I normally like to use something in the 12 to 12.5% protein content range.

Tom Lehmann/the Dough Doctor

[Re: Incorporating Oil When Mixing/Kneading All Trumps Bromated Dough](#)

3512

Please define your concept of a "stone" oven. When we typically think of a stone oven or "stone deck" oven it's an oven with 4-inches or more of "stone" for the deck. A good example of this type of oven would be a Woodstone oven, or are you referring to a "deck" oven such as those made by Baker's Pride, Blodgett, Marsal & Sons/Middleby-Marshall to name but a few. I wrote an article on oven selection for Pizza Today Magazine some time ago which I think you will find useful. An oven is not just a tool to bake a pizza, it has a great influence on the finished quality characteristics of the pizza of which there are many, just a single example; If you are a DELCO store the air impingement ovens are superior to other types of ovens since they can be profiled to provide the driest pizza for the best DELCO properties when the customer gets the pizza home. This is especially true if you do a lot of vegetable topped pizzas or your claim to fame is a lot of toppings on your pizzas. This is why we need to know more about your store and what you are thinking of oven wise to weigh in on your question.

Tom Lehmann/The Dough Doctor

[Re: Recommend ovens! Switching from conveyor oven to Stonebaked](#)

3513

The only time when 1 to 2-minutes mixing time is used is when making a cracker type crust, but that's a whole different story. Start out adding 70F water to the mixing bowl, then add the salt (no need to stir in) followed by the flour, IDY and any other dry ingredients, mix at low speed JUST until you don't see any dry flour in the bottom of the bowl, then, as directed in the previous post, slowly pour the oil into the bowl. After all of the oil has been added mix one additional minute at low speed, then mix at the next highest speed your mixer will allow until the dough takes on a smooth appearance, you're now done mixing.

On a different note, I see you are adding GM Soft as Silk (high ratio cake flour) I

really don't recommend doing this as Soft as Silk is a whole different type of flour...literally. If it were me, I'd just leave the AT just as it is, you'll be just fine. Don't worry about over mixing AT flour, it is next to impossible to do with a KA mixer. Due to the higher protein content of the AT flour the only thing you will need to worry about regarding over mixing the dough is the punishment your mixer is taking. If you just mix the dough until it appears smooth it will have all the mixing/gluten development needed, the remainder of the gluten development will be provided by biochemical gluten development.

Tom Lehmann/The Dough Doctor

[Re: Incorporating Oil When Mixing/Kneading All Trumps Bromated Dough](#)

3514

It is a well known fact that gas ovens bake differently from electric ovens due to the fact that heating with electric creates a very dry environment while gas produces water as a by-product of combustion. Since the oven is pretty well a closed baking chamber you have both the moisture from the combustion of the gas as well as the moisture given off by the pizzas as they bake. As a general rule we have found that electric ovens of all flavors, including air impingement, require a longer baking time at a higher temperature and even then the bake is not comparable. Since you didn't mention what variances you noted I can't add much more at this time.

Tom Lehmann/The Dough Doctor

[Re: Deck Emulation: Humidity](#)

3515

Because restaurants/pizzerias need to have the option of using the dough over a greater period of time, hence the cooler temperature after tempering. You will also find that the dough is usually easier to open at the higher temperature too.

Tom Lehmann/The Dough Doctor

[Re: Really Stupid Question - Best way to get dough to room tempature](#)

3516

Lid on.

It'll take a couple of hours. You are not looking for room temperature, instead, you allow the dough to temper AT room temperature until it reaches 50F (for pizzerias) or 60F for home pizza making. Once the dough has reached the desired internal temperature it will remain good to use for up to a maximum of 3-hours (pizzeria) or 1 to 1.5-hours if you're making pizzas at home.

Tom Lehmann/The Dough Doctor

[Re: Really Stupid Question - Best way to get dough to room tempature](#)

3517

4-grams of protein per 30-gram serving calculates out at 13.3% protein content which should be just fine.

Tom Lehmann/The Dough Doctor

[Re: High Gluten Flour - Chicago](#)

3518

It appears that the dough ball was sticking to the plastic bag. I have gotten into the habit of lightly oiling my dough ball prior to placing them into plastic bags. For some unknown reason the dough will tend to stick to some plastic bags and not stick to others, so I've just gotten into the habit of lightly oiling the dough balls and eliminating the problem regardless of the type of bag used.

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3519

I've not seen them put their dough into air tight containers. When you put the dough into air tight containers the dough WILL sweat if there is a temperature differential between the dough and the outside environment, however if the container is not air tight the dough can breathe, thus preventing the development of the condensation. You have already seen this first hand where your dough ball was stored without the air tight container (no sweating). Contrary to popular belief, dough DOES NOT dry out under refrigerated conditions (cold air holds less moisture than warm air so it is less capable of pulling moisture out of the dough), just keep the fridge door closed at all times or you will be introducing warm air into the fridge which is what causes the moisture loss/desiccation in the fridge.

Tom Lehmann/The Dough Doctor

[Re: Help with Neapolitan Dough](#)

3520

A great question indeed, and I've asked myself that very question many times over. I'm a coffee drinker and I enjoy coffee with my dinner so when pizza is on my dinner menu I like my coffee but very few pizzerias offer it. It's easy to do, holds well and is a low cost item as coffee makers are not particularly expensive....I'm talking just regular coffee, not all of that gourmet stuff. I guess it's just off of their radar. Speaking selfishly, if you have the space and a place to plug in a coffee maker, give it a try, it's not an expensive venture and you can always sell it if it doesn't fly.

Tom Lehmann/The Dough Doctor

[Re: selling coffee at your pizza restaurant?](#)

3521

What you are saying is that your scale only weighs in whole gram weight increments, is that correct? The way I do it is to multiply the weight needed by 10 so $10 \times .36 = 3.6$ -grams. Suspend this 3.6-grams of CY in 10-ounces of cold water (suspend the yeast by stirring vigorously or shaking well) then weigh out 1-ounce of the yeast suspension and you'll have your 0.36-gram weight of CY.

Tom Lehmann/The Dough Doctor

[Re: Help with Measuring Fresh Yeast for Starter](#)

3522

Two things to keep in mind, 1) Unless the internal dough temperature is at 45F/7.2C when you put it into an air tight container it will sweat, becoming wet and sticky. If you oil the dough ball like the commercial producers/pizzerias do it will eliminate much of the wetness and stickiness. The use of dusting flour on the dough at the time of opening into skins is normal as most of it will come off as the dough is opened into a skin. The dry skin which you have alluded to is not considered a beneficial characteristic as it promotes bubbling of the dough during baking and in many cases it will also inhibit desired oven spring of the dough during the first few seconds of baking making for a thicker, denser crumb structure which can lead to a reduction in the crispiness of the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Help with Neapolitan Dough](#)

3523

Matt;

First off, if you're into micro-management, I suggest folding up your tent and going home at this time as you will never make it trying to micro-manage more than one shop. This is my "golden rule", fact is I won't work with micro-managers, I feel that strongly about it.

Identify good people from your present staff to promote into your new store, this includes a manager and assistant manager. I can't speak directly for China but here in the U.S. finding good people to run your second store is a major issue and in many cases this is what keeps some stores from building out and expanding.

If at all possible, detach yourself from both stores as much as possible, continue to do the books and help out at the stores during slam periods but otherwise learn to step back after you get the second store up on its feet (about 12 to 16-months).

With that accomplished you will most likely want to turn your attention to building a third store, repeat the above and you will soon be looking at a fourth store, etc.

One note: As you build new stores, if you have the space and proximity you should consider using one store to provide all of the dough and sauce for another store or stores as this will save you the cost of reinventing a full kitchen at each store while providing improved product consistency between stores. As you grow in number of stores you might even be able to renegotiate the cost of your supplies as you will be using more. We are always negotiating the cost of our supplies and it DOES save us money.

Tom Lehmann/The Dough Doctor

[Re: Growth Challenges from 1 to 2 shops](#)

3524

Holly;

My advice is to pick out a type of pizza that you want to make, master it, then repeat again with a different type of pizza of your choosing. Think of it like juggling, start with one ball, then two, then three and after a short time you will be able to juggle a number of balls all at the same time....it comes with experience.

Above all else, have fun!

Tom Lehmann/The Dough Doctor

[Re: Dough](#)

3525

I totally agree with Steve. I don't understand your comment on getting more consistent results with CY. CY is the least consistent type of yeast you can get unless you're receiving it fresh from a distributor and using it in less than a week. It is also important that the yeast is never allowed to drop in temperature below 45F...no need to suspend the CY as it can be just crumbled and added right on top of the flour when machine mixing. ADY when correctly hydrated/activated is more consistent than CY if you look at the performance of the yeast over a several week period. IDY is the king of yeast types when it comes to consistency, plus it doesn't need to be hydrated/activated when machine mixing so it has the one advantage that CY has in that it can be added directly to the flour.

Tom Lehmann/The Dough Doctor

[Re: Making this Dough Fermentation better](#)

3526

You also get a shift in crust flavor between bulk room temperature fermentation and cold fermentation after balling. My own personal preference is for the flavor achieved through cold fermentation.

Tom Lehmann/The Dough Doctor

[Re: Short bulk vs. long bulk](#)

3527

W.I.;

Your dough absorption is on the low side at only 58%, so you might consider increasing it gradually (2% increments) to get it up closer to 65% or a little higher. Additionally, what kind of yeast are you using, ADY, IDY, or CY?

Tom Lehmann/The Dough Doctor

[Re: Making this Dough Fermentation better](#)

3528

One of the biggest issues with pizzas that are baked at high temperature for a short time is that they do not retain their crispiness well at all especially when placed into a box and then into a sealed "moon" bag. As delivered, these pizzas have all of the character of wet pasta with pizza toppings. This is not to say that you cannot bake a decent delivery pizza in a wood fired oven, you certainly can, but you will need to bake it longer and at a lower temperature that is typical for wood fired oven pizzas. This is a major reason why a good deck oven is better suited to delivery than a good wood fired oven. The best oven, by far, for DELCO is an air impingement oven as it provides the driest pizza possible and allows for baking the bottom more thoroughly without burning the top however an air impingement oven has all the ambiance of a shoe box which is possibly its greatest downfall. A short time ago I wrote an article on ovens and oven selection for different store concepts. I believe it was published in my Pizza Today column.

Tom Lehmann/The Dough Doctor

[Re: Looking to open pizzeria - Advice needed!](#)

3529

Do you mean a Hobart 80-quart mixer? If so give a lot of consideration to the M-802 model as it is the heavy duty version of their 80-quart mixers.

No walk in? That's going to be tough. I'd recommend going back to the drawing board and look at getting at least a 10 X 10 walk in cooler. You will need it for dough and ingredient storage.....trust me, reach in coolers are problematic at best. OK for a small operation but not a larger one. Pizzas baked fast in a hot, wood fired oven to not transport very well at all, I'd suggest carry out but not delivery.

Ditch the dough press and go with hand opened dough, the presentation is much better not to mention the finished pizza quality.

\$100,000.00 is really cutting it close, you also want to have a reserve of a minimum of 6-months living expenses put aside.

Now for the \$64,000.00 question....what is your experience working in different pizzerias? Do you have any experience managing a pizzeria?

You might also want to look at posting in the Think Tank at <www.pmq.com> this site is visited mostly by store owners/operators.

Tom Lehmann/The Dough Doctor

[Re: Looking to open pizzeria - Advice needed!](#)

3530

The "thing" about spiral mixers is that it doesn't take a lot of power to operate them. You are only turning the spiral and sometimes the bowl is powered too but in many cases the dough is what spins the bowl (powered bowl is highly recommended for a large size spiral mixer). The spiral is just turning through the dough with just a little pull between the agitator (spiral) and the breaker bar (post), this really doesn't take much power. Planetary type mixers need a lot more

power to operate as the dough hook/dough arm has to drive through the dough as it compresses the dough against the side of the bowl. This is where many smaller planetary mixers fail as they don't have enough power to drive the agitator through the dough so the mixer stalls when it is compressing the dough, this is especially true with low absorption doughs. Spiral mixers don't have this problem due to their design. When all of the cards are on the table I'll take a spiral mixer over a planetary mixer any day of the week, to avoid disappointment, just don't ask it to mix anything but dough cause it ain't gonna happen.

Tom Lehmann/The Dough Doctor

[Re: Countertop Spiral mixer for the price of a KA Pro](#)

3531

What type of crust are you making? Long, medium, short flake or mealy type crust? Long and short flake crusts are typically used for fresh (non-refrigerated/frozen fruit pies while mealy crusts are used for frozen pies as well as tarts and a lot of the creme and custard pies. The basic ingredients in a pie crust are flour, salt, ice water, and fat. Added ingredients are milk or dextrose (for color) or sometimes dairy whey will be used instead of dry milk solids. If a "preservative" is ever used in pie crust production it is to address any potential mold issues which might crop up with extended shelf life. Sodium Propionate is the "go to" additive for this and while there are a number of other products available, none are as effective except possibly for potassium sulfate. Some of the more "friendly sounding" anti molding agents are nothing more than propionic acid (a byproduct of yeast fermentation) which is supposedly more "consumer friendly" but it is still propionate, just made differently. If you would like to speak to me directly about this please feel free to contact me at 785-537-1037.

Tom Lehmann/The Dough Doctor

[Re: question about Crust pie dough not a pizza dough](#)

3532

Depending upon how much gluten development you're getting in the KA mixer you might be able to do away with the initial kneading procedure and go straight to bulk fermentation for 24-hours then scale, round and give the dough another 24-hours cold fermentation. This process will give you good gluten development. After the final CF period allow the dough to warm AT room temperature to between 50 and 60F before opening the dough into skins for your pizzas.

Kneading the dough after machine mixing really doesn't result in that much additional gluten development unless you're planning to knead the dough for quite some time, but kneading after a CF period allows for biochemical gluten development to take place during the 24-hour CF period, then kneading the dough will further strengthen the gluten making for a stronger dough at opening. If you were to knead the dough a few hours prior to opening there is a probability that it would not be sufficiently relaxed for ease of opening when you're ready to make your pizzas. By the method described above the dough balls will be sufficiently relaxed to be used as soon as about 18-hours after balling to as long as 24 to 48-hours after balling. As you can see, this give you a lot of flexibility in scheduling your pizzas. The only time I really advocate kneading the dough on the same day as you are planning to open it into skins is when the dough has been obviously over fermented, in this case the kneading process will strengthen the over fermented dough as well as degas it, but the variable here is just how long you might need to wait until the dough balls can be easily opened into skins. The time required for the dough balls to become sufficiently relaxed will be highly variable depending upon a bunch of different factors such as room temperature, dough formulation, flour

strength, dough absorption, and amount that the dough has been over fermented.

Tom Lehmann/The Dough Doctor

[Re: How many times to knead?](#)

3533

Just to add a little insight into adding steam into an oven which was not originally designed for steam. It is one thing to bake in the oven without added steam and it is a totally different thing to bake in the same oven with added steam. Even putting a pan of water in the oven does not really constitute adding steam to the oven, it only increases the humidity in the air which will allow for some condensation to form onto the colder product which is being baked resulting in delayed crust development and better oven spring without shredding (developing break and shred) of the crust. The problems arise when we inject steam into the oven, thus flooding the oven with moisture. As the product is baked the yeast fermentation by-products (carbon dioxide, alcohol, and acids) are released into the oven which are now absorbed by the steam and are carried by the steam into all parts of the oven (including any exhaust vents or stacks), real problem areas are those areas behind the panels lining the oven which require major disassembly to access, as these areas are typically cooler than the actual baking chamber the steam condenses in these areas leaving behind concentrated alcohol and acids which are highly corrosive resulting in the development of unwanted rust and ultimately metal failure. This is well documented in large industrial ovens as well as smaller ovens such as you would find in a small neighborhood bakery. This is not to say that your kitchen oven will collapse, but there is a high probability that the oven will develop troublesome rust and special attention will need to be paid to and ventilation/exhaust stacks which, unless constructed of a SPECIAL grade of stainless steel (formulated to resist the alcohol and acids) will most likely degrade in a fairly short period of time by developing pin hole leaks and ultimately larger holes.

It is better to know what the obstacles are ahead of you than to discover them along the way. Proceed with caution while armed with knowledge.

Tom Lehmann/The Dough Doctor

[Re: Steam generator / liquid vaporizer device](#)

3534

Knowing your dough formula and dough management procedure would help us greatly. Regarding fresh yeast aka compressed yeast (CY) it should be maintained/stored under constant refrigeration right up until the time it is added to the dough. It should be added just as it is if machine mixing, if hand mixing it should be suspended in the dough water (no need to use warm/100F water as you do with active dry yeast (ADY)). Remember that CY is perishable having a shelf life of only 2-weeks in a home refrigerator (three weeks under the best of conditions) and this is assuming that you got it fresh to begin with. Then CY ages it loses its ability to ferment and under less than ideal storage conditions it will begin to feed upon itself or die off releasing glutathione from the yeast cells which exhibit a softening/weakening effect upon the dough which could cause it to collapse under severe circumstances. I've got a feeling though that your problem might be temperature related so knowing your dough management procedure (complete with all temperatures/if you are not monitoring dough temperatures please indicate so) will help us determine if temperature or some other factor is responsible for the collapse of your dough balls.

Tom Lehmann/The Dough Doctor

[Re: Problems with Neapolitan Dough Fermentation - Collapsed Dough Balls](#)

OK, here's my hat in the ring.

The higher the dough absorption (within reason) the softer it is which allows it to expand to a greater degree during the oven spring part of the baking process resulting in a higher, lighter textured edge on the pizza, this also improved the bake-out of the crust edge resulting in a crispier edge crust. With high dough absorption a high oven temperature promotes rapid vaporization of water as well as air and leavening gas trapped within the dough allowing the dough to expand MORE during those few seconds available for oven spring to take place in. So, the higher the dough absorption the higher oven temperature will result in greater crust porosity along with improved crispiness. Low dough absorption doughs do not exhibit these characteristics so they need to be baked at a lower oven temperature to achieve a thorough bake-out of the crust.

An emulsifier is used to hold together the fat and water soluble portions of the dough. If you put an emulsifier into water and shake it an emulsion will be formed and the water and oil will not separate. Every time I've demonstrated this to my students using olive oil and water the mixture of oil and water separated almost immediately after vigorous shaking....I'm not buying it that olive oil is an emulsifier. That said, olive oil, or any oil for that matter does make a dough easier to open, it retains leavening gas and water vapor better for enhanced oven spring, and it helps to retain flavors in the finished crust as well as repel moisture from the toppings as it tries to migrate into the dough during and after baking resulting in improved retention of crispiness or at least a crust which will potentially not be as soggy.

There you have it, three different opinions, take your pick.

Tom Lehmann/The Dough Doctor

[Re: Oil or more water to prevent drying during baking?](#)

3536

Better yet, rather than just leaving it out for 90-minutes before opening, why not leave it out until the internal temperature of the dough ball reaches 60F (50F if you're a pizzeria operator)? That's the magic temperature for opening the dough. Since ambient temperatures can vary quite a bit, going by the internal dough ball temperature is the correct way to go.

Tom Lehmann/The Dough Doctor

[Re: Factors that make pizza chewy](#)

3537

Agreed, if you want crispy go with a thin crispy or cracker type crust.

Tom Lehmann/The Dough Doctor

[Re: What influences how well a pizza reheats?](#)

3538

Big Moose;

Fungus has devastated our tomato plants so it looks like the last picking today but the pepper plants are doing absolutely GREAT! Another comment regarding the lack of insects this year, my wife and I have been processing apples from our apple trees into apple butter and dehydrated apple slices (a never ending task, a week at it and still no end in sight!) we have notices that there is very little insect damage to the apples this year, almost no worms and very little damage from the apple maggots. I's say that fully, 1/4 of all the apples we're processing this year are completely blemish free. It sure make our job of processing a lot easier as there is

very little trimming needed.

And still NO "skeeters"! No oak midges either (a real blessing).

Tom Lehmann/The Dough Doctor

[Re: If you grow tomatoes...](#)

3539

Jr07;

In one word: Nope.

[Re: Factors that make pizza chewy](#)

3540

If you are operating a pizzeria or just cold fermenting it is my opinion that the dough should be scaled and balled immediately after mixing but if you are planning on room temperature fermentation bulk fermentation until a couple of hours prior to using the dough to make skins and then scaling and balling and waiting for the dough balls to loosen up for ease of opening makes perfect sense. I do not advocate allowing the dough to ferment prior to cold fermentation as the as it will be all but impossible to regulate the temperature and control the rate of fermentation with any kind of consistency after the dough has been fermented. The reason for this is due to the reduced density of the dough making for an excellent insulator.

Tom Lehmann/The Dough Doctor

[Re: Managing the variables](#)

3541

Some of the more common things that make a pizza chewy:

Flour protein content too high.

Insufficient dough fermentation.

Insufficient oven spring.

Short bake time.

Not elevating the pizza so it can "steam off" immediately after baking.

Too much sauce.

Excessive dough fermentation which results in the dough collapsing under the weight of the topping ingredients.

Tom Lehmann/The Dough Doctor

[Re: Factors that make pizza chewy](#)

3542

If by "blistering" you mean bubbling and burning your pizza is most likely getting too much top heat (pizza is placed in a rack position that is too high in your oven). If you are using fresh mozzarella you might try putting the cheese on in pieces either about 3/4 of the way through the baking process or at the end of the baking process and placing the pizza back into the oven just long enough to allow the cheese to flow out.

Tom Lehmann/The Dough Doctor

[Re: Flour](#)

3543

Stef;

The very high absorption required by the low protein (pastry) flour in all probability was the result of a high level of starch damage in the flour (not a good thing). Barring a flour with high level of damaged starch, a general rule is the higher the protein level the higher the dough absorption. To get you started off correctly, can you send us a picture of your pan (actually it sounds like it might

work pretty well but also send a picture of the aluminum pan too as I think we can get it to work for you too. Then show us your dough formula/recipe and your dough management procedure (everything you do with the dough from the mixer to the oven) but be sure to include all appropriate times and temperatures. As you have an electric oven your baking time will be a bit longer than it would be if you had a gas oven but that will not be a problem, it's just something to keep in mind.

Tom Lehmann/The Dough Doctor

[Re: Flour](#)

3544

A pizza screen slightly elevated also works quite well. Remember, it isn't always just the cooling of the pizza that promotes soggy, it can also be due to excessive sauce, toppings (a major culprit) with baking time and temperature also being major players too. Pizzas that are baked hot and fast generally do not retain their crisp very well after removal from the oven. A longer, slower bake at a lower temperature will provide the overall crispiest and firmest pizza that will tend to retain the crisp/firmness for the longest time. The one thing that you never want to do is to place the hot pizza onto any flat surface immediately after removal from the oven, the pizza is steaming at that point and placing it on a flat surface, regardless of what it's made of, will just force the steam/moisture back into the crust making it soggy. This is why an elevated screen or cooling rack is preferable to placing the pizza on a flat surface. Most people will allow the pizza to steam off for a minute or so prior to cutting.

Tom Lehmann/The Dough Doctor

[Re: pizza wooden board the culprit?](#)

3545

Stefanos;

I'm confused, you mention changing the amount of flour used in your dough formula/recipe? The amount of flour used in a dough formula doesn't change with the type of flour, mostly it's just the amount of water added that changes but sometimes the yeast may need to be changed too but more correctly it's the finished dough temperature that gets changed.

As for baking your pizzas, what kind/type of pizzas are you trying to make? Do you use a stone or steel to bake your pizzas on? We've really got to know more about how you are presently baking your pizzas (pan, disk, screen, stone, steel). Gas or electric? How long do you pre-heat the oven?

For generalities, when baking on a stone, 250C/480F is a good temperature to start at. Be sure to allow the oven to heat up for AT LEAST 60-minutes before baking. Use a rack position in the oven just slightly below the center of the oven. Since pizzas are baked from the bottom up this will provide the additional heat to the bottom of the pizza. The dough formulation, type of flour (malted or un-malted), and dough /skin weight will all influence the baking time as well as the position in the oven so you will need to experiment to find out what works best for what you are doing, in YOUR oven.

Tom Lehmann/The Dough Doctor

[Re: Flour](#)

3546

Also, tell us something about the flour you're using, the type of yeast that you are using. Are you scaling your ingredients or using volumetric portions? Scaling the ingredients is vastly preferable to using volumetric portions since it is both accurate and consistent. What do you have for an oven? Do you have a baking

stone or steel? If you will be baking in a pan or on a screen or disk, please tell use something about it.

I know it's a lot of questions, but we're either going to be asking them now or later and we can move you along to a much better pizza a lot faster by asking them now.

Tom Lehmann/The Dough Doctor

[Re: Oh Dough!](#)

3547

Why not use the dough formula that you have been using, you're already familiar with it. You may need to experiment a little to find the "sweet spot" for dough absorption, but for now I'd start with 60% and work up from there.

Tom Lehmann/The Dough Doctor

[Re: Flour](#)

3548

You should be able to. I'd suggest keeping the absorption at not more than 60% for now until you know the reason for the stickiness.

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3549

Dough does look a bit sticky but from the appearance of the dough ball this might be due to under mixing of the dough. If you had a high level of starch damage the dough would be taking on the appearance characteristics of a milk shake poured out on the bench top. If the flour has only a slightly high level of starch damage you might be plagued with a level of stickiness that you will just have to live with as there is no way to effectively address the problem.

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3550

Instant dry yeast (IDY) should not be suspended in cold water as this will allow for the leaching of glutathione (a reducing agent contained in the yeast which results in softening of the dough) from the yeast. Instead, it should be suspended and hydrated in 95F water (manufacturer's recommendation). Once hydrated (about 10-minutes, you can pour the yeast suspension over ice if you wish with no fear of damaging the IDY. The same holds true for active dry yeast (ADY) but instead of 95F water it is recommended that 100 to 105F water be used. Compressed yeast (CY) can be placed directly into cold water and stirred to make a suspension without any damage to the yeast (this is because CY is already hydrated).

Tom Lehmann/The Dough Doctor

[Re: Managing the variables](#)

3551

That "yellowish" flour might be nothing more than an unbleached flour and at 12.5% protein content it might make a pretty good flour for making pizza. My advice is to give it a try.

Tom Lehmann/The Dough Doctor

[Re: Flour](#)

3552

Have you visited with your local welding/metal fabricating shop to see if they might be able to repair it?

It might buy you time to contact Sigma at <info@sigmasrl.com> or you can just Google "sigma italian dough mixer" and you will see any number of options.

Tom Lehmann/The Dough Doctor

[Re: Sigma spiral mixer resources](#)

3553

it looks like you need to use more starter.

Tom Lehmann/The Dough Doctor

[Re: Dough didn't rise and had weak gluten](#)

3554

No, air impingement ovens are MUCH BETTER for a slice operation as the airflow can be directed more at the top of the pizza with less to the bottom. While regular pizzas are baked from the bottom up, par-baked slices are cooked from the top down. If you P.M. me your e-mail address I'll be glad to send you some pics of a top notch slice operation employing this method.

Tom Lehmann/The Dough Doctor

[Re: Selling pizza by the slice](#)

3555

My preferred procedure is to have the finished dough temperature at something close to 80F for 24 to 48-hours cold fermentation or 70 to 75F for 3 to 4-days cold fermentation. Place the dough into a container but DO NOT cover it, and place in the fridge. After 3.5-hours in the fridge place the lid on the container and find something constructive to do until the dough is finished with the cold fermentation period you have chosen.

Tom Lehmann/The Dough Doctor

[Re: Neo dough is good but I want great....](#)

3556

Actually, you don't need to get the dough much over 55F (65F is more than warm enough). You have to be careful with commercial frozen dough as it has a significantly higher yeast level than regular pizza dough so it is easy to have it get away from you and over ferment if you allow it to get too warm for too long.

The only time when we really try to manage commercially frozen dough is when we want to improve it by giving it some fermentation time (commercial frozen dough is not fermented prior to freezing). In this case we allow the dough to thaw slowly in the fridge over night and then we take it out of the fridge and allow it to warm up to 70F (maybe this is where you came up with the 70 to 75F) and then the dough is placed back into the fridge to cold ferment for 24-hours, it is then handled just as you would any other cold fermented dough.

If you plan to use the dough soon after thawing your procedure is OK.

Tom Lehmann/The Dough Doctor

[Re: Defrosting dough](#)

3557

Welcome! You're from my favorite part of Arkansas, or should I say about 30-miles away. Combs, Brashiers, St. Paul is my favorite part of Arkansas. You are also in the home of a good friend of mine, Rolf Wilkens at Eureka Pizza.

Tom Lehmann/The Dough Doctor

[Re: Hello from Northwest Arkansas](#)

3558

Sure, that'll work just fine for the test.

Tom Lehmann/The Dough doctor

[Re: Tom, what did I do wrong?](#)

3559

You say you take the dough directly from the mixer to the bench for scaling and balling and then directly to the fridge, but what is your finished dough temperature? When you place it into the fridge, what do you put the dough in? Covered or uncovered? Or maybe you plastic bag it?

Depending upon the flavor profile that you are looking for you might also experiment as suggested with room temperature fermentation as well as using a starter/sourdough starter.

Tom Lehmann/The Dough Doctor

[Re: Neo dough is good but I want great....](#)

3560

You might try adding 4% oil the the dough formula, that might help.

Tom Lehmann/The Dough Doctor

[Re: Looking to make adjustments](#)

3561

Sure, I've outlined it before, just make a basic dough (flour, water, yeast and salt) Mix the dough long enough to enable forming it into a ball, (target dough temperature: 80 to 85F) then place the dough into a suitable container to ferment. After two hours check the dough, if its beginning to look wet, sticky, runny you have high starch damage (12 to 25%). In some cases you might have marginally high starch damage so while these characteristics will still be present, they will be present to a lesser degree, and this can be addressed by using a lower dough absorption.

Like I've previously said, high starch damage is pretty common in flour used/sold in Latin America. The reason for this is because bakers do NOT practice temperature control so their doughs are HOT, as a result they don't employ much over 30-minutes total fermentation time (think of it like an emergency dough) so the flour millers try to sell their flour on the premise that the baker can get more water into his doughs when using their flour (damaged starch has a high absorption in the dough state) while native/undamaged starch does not exhibit much, if any, absorption until it is heated to its gelatinization point (about 180F). You can clearly see this if you put some corn starch into cold/cool water and stir to suspend it.....no significant change in viscosity, now heat the starch water and as it approaches the gelatinization temperature it will begin to thicken as the starch absorbs the water.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3562

If you have a high level of starch damage in your flour the only option you have is to make a normal dough but keep the total fermentation time LESS THAN 60-minutes. I've never found any way to ferment doughs made with flour having a high level of starch damage.

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3563

rps50;

Are you planning to use a par-baked crust or are you planning to make your pizzas using raw dough? What can you tell us about the oven that you are planning to use? If you are not planning to use one, are you averse to using an air impingement oven? The reason why I ask this is because when properly set-up that reign supreme at making slices. If you you will be a heat-n'-eat much like Sobrarro's.

Tom Lehmann/The Dough Doctor

[Re: Selling pizza by the slice](#)

3564

In general, the more raw flour that is added late in the processing stage the stronger and more elastic the finished gluten will be. For example, when making bread or dough in general using a sponge dough process a 50-50 sponge dough process where 50% of the flour is fermented and then 50% flour is added to the fermented sponge to make the dough the resulting dough will typically be quite strong and elastic unless the sponge is fermented for a longer than normal (4-hours) time. When an 80-20 sponge dough process is used only 20% raw flour is added to the fermented sponge so the finished dough will typically have a softer, more extensible characteristic. Of course this is assuming both sponges are fermented for the same period of time.

Tom Lehmann/The Dough Doctor

[Re: Dough didn't rise and had weak gluten](#)

3565

Home made version of Gino's Pizza Rolls, only a lot better! Great idea, thanks for sharing.

Tom Lehmann/The Dough Doctor

[Re: Ice cube pizza bites](#)

3566

Our local Walmart keeps adding more self check-out lanes all the time. Grocery store as well as Home Depot too, Menard's still has cashier manned check-out lanes (no self check-out, yet).

Tom Lehmann/The Dough Doctor

[Re: The end of checkout lines?](#)

3567

Steve;

The usual malt that we use is only 20L, that is a slug of malt being added to an already malted flour. I'm guessing that the amylase present hydrolized most of the damaged starch into sugars thus releasing the water that they were carrying thus creating the overly soft dough condition that you noted. I might also expect that you would have noted some stickiness in the dough too?

As for the sugar in the formulation, it is considered to be an optional ingredient which is why it is mentioned but no amount specified (sorry for the confusion).

To test this theory make another dough but this time without the added malted barley flour to see if the dough is any better.

Keep us posted on your findings.

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3568

Steve;

TMI (too much information) is not as bad thing when trying to resolve a problem. Please be sure to provide the exact dough formulation, how the dough was mixed, and managed.

We'll do our best to see if we can figure out what might have gone wrong.

Tom Lehmann/The Dough Doctor

[Re: Tom, what did I do wrong?](#)

3569

My "never fail" dough formulation is:

Flour 100%

Salt: 1.75%

Sugar: (optional) 2%

IDY: 0.375%

Olive oil (Pomace grade) 2%

Water: (variable) 58 to 62% (65F)

Put water in mixing bowl, add salt and sugar, add the flour and mix for about 2-minutes or just until a dough mass BEGINS to form then add the oil and mix one additional minute at low speed, then mix at medium speed for 8-minutes. Take the dough directly to the bench for scaling and balling, place into plastic dough boxes, oil the top of each dough ball, cross-stack the dough boxes in the cooler for 2.5-hours if your dough weight is 16-ounces or less, 3-hours if it is 16.5 to 20-ounces and 3.5-hours if it is over 20-ounces. Note: Another method is to measure the internal dough ball temperature, when it reaches 45F the dough boxes can be down stacked/nested for overnight storage. The dough will be ready to use in 24-hours but it is better to use after 48-hours. The dough will keep in the cooler for 3 to 4-days.

To use the dough, remove from the cooler and allow to temper AT room temperature until the internal dough ball temperature reaches 50F (usually about 2-hours), remove dough ball from box and open into a skin by your preferred method. I have some good videos of making dough that you should find helpful posted on my web site <www.doughdoctor.com>.

Tom Lehmann/The Dough Doctor

[Re: simple dough recipie](#)

3570

ESOP;

Oh gosh! It all depends upon the type of pizza you are making, the dough formulation and the dough management procedure being employed to process the dough. If you want to have a very consistent performing dough and want to have a 3 to 5-day refrigerated life on the dough it is better to mix, scale, ball, refrigerate (cold ferment) 2 to 5-days) remove from fridge, allow to warm to 50 to 60F and open into skins. For a lot of the other applications it is common to mix, bulk ferment, scale, ball, cold ferment, 1 to 10-days, remove from refrigeration and allow the dough to warm to 50 to 60F and open into skins. I could go on and on, as there are soooo many options for different kinds of fermentation/dough management. In my world one does what works best for them in making the type of pizza they want under the conditions specific to their shop or kitchen.

Tom Lehmann/The Dough Doctor

[Re: To Bulk Ferment or Not, That Is The Question](#)

3571

Since oil is a "tenderizer" you might also consider increasing the amount of oil used in the dough to 3%. What kind of oven do you have, gas or electric? How long are you waiting for the oven to come up to baking temperature? What rack position/positions are you using? From your description it really sounds like more of a baking issue than anything else...but you do need to add some diastatic malt or sugar to support fermentation with your organic flour.

Tom Lehmann/The Dough Doctor

[Re: Plz help on dough!](#)

3572

They will only if they are deep enough to allow forming the necessary pony tail to tuck under the dough ball. Remember, the bag MUST be pulled snugly around the dough ball for the bag to be effective.

Tom Lehmann/The Dough Doctor

[Re: Opening was harder than expected](#)

3573

I'm guessing, based on the limited information provided, that the yeast level was too low for the cold fermentation so you didn't see much rise BUT the enzymes present in the yeast continued to do their thing (hydrolyze starches and proteins) over the lengthy cold fermentation time resulting in the sticky weak dough that you ended up with.

Tom Lehmann/The Dough Doctor

[Re: If at first you succeed, keep trying until you fail](#)

3574

You DO NOT want full gluten development when making pizza dough, that only applies when making bread dough. Instead, pizza dough is typically mixed just to the point where the dough develops a smooth, cohesive skin, the fermentation time after that will take care of the rest of the gluten development through biochemical gluten development.

Tom Lehmann/The Dough Doctor

[Re: Flat Dough Ball Problem](#)

3575

Starters/sours are the great unknown, each one is different so what works for one may not work for someone else. It sounds like you have found the "trick" to using YOUR starter.

Tom Lehmann/The Dough Doctor

[Re: Dough didn't rise and had weak gluten](#)

3576

Take a look at the Marsal ovens www.marsalsons.com> , they have a great deck, they're efficient and best of all they are economically priced, and because it's a deck oven you can bake just about anything you want in it.

Tom Lehmann/The Dough Doctor

[Re: Help me with equip selection PLEASE](#)

3577

Actually, your dough balls look about right after 24-hours cold fermentation. If you want to go longer than 24-hours CF it is suggested that you use 75F for your targeted finished dough temperature in a home fridge. 80F will work fine for 48-hours in a commercial walk-in cooler, but a home fridge is not as efficient so a

lower finished dough temperature is needed.

Tom Lehmann/The Dough Doctor

[Re: Flat Dough Ball Problem](#)

3578

And, allowing the dough to ferment prior to scaling, balling and putting it into the fridge.

Tom Lehmann/The Dough Doctor

[Re: WHy does my dough blow up so much?](#)

3579

I just use regular Zip-Lock bags, I inherited hundreds of them from a project when I was at AIB so I'm still working off of my "stash".

Tom Lehmann/The Dough Doctor

[Re: how to store Caputo 00 flour](#)

3580

When calculating the surface area of the pan for the dough loading we suggest using only the bottom dimension, in most cases the taper on the pans won't exceed 1/4-inch. If I remember correctly, the larger pan from Lloyds also has a higher side wall dimension than their smaller dimension pan.

Tom Lehmann/The Dough Doctor

[Re: Proofing in the pan?](#)

3581

By the way....I might mention that I ALWAYS tape my Zip-Lock bags closed as added insurance that they won't mysteriously come open in the freezer....just trust me on that one! :)

Tom Lehmann/The Dough Doctor

[Re: how to store Caputo 00 flour](#)

3582

If when you say "knead" you mean mixing in the bread machine, yes, I would agree with the move (omit the second mixing of the dough).

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3583

There are two ways to store flour, at room temperature which is fine for short term storage BUT if there are any insect eggs in the flour they will hatch and soon lead to an infestation in your flour (commonly referred to as "wormy flour" due to the larvae of the flour beetles and/or cigarette beetles). The other method is to freeze it. Freezing the flour will destroy any insect eggs that might be present after 30-days of below freezing storage, so assuming a week to get a bucket of flour down to below freezing, allow 45-days in the freezer and then store at room temperature if you wish or continue to hold it in the freezer...your call. I use nothing more than large Zip-Lock bags to store my flour in because I find it easier to store many smaller bags than one large on in my freezer and all I need to do is to remove a bag or two when I'm ready to bake and allow it to warm up at room temperature overnight. We have effectively stored flour for up to 10-years in the freezer without adverse effects.

I might also add that flour DOES OXIDIZE when stored at room temperature. What this means is that after about 60-days storage at room temperature you might

begin to see your doughs exhibiting more strength, generally seen as dough memory or snap-back. This does not happen when the flour is stored in the freezer. A couple of years ago I inherited a full bag of flour (50#) so knowing that I was not going to use it anytime soon as I already had a lot of flour on hand in the freezer, I just placed the 50# bag of flour into a trash bag and taped it up tight and placed it in our chest freezer. As time went on I forgot about it until we were cleaning out the freezer, yep, two years later I found it! I removed the bag from the freezer and allowed it to temper to room temperature for a full week, I then broke the flour down into my large (gallon size) Zip-Lock bags and placed it back into the freezer. The flour performed just fine. NOTE: Always allow the flour to return to room temperature before using and if you are planning to break down a large bag in the freezer, as I did, allow it to temper back to room temperature for a full week before opening the bag. The reason for this is because there is a high probability that condensation will form on the flour when the frozen/cold flour is exposed to the room air and moisture is the enemy of long term frozen flour storage. When the flour is warm there is little chance of condensation forming on the flour. Yes, it does take pretty close to a full week for a 50# bag of flour to fully reach freezer temperature and also to warm up to room temperature again when removed from the freezer. My gallon size bags warm up in a couple of hours...size DOES make a difference.

Tom Lehmann/The Dough Doctor

[Re: how to store Caputo 00 flour](#)

3584

Quaternary ammonia aka "quat" is the way to go. You can buy it at any restaurant supply store. It's what the commercial food establishments use to sanitize work surfaces.

Tom Lehmann/The Dough Doctor

[Re: Food Contact Sanitizer](#)

3585

Cracker and thin crispy crusts pretty well fit that description, but if you make your pizzas on a par-baked crust you can also get that characteristic on most other types of crusts too. A longer, slower bake is what you need to achieve that characteristic. Using your present dough you might start out by just baking longer at a lower temperature.

Tom Lehmann/The Dough Doctor

[Re: Secret to a non bending slice](#)

3586

For the starter, I like to target for 75F. For the finished dough temperature I like to go for 75 to 80F. Are you balling the dough and putting it into a closed container when going to the cold fermentation stage of your dough management?

Tom Lehmann/The Dough Doctor

[Re: Inconsistent crust](#)

3587

If you're using 280-grams in an 8 X 10 (80-square inches) pan this works out at 3.5-grams per square inch. The 10 X 14 (140-square inches) pan should require 140 X 3.5-grams = 490-grams of dough.

Tom Lehmann/The Dough Doctor

[Re: Proofing in the pan?](#)

3588

The Lloyd Pans are sized using the bottom dimension and there is 0.250-inch flare/taper on the pan. So all you need to do is dough weight divided by L X W for your dough loading factor. Then L X W for the new pan X the dough loading factor = dough weight for the new pan size.

Tom Lehmann/The Dough Doctor

[Re: Proofing in the pan?](#)

3589

You want to allow the dough balls to warm to an internal temperature of between 50 and 60F. If you begin using the dough balls at 50F you will have a window of opportunity to use the dough balls of about 3-hours, if you begin using them at 60F this window of opportunity is reduced to about 2-hours. The length of time that it will take for the dough balls to warm to the desired temperature will vary with the room temperature as well as the size/weight of the dough ball.

Tom Lehmann/The Dough Doctor

[Re: Dough temp before baking?](#)

3590

Peter;

You are correct. U.S. flour contain between 6 and 8% damaged starch and I might add that the flour millers go out of their way to ensure it doesn't exceed this because of the long fermentation times employed by our bread making processes here in the U.S. It is actually pretty difficult to damage the starch mechanically so in order to get the starch damage higher in Mexico it is common to use an Entilator (this piece of the milling equipment operates like a hammer mill and is used to break insect eggs present in the flour, when using the Entilator for the purpose of damaging the starch the flour is run through the Entilator several times. We used to damage starch when I was at AIB for research purposes and we used either a hammer mill or a ball mill for that purpose, even then it took quite some time to get the desired results. By far, the easiest way to damage the starch is to simply gelatinize it by making a flour-water suspension and heating it until the starch gelatinizes (about 180F). Presto! Damaged starch! In my younger years it was more than once that I made a dough using a domestic flour in Mexico which had upwards of 20% damaged starch and then tried to ferment the dough more than an hour. Oops! The damaged starch was hydrolized to sugar by the amylase enzyme and in doing so it gave up its ability to hold water and the "dough" quickly turned into a wet, sticky mess which could literally be poured out of the mixing bowl. I think I did that two or three times....call me a slow learner.

Tom Lehmann/The Dough Doctor

[Re: diastatic malt and rising time](#)

3591

Knowing your dough formula and dough management procedure would be helpful. Based on just looking at your pics It appears that your dough might be a bit under absorbed (dough absorption is too low) and fermentation might be insufficient, but that's just a guess based on the pics, with more information we can make a better determination.

Tom Lehmann/The Dough Doctor

[Re: Appearance of pizza](#)

3592

The only problem I see with it is that it's too pretty to use! :)

Tom Lehmann/The Dough Doctor

[Re: Custom pizza cutters](#)

3593

Norma;

In one word...ABSOLUTELY. It took us weeks to train a new technician in how to round the dough balls, not so they were correct, but instead so they were like, and of like tightness to the dough balls made by the other techs. Very high on my wish list for all those years was a small bench top dough rounder that would always round the dough in the same manner and of like tightness thus removing one of our greater variables. Now we do have rounders like this....lota good they do me now! :)

Whenever possible, when we would have a project extending over weeks or months, we would assign the project to a technician who would be there to do all of the dough rounding for the duration of the project, at least this gave us a level of consistency in the tightness of our dough balls. I've always said that it really doesn't matter if the dough balls are rounded tight or loose, just so long as they are consistent...that's what counts. With that said, a tight dough ball will typically require more time before it is ready to be opened (something to keep in mind when making an emergency dough, in this case a loose dough ball is desirable). Tight dough balls will hold their shape better when placed into dough boxes preventing them from all flowing together to make one dough mass in the box. Loose dough balls will always flow out more reducing the number of dough balls which can be placed into a box (they need greater spacing to accommodate their increased flow/spread over time). When re-rounding or rounding scrap dough I always like to use a loose round as it will be ready to use sooner.

This is just one of the things that makes judging properly fermented dough and over fermented dough so difficult unless one has the experience to know to see how the dough was rounded before passing judgement...as you well know, there are different fixes for over fermentation v/s a loosely rounded dough ball.

Tom Lehmann/The Dough Doctor

[Re: Bucky Doughs](#)

3594

Craig;

No, it seems to vary somewhat with the flour, exactly why I don't know. We used to run experimental batches with a new flour and increasing malt levels (20 degree L) until we observed stickiness and then backed off 0.5%. When we were working with a dry malt powder, also 20 degree L, we started at 0.25% and worked up in 0.1% increments and then backed down 0.05% when we detected stickiness.

Tom Lehmann/The Dough Doctor

[Re: diastatic malt and rising time](#)

3595

Craig;

That is correct to a point but all of the starch does not end up being converted to sugar, only a portion of it. We did studies many years ago using the Gasograph to measure yeast performance during extended fermentation periods and what we found is that after about 6-hours malted flour begins to "poop-out" and fermentation slows in response to the depleted sugar for the yeast to feed upon, BUT when diastatic malt is added as an ingredient to the dough it is usually added in MUCH greater quantities so yes, more of the starch will be converted to sugar for the yeast to feed upon...how much more is anybody's guess as it will depend

upon the activity of the malt and the amount added. This is why when too much diastatic malt is added to the dough it becomes irreversibly sticky or tacky at the very least. When we go to extremes in fermentation time as we often do when making pizza, unless we can bake at a sufficiently high temperature the acids formed during the fermentation process will greatly inhibit crust color development so we typically add some extra sugar to the dough to help with the crust color development. The problem with diastatic malt is that if you add enough to produce sufficient sugar to overcome the acid effect on crust color the dough is usually too sticky to work with.

Tom Lehmann/The Dough Doctor

[Re: diastatic malt and rising time](#)

3596

Peter;

You mention entertainment, our Sears store location in the mall is now an Omni Max theater. Pretty bad when the mall's anchor is a theater.

What I find very interesting, at least here in rural KS is that the old, town squares and main streets are coming back. Our main street (Poyntz Ave.) is ALIVE with new stores and A LOT of new restaurants where as a few years ago it was empty, now there is empty space in the mall....sure hope they find something to do with it. Here the destination restaurants won't go near the mall. Old Chicago restaurant left the mall a year ago and opened at a new location on the exact opposite side of town, about as far from the mall as you can get (about 4-miles away).

Tom Lehmann/The Dough Doctor

[Re: Pizza Hut's New Pizzas Not Doing So Well](#)

3597

Gabriel;

Welcome to the site.

I've visited Guatemala a number of times working with Pollo Campero and their pizzas and calzones.

Tom Lehmann/The Dough Doctor

[Re: Saluden de Guatemala!](#)

3598

Paul;

One suggestion.....get a good nights sleep. :)

Norma;

If a dough ball looks loose (over fermented?) do you think it might have been due to a difference in how tight the dough was rounded during the balling of the dough? A dough ball that is not rounded as tight as the others will appear to be more loose after a fermentation period and in fact it will open pretty easily too.

Tom Lehmann/The Dough Doctor

[Re: Bucky Doughs](#)

3599

Peter;

Absolutely! The entire face of retail sales is rapidly changing and taking all of the peripheral businesses with it. Here in Manhattan, KS we are seeing all of the restaurants grouping together in what is fondly referred to as "restaurant row" which is apart from the "mall" and other major retail establishments, or at least far enough to be a destination stop as opposed to a place to eat when at the mall. I

believe this might be a similar concept to the "restaurant row" in Dallas, but on a much smaller scale. Sad to say that the "brick and mortar" appears to be crumbling. Our state has been trying to charge tax on all internet sales but haven't yet figured out how to do it I guess. Retail merchants are 100% in favor of the idea as it will help to level the playing field. Right now we can buy off of the internet and unless the company has an office in KS we do not charge any state tax on the purchase so it amounts to an automatic 7% discount right up front and in many cases there is free or low cost shipping on top of that which further erodes the local retail sales, not to even mention the lower item cost too. It has become so bad here that I just bought new tires for two of our vehicles, the dealer agreed to sell me the tires at the same price that I was quoted at Tirerack.com plus shipping (about \$20.00 per tire cheaper than their first quotation for the same tires) they then charged \$10.00 each for dismounting and mounting + balancing the new tires which is a standard fee. Worked out good for us, but not especially well for them. By the way, we did not have to pay state tax on the tires either. Businesses are doing what they have to in order to survive but like Sears, nothing they do will be enough, things are a changin'.

Tom Lehmann/The Dough Doctor

[Re: Pizza Hut's New Pizzas Not Doing So Well](#)

3600

Look at it like this, PH is searching for something new and different to appeal to the masses...dare to be different is what I always say, when it comes to pizza, that's what keeps it interesting. I've been involved in product development for a good deal of my career, only about 2% of all newly developed products ever make it in the market place....the rest just go away. Product development is a lot like a fishing trip, sometimes you catch fish, sometimes you don't, but one thing is for sure, if you don't wet a line you will never catch any fish. Like everyone else, sometimes I just scratch my head and ask myself "where did they come up with that idea at?" You would be surprised at what comes out of new product think tanks! You win a few and you lose a few, yes, I think it's a loser too, but then I'm not a teeny bopper anymore either, and I've got an idea that that is one of their new target audiences. By the way, putting the shoe on the other foot, we have found it difficult, at best, to get anyone much under 30-years old interested in old world and artisan pizzas, it's a shame, but that's the reality of it.

Tom Lehmann/The Dough Doctor

[Re: Pizza Hut's New Pizzas Not Doing So Well](#)

3601

When baked fast at a high temperature a very thin crispy crust is formed which quickly loses its crisp due to moisture migration from the top of the pizza into the bottom crust. Many of the pizzas that I see being baked at those temperatures are served with a knife and fork for good reason. Assuming no sugar, milk or eggs in the dough formula and the flour is non-malted.

Tom Lehmann/The Dough Doctor

[Re: Fast bake, but very soft](#)

3602

Norma;

Can you relate the finished dough temperature to those which were bucky and those which were not? If fermentation is being taken close to maximum the difference of only a few degrees can push it into the bucky stage. Like I said before, it is a precursor to what we would recognize as over fermented so the dough balls

wouldn't necessarily look over fermented. Welcome to the wonderful world of fermentation.

Tom Lehmann/The Dough Doctor

[Re: Bucky Doughs](#)

3603

It will all depend upon the protein content of the flour as well as the finished dough temperature, also, I don't think you will find many here who would agree that 4 to 5-hours at room temperature would constitute an over fermented dough, but if the protein content of the flour is in the 11.8 to 12.4% range you might be on the cusp of it.

A good procedure would be to make about 10 dough balls all from the same dough and allow them to ferment side by side and then begin opening them at 4-hours and then at 30-minute intervals or you could do 60-minute intervals too but in any case you will need to have enough dough balls to cover whatever time is needed to over ferment the dough. Do not employ high dough temps (90F and more) to speed up fermentation since the temperature impact upon the protein will skew the results.

Tom Lehmann/The Dough Doctor

[Re: Bucky Doughs](#)

3604

It would also help to know what your finished dough temperature is.

Tom Lehmann/The Dough Doctor

[Re: Help with Dough and Process](#)

3605

Paul;

The buckiness is a precursor to the break down of the dough.

To see it yourself, just make a dough with a normal amount of instant dry yeast (0.4%) and 4% sugar, then allow it to ferment at room temperature the progression will be soft and extensible, bucky and elastic, then break down.

Tom Lehmann/The Dough Doctor

[Re: Bucky Doughs](#)

3606

We had a very dry and warm spring (garden went in the last week of February) almost unheard of here in KS, but since then rain several times a week, hence our problems this year with fungus but still on "blood suckers". My own theory is that our unusually warm winter allowed for eggs of insects to hatch and then it would get cold again for a few days which would kill the larvae thus contributing to something of a crashed population....don't know.

Tom Lehmann/The Dough Doctor

[Re: If you grow tomatoes...](#)

3607

Right now it is nothing else than fresh, garden ripe tomatoes from our garden. Thin slice, place between towels to dry, lightly oil the dough skin and add some fresh sliced garlic or crushed garlic out of a jar, then roll up some fresh basil leaves and cut into strips and sprinkle over the oiled skin, add the sliced tomato and dress the pie as desired. A real treat this time of the year for us! When fresh tomatoes are not available canned whole tomatoes work well, just drain well and tear into pieces and add over the top of the skin as you would the sliced tomato. Our problem is

that we like the flavor of the chunky tomato...its different than when made into a sauce.

Tom Lehmann/The Dough Doctor

[Re: What's your go to pizza sauce recipe?](#)

3608

JPB;

I typically just oil the dough balls, but I know that some forum members oil the bags using spray oil (I find this messy) and still others oil both. my method is to form the dough balls, oil one hand and oil the dough ball and pick it up using the oiled hand and place it into the bag while holding the bag with the un-oiled hand, this keep the bag clean on the outside. Another method that works well is to roll the bag down and place it on the table/counter top and use both hands to oil and pick up the dough ball(s) and place it into the bag, then wash the oil off of your hands and pull the bag up around the dough ball, give it a spin to form the pony tail and tuck the pony tail under the dough ball as you place it into the fridge.

Experiment to see what works best in your application.

Tom Lehmann/The Dough Doctor

[Re: Opening was harder than expected](#)

3609

"J" hook...that tells the whole story! The "J" hook is almost useless by itself (delete the word "almost") as it will not pick up the dough from the bottom of the bowl unless the bowl is filled to capacity. By all means, you DO need to use the flat beater aka paddle to mix the dough initially until it begins to ball up, then remove the paddle and use the hook to continue mixing until the dough just takes on a smooth appearance. By the way, "J" hooks on the larger size mixers are not as bad as the ones for the Kitchen Aid mixer as they are much different in shape and dimension while the one that you have is more like a piece of wire (actually cast aluminum) in a hook shape. This is why the newer Kitchen Aid mixers all come with the newer design reverse spiral dough arm as standard equipment (BIG IMPROVEMENT).

One last note: When we used to mix dough in the old mixers using the "J" hook we would initially mix the dough using the paddle until the mixer began to object, we would then remove the paddle and install the hook and mix the dough to completion at the highest speed possible which will be either speed 1 or 2 depending upon the viscosity of your dough.

Let us know if this helps.

Tom Lehmann/The Dough Doctor

[Re: Hydration/incorporation issues continued](#)

3610

In case you're wondering, the rack that's pictured (great picture) is called a tree rack. While the standard one might be too large for home use look at the wall mountable tree rack, it holds fewer pizzas (7 or 8) and it has the option of being mounted on a wall or free standing and it sells for quite a bit less too.

Tom Lehmann/The Dough Doctor

[Re: Aluminum Metal Discs for Serving Pizza, worth trying a bake?](#)

3611

When dough temps reach and exceed 90F there is a decided weakening of the gluten forming proteins in your dough. This is why we don't like to use high dough temps unless we're making an emergency dough.

As for hand kneading or machine mixing the dough, this will have no impact upon the flavor of the finished crust, great pizzas are made without the benefit of a dough mixer. It's what you do with/to the dough after mixing that really impacts the flavor, I'm referring to fermentation. Within reason for the dough formula and dough management procedure the longer the dough is allowed to ferment, the more flavorful the resulting crust will be...this is assuming it is baked properly too. As for myself, I do almost all hand mixing allowing biochemical gluten development to do all the hard work for me but there are a lot of great pizza makers here too that use dough mixers to develop the gluten so you should get some good first hand direction from them on the different mixer options available to you.

As for flour strength/protein content, almost every pizzeria will opt for the stronger flour rather than a weaker/lower protein flour as it exhibits greater tolerance to abuse or variances encountered in everyday dough production...dough failure is not an option in a pizzeria.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3612

If your mixer will allow it, go to a higher speed as this will give you significantly better mixing action for improved gluten development. A lot of times a very slow speed doesn't pull the dough off of the bowl during mixing so you could mix the dough all day and still get poor gluten development whereas a higher speed will pull the dough off of the bowl allowing the dough to get worked between the bowl and the hook as it should for gluten development.

Does your mixer have the reverse spiral dough arm or is it one of the older models with just a plain "J" hook?

Tom Lehmann/The Dough Doctor

[Re: Hydration/incorporation issues continued](#)

3613

This has been a really strange year for us here in Manhattan, Kansas. With two exceptionally mild winters back to back, with last years being not much more than a cold fall we thought we would be over run by mosquitoes and garden pests this year, but as hard as it might be to believe, we have few mosquitoes...almost none! And in the garden hardly any problems with insects (great tip on the black light...thank you!) but we have been spraying regularly for fungus on our tomato and cucumber plants....I think I'd rather be fighting off the bugs than fungus, it has really cut into our harvest this year. :(

Tom Lehmann/The Dough Doctor

[Re: If you grow tomatoes...](#)

3614

A pan which is commonly used for both cutting and serving pizzas in pizzerias is the coupe pan. It has a smooth, rounded bottom profile which makes it easy to cut the pizzas in and it also serves as a serving tray for a lot of pizzerias. They do bake quite differently from baking directly on a stone or steel, and they must be seasoned if they are going to be used for baking but seasoning is not needed or desired if they will be used only for cutting and/or serving. I agree with Steve about the screens, but be sure to season the screens if you plan to bake on them and DO NOT cut your pizzas on a screen.

Tom Lehmann/The Dough Doctor

[Re: Aluminum Metal Discs for Serving Pizza, worth trying a bake?](#)

3615

JPB:

No, the bags don't pose the problem as lidded containers do, this is because the plastic is so thin and it is in direct contact with the dough so the conductivity is much better than a closed container with dead air space.

Tom Lehmann/The Dough Doctor

[Re: Opening was harder than expected](#)

3616

If your dough is mixed by hand, it needs to be kneaded a lot more, but if it was mixed by machine it is terribly under mixed which is the reason for the stickiness. If you are mixing by hand an alternative to kneading is to use biochemical gluten development to achieve the gluten development for you. You can do this by placing the dough as seen in the picture, into an oiled bowl, lightly drape the bowl with a piece of plastic to prevent drying and allow the dough to ferment for at least 2-hours, though it can go for 3-hours if you want. Then turn the dough out of the bowl and knead the dough for several minutes on a lightly floured surface, then divide the dough into desired weight pieces, form into balls, lightly oil each ball and place into individual Food Bags (not ZIP-LOCK) and store the dough balls in the fridge for at least 24-hours though 24-is better. To use the dough balls, remove from the fridge, allow to warm AT room temperature until the internal temperature of the dough balls reaches 50 to 60F, then remove the dough ball(s) from the bag(s) and begin opening them into skins by your preferred method.

Tom Lehmann/The Dough doctor

[Re: Hydration/incorporation issues continued](#)

3617

Just a guess, but from what you have described, especially as you found the dough more difficult to open after resting on the counter top for 90-minutes is that the dough might have been over fermented (common when the dough is placed in containers and tightly covered right away). Over fermented dough tends to become "bucky" or very elastic especially when trying to open it into a skin, and a sure tip off that the dough is over fermented is that this condition just keeps getting worse the longer you allow the dough to rest before opening it into skins. By the way, acronyms and/or abbreviations should be used only after the word/phrase have been previously used in the communication as this prevents any errors in translation, and makes understanding a lot easier too.

Tom Lehmann/The Dough Doctor

[Re: Opening was harder than expected](#)

3618

Holly821;

Welcome!

You've come to the right place to learn about yeast and what it takes to make a consistently great pizza. Jump right on in with your questions whenever you're ready.

Tom Lehmann/The Dough Doctor

[Re: Newbie](#)

3619

Steve;

Welcome! I don't think you'll find a better place to learn about home pizza making,

and if your endeavors lead you to a commercial operation aka pizzeria we can help you with that too.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3620

JPB;

Yep, the finished dough temperature is the driver. If you use a warm or hot autolyse or pre-ferment it may be beneficial or helpful in achieving your finished dough temperature by cooling the autolyse or pre-ferment to around 50F before adding it to the dough. You won't do any harm to it at all by doing so. When we do this commercially we run it through a plate type heat exchanger to rapidly cool it prior to use, in many cases we will then hold it in a refrigerated tank at 40F with constant gentle agitation to keep the flour in suspension (1 r.p.m. sweep agitation is used) under these conditions the autolyse or pre-ferment can be used at any time within 24-hours but best results are almost always had if used within a few hours.

Tom Lehmann/The Dough Doctor

[Re: under vs over-fermented dough?](#)

3621

JPB;

Unless "for a while" means several or more hours it really doesn't do any good to "pop" it in the fridge to cool the dough off unless you are re-balling the dough after taking it out of the fridge if it is actual dough temperature that you are trying to adjust. The reason for this is due to the excellent insulating properties of the dough. You are only cooling off the very outside portion of the dough, not the core of the dough which needs to be cooled for dough management purposes. If you are cooling the dough just to improve the immediate handling properties (which appears to be the case) that's fine, we also do something similar in large scale production where we use a nitrogen or carbon dioxide fog to cool the surface of the dough for improved processing characteristics.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3622

You probably want to measure the temperature of the stone rather than going by the temperature on the grill. The stone temperature, being just above the heat source could be well above 600F. Do you have any sugar, milk or eggs in the dough formula? (they're not recommended for high temperature baking). How long was the pizza baked for? What did the top of the pizza look like? Remember, pizzas are baked from the bottom up, so when the bottom is done the top also has to be done at essentially the same time, if it isn't there is an imbalance of heat between the top and bottom of the baking chamber which needs to be addressed.

Tom Lehmann/The Dough Doctor

[Re: Scorching bad time](#)

3623

High temps, while not recommended, are used in pre-ferments and autolyses due to better flour absorption properties and more active fermentation (but remember that other micro organisms may also like the elevated temperatures too resulting in an unwanted flavor shift) this is why we like to avoid using temperatures above 90F whenever possible. The key to successful dough management, as I've said so many times, is controlling the FINISHED DOUGH TEMPERATURE. Fermentation is

something like driving different types of cars. When lower fermentation temperatures are employed (65 to 85F) the dough ferments at a slower rate exhibiting less variability within any given period of time (like driving a Prius) but when higher fermentation temperatures are employed (90+) the dough ferments at a considerably faster rate so within any given period of time there can be more variability (sorta like driving a 500+ horse power Shelby Mustang). Both can be done, you just need to be better at what you are doing to drive the Mustang. Sorry to all, I'm just not an advocate of high temperature fermentation...too many potential things to go wrong, go wrong, go wrong, go wrong. We all know that never happens though.....right???

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3624

JPB;

In that case put your emphasis on controlling the finished dough temperature. If you can control the finished dough temperature to within +/- 2F of your target temperature you can lock in the fermentation time and go by that alone with a high level of success. Don't worry about the room temperature unless there is a 10F change in it from the temperature at which you established the fermentation time, and don't worry about the outside temperature unless you are making your dough outside in the back yard. Even then, the 10F rule applies.

Tom Lehmann/The Dough Doctor

[Re: under vs over-fermented dough?](#)

3625

Jr07;

A wood peel aka prep peel may serve you better than a metal peel as the dough typically does not exhibit as much of a tendency to want to cling/stick to it. The metal peels are used for removing the pizzas from the oven. The only exception to this is the perforated peel which is designed as a prep peel but I've personally had some issues with it when using high absorption doughs. I've also found that fine corn meal works well with doughs that pose a problem with stickiness on the peel.

Tom Lehmann/The Dough Doctor

[Re: Help: black pizza bottom](#)

3626

JPB;

Yes, it also works for bread doughs too, that's where I first learned it from when working in a small bread bakery during my early high school years. This is why we express FFR (first full rise) as a percent of the total dough fermentation time. Some bread makers might use FFR + 20%, meaning that total fermentation time for that particular dough of a specific formulation for making a specific product is FFR plus 20% of that time. So if it took 3-hours for a dough to reach FFR (and 20% of 180-minutes = 36-minutes) the total fermentation time would be calculated as being $180 + 36 = 216$ -minutes or roughly 3.5-hours.. As I said previously, the factor used in making pizza doughs is almost always much higher than that which is used in making bread doughs (often as high as 100% or more) since pizza doughs do not go under nearly as much stress during oven spring as bread doughs do (collapse is not an option when making bread).

Werty:

It does not apply as well in very high absorption doughs due to the inherent

weakness of the dough. Up to about 68% seems to be the limit for this test.

Tom Lehmann/The Dough Doctor

[Re: under vs over-fermented dough?](#)

3627

JPB;

That last post might have provided the answer. Since temperature is the driver for fermentation when high dough temperatures are utilized one must resort to low yeast levels to control the fermentation rate. A common problem associated with this practice is when you go to bake the pizza often there is not enough yeast present (remember that yeast does not multiply in a dough) to provide the oven spring necessary to support the weight of the toppings so the pizza bakes out thinner than anticipated which is usually accompanied by our old friend, the dreaded gum line. This is why we don't see high dough temperatures (high water temperatures) employed in commercial settings. We can get away doing it in a home or very low production setting because we have the flexibility to keep an eye on each pizza and bake it until it has the crust characteristics that we desire, and if the crust is dark....well, that just part of our presentation but at a pizzeria many of the customers will return the pizza since they think the crust is burnt. That's the problem at a pizzeria....you bake the pizzas for your customers, not you.

That's my guess.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3628

Actually, I'd take a pass on adding the sugar as it will compete for the water. Add it along with the salt and yeast after the autolyse. As for the dough ball, after re-balling it you only need to wait long enough for the dough to become sufficiently extensible to be opened easily, then you're ready for dressing and baking it. If you plan to open the dough while it's still cold you had better plan on docking it too, if not keep your bubble popper handy.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3629

What we normally do is to manage the dough through a 2-day CF, remove the dough balls from the cooler about 2-hours prior to placing it in the pan, use Crisco in the pan as opposed to oil. Press the dough into the pan, set pans aside to proof at room temperature for about an hour, press the dough again in the pan and it will be ready to use in about 30-minutes. No need to dock pan dough. There are many different ways to fit the dough into the pan and all of them seem to work well. If the dough is pulling away from the pan it is either too cold or it has insufficient fermentation. Two fittings into the pan are usually required with about an hour between them. In your specific case I think you need to allow the dough to warm to 50 to 60F BEFORE pressing it the first time into the pan and then wait another hour before pressing/fitting it into the pan the second time, then a 30-minute final proof and you should be ready to dress the dough for the oven.

Tom Lehmann/The Dough Doctor

[Re: Proofing in the pan?](#)

3630

In my world: 4-ounces of sauce and 5-ounces of cheese.

Tom Lehmann/The Dough Doctor

[Re: Emergency NY-ish Pie ?](#)

3631

When a dough ball has been properly fermented and is ready to be opened into a skin you can push your index finger into the dough up to the first joint and the dough will recede slightly as you do so. The hole will also remain after you withdraw your finger. If the dough ball is under fermented you will feel resistance to your finger as you press it into the dough, the dough will not recede and as you withdraw your finger the dough will quickly begin to fill back into the hole left by your finger. If the dough is over fermented the dough will show some signs of collapse, depending upon how much over fermented it is, the dough might completely collapse or more commonly, it will just collapse slightly appearing as a wrinkled surface near to where you pushed your finger into the dough. An under fermented dough ball will fight you as you try to open it into a skin and when you do get it formed into a skin it will exhibit memory characteristics, meaning that it will snap-back as you prepare it for dressing. For this reason it is better to error on over fermenting the dough balls as they will be easier to open and will not exhibit memory characteristics.

Tom Lehmann/The Dough Doctor

[Re: under vs over-fermented dough?](#)

3632

There is no specific "standard" that I'm aware of so you can use a cylinder diameter of your choosing, the dough weight must be constant though if you are going to be comparing results ditto for dough temperature and environmental temperature. You don't need to cover the cylinder as the carbon dioxide being generated by the yeast is heavier than air so it will displace the air in the space above the dough creating its own green house effect at locking in heat and moisture. If you are experimenting with different dough formulas or ingredients the test can also provide you with an idea of the fermentation rate for the new dough formulation allowing you to incorporate possible changes into your dough management procedure or anticipate differences in the dough as it ferments. When we did the test at AIB we used a 500-ml glass graduated cylinder and a 50-gram dough ball weight. I think the last time I did the test was back in about 1978 or 1979 when I did a presentation at ASBE (American Society of Baking Engineers) , now just called ASB (American Association of Bakers) on Fermipan IDY and how it compares to other types of bakers yeast. It was the first presentation made at ASBE on the then new instant dry yeast.

Tom Lehmann/The Dough Doctor

[Re: Use of a pluviometer to judge and correct the development of a neapolitan dough.](#)

3633

Werty;

If you add the yeast right up front you don't have a true autolyse, instead, you're making a pre-ferment. With an autolyse the yeast should be added to the dough after the hydration period.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3634

If the required water temperature is COLDER than your available water temperature (tap or refrigerated) you will need to add ice to replace a portion of

the WEIGHT of the dough water. There is an equation for the calculation but unless you're good at math you won't like it. Over the years I've found that in cases such as you present, replacing 25% of the weight of cold water with chipped or shaved ice will normally get you pretty close to the target temperature range. The ice MUST be either chipped or flake/shaved which will allow the ice to fully melt in the dough thus effectively cooling the dough. If the ice is in any other form it normally will not melt within sufficient time for the water to be mixed into the dough resulting in wet spots or even ice particles within the dough. Both of these conditions are conducive to the development of large bubbles within the dough upon baking.

You are correct in that if you fill the mixing bowl with cold water and add ice to it and allow it to set for 10 to 15-minutes you will effectively super cool the bowl (you can also use brine water to get it even colder) and this is an effective method for cooling the dough providing there isn't too much of a difference between the calculated water temperature and the coldest water temperature you have available to you.

As for higher absorption doughs requiring a longer mixing time this is correct. The greater fluidity of the higher absorption dough makes it more difficult to develop the gluten.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3635

The only issue with the test is that if you are looking for the time it takes for a dough to double or triple in volume the test will provide you with a pretty good approximation of time, but if you are looking for the time to first full rise which is the indicator that most U.S. bakeries use it is not a good test at all as the diameter of the cylinder has a significant bearing on the time at when the dough collapses. For example, first full rise will occur in a dough trough 3' X 10' X 3' deep much faster than it will in a graduated cylinder. If a bakery is trying to sort out differences between two different flours it is a meaningful test but it does not provide real time guidance on the production floor in a large scale automated bakery.

Tom Lehmann/The Dough Doctor

[Re: Use of a pluviometer to judge and correct the development of a neapolitan dough.](#)

3636

Peter;

Within the classification of Leuconostoc bacteria are the lactic acid forming bacteria which we are all so familiar with, I'm guessing that this was to a large extent responsible for the results that you were seeing. In any kind of a baking environment this is probably the most common bacteria present and it contributes to the flavor of all yeast leavened baked products, especially those made using starters and sours where we have a significant incubation time, especially at elevated temperatures such as room temperature.

Tom Lehmann/The Dough Doctor

[Re: What is the best way to maximize simple sugars in my dough only using FWSY?](#)

3637

The water temperature will depend upon a number of factors. Flour temperature, room temperature and friction factor of your mixer.

The calculation for desired water temperature is: 3 X desired dough temperature

minus the sum of flour temperature, room temperature and friction factor. Note: If you are using a mixer use 30 for the friction factor, if you are hand kneading use 5 for the friction factor. In general application you will probably want to use water at 70F to give you a desired finished dough temperature in the 75 to 80F range. Remember, it's not the water temperature we are looking for, it's the finished dough temperature that's important. The water temperature is just the means by which we arrive at the desired finished dough temperature. As I always say: "You cannot have effective dough management without temperature control"

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3638

Additionally, your premise is that alpha amylase is already present in the flour. Not necessarily so. Flour which is milled from high quality wheat, which has not begun sprouting in the field prior to harvest (you can't hardly give it away when that happens) is almost totally devoid of any amylase activity. This is why flour is treated with the addition of sprouted barley flour (malted flour) so there is a specific level of amylase activity present in the flour which results in flour with a known level of ability to support fermentation and develop crust color through enzymatic conversion of starch to simple sugars.

If your flour is malted, what you are proposing will result in conversion of starch to sugars but if it is not little or no sugars will be produced unless you add a source of amylase. Amylase supplements are available here in the U.S. from most bakery ingredient suppliers. A good number of years ago I wrote an AIB Technical Bulletin titled "Use of Cripples in Bakery Products". Cripples are baked products which are below specification and cannot be sold. This might include under or over weight products, over or under proofed products or any product deemed unsaleable but still clean and sanitary and fit for human consumption. In the bulletin I gave discussed and gave direction for taking those products and grinding them or creating a slurry by mixing them into water with agitation (baked products are a very rich source of damaged starch as almost all of the starch present is gelatinized/damaged during the baking process) and then adding a source of amylase (in this case we used a commercial amylase preparation (Amflex from Cain Food Industries, Dallas, Texas) and allowing it to react for 90-minutes during which time the starches were effectively converted to sugar resulting in a sugar solution which could be added back to new doughs as a source of sugar, thus saving considerable money for the baker. This became so popular that a machine was developed just for the purpose of liquifying the baked products for this application, it is called a "Liquifier", it is a lot like a giant blender in function. As a side note: McDonalds French Fries have a very unique color and texture, this is achieved by taking the potato milk (juice from the potato) resulting from the slicing operation (potato milk/juice is very high in potato starch), this is then cooked to gelatinize the starch and amylase is added to the cooled slurry where the starch is now converted to sugars. This sugar solution is used to dip the potato slices in prior to freezing, it is the sugar solution adhering to the slices which results in the unique color and texture of their French Fries after the final frying process.

Make your own sugar solution by taking a couple slices of baked bread, place into a blender and add enough water (90F) to make a slurry, like a milk shake, then add a small amount of diastatic malt (amylase) and allow it to set for 90-minutes or more. Place the resulting sugar slurry into a pan and CAREFULLY heat it to 120F (this will kill the amylase), then allow to cool or refrigerate. What you will end up with is a sugar solution which can be used in baked products to replace sugar much like one might use any other type of liquid sugar.

Tom Lehmann/The Dough Doctor

[Re: What is the best way to maximize simple sugars in my dough only using FWSY?](#)

3639

Matt;

The mixing action looks good, I can see why the flour doesn't dust, because the dough size being mixed is quite small for the mixer bowl (not a problem).

Tom Lehmann/The Dough Doctor

[Re: Countertop Spiral mixer for the price of a KA Pro](#)

3640

My recommendation is to freeze the extra dough balls, but first flatten them to reduce their cross section, oil the flattened dough ball and place on a pie pan or something similar to freeze (un-wrapped), after about 2-hours in the freezer place into individual plastic Food Bags for the remainder of the storage time. The dough can be frozen for up to 10 to 15-days. To use the dough balls, remove from the freezer and place into the fridge 12 to 18-hours, then re-round the dough and allow the dough balls to rest at room temperature for 2 to 3-hours before opening them into skins. Plastic bowls that have been lightly oil work fine for holding the dough balls during the room temperature rest period.

Tom Lehmann/The Dough Doctor

[Re: Freeze Dough....Neapolitan Pizza??](#)

3641

Steve;

Can't tell much using only the water temperature as it's the finished dough temperature which sets the stage for everything to come. But I will say this, 90 to 95F water temperature is very hot water to be using to make anything but an emergency dough unless you happen to be making your dough in Nome, Alaska in an unheated tent on a very cold winter day. ;D

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3642

None. WWWAAAYYY too many variables.

Tom Lehmann/The Dough Doctor

[Re: Use of a pluviometer to judge and correct the development of a neapolitan dough.](#)

3643

Matt;

Can you tell us something about your mixer? Do you have the "dust cloud" issue which I referred to? How long do you have to mix the dough to get to a point where the dough is just becoming smooth? With four years of use under your belt with the mixer you should have a pretty good opinion of the mixer by now.

Any chance of you posting a video of it mixing a dough?

Tom Lehmann/The Dough Doctor

[Re: Countertop Spiral mixer for the price of a KA Pro](#)

3644

What was 92F when you started? If it was the finished dough temperature the results may not be very good as the dough will continue to heat up (even in the fridge) due to heat of metabolism. Wheat proteins begin to break down at 90F the

high temperature combined with long fermentation time do not set the stage for a great dough 48-hours later. The best advice I can offer in that case is to re-ball the dough a few hours prior to expected use time, this may help to re-strengthen the dough to at least avoid complete failure.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3645

If it works and holds up it would be great, but I'm a little concerned over the single speed aspect, two speeds are really needed. If the agitator speed is fast enough to mix the dough it will be too fast to combine the ingredients resulting in a flour dust cloud, and if it is slow enough to prevent the dust cloud at start up it is usually too slow to efficiently mix the dough, and then I would proceed with extreme caution as Walter is spot-on with his warning. If anyone jumps at one of these please let us know how it works for you.

I'd sure like to see some uncensored reviews of this mixer before buying.

Tom Lehmann/The Dough Doctor

[Re: Countertop Spiral mixer for the price of a KA Pro](#)

3646

The method discussed where a precisely weighed amount of dough, at a specific temperature is placed into a graduated cylinder, tamped flat across the top and then observed and the change in volume noted is good only for assessing the rate of fermentation of a given dough. The accepted (AACC) American association of Cereal Chemists methods for measuring dough strength are the Farinograph for measuring the strength of un-fermented dough and the Extensograph for measuring the change in extensibility over time with an un-fermented dough. When it comes to measuring the strength of a fermented dough the pup loaf baking test is still the preferred method. The Alveograph has some application in measuring the strength of a dough BUT it doesn't work as well with the strong U.S. and Canadian hard wheat varieties as it does with the softer European wheat varieties, this is why we don't see greater use of the Alveograph here in the U.S.

When it comes to measuring the fermentation tolerance of a flour the accepted method is to place a standardized quantity of dough at a specific temperature into a container and place it into a temperature/humidity controlled cabinet. The dough is allowed to rise until it reaches the first full rise (the point at which it collapses on its own). This time is noted and compared to that of other flours fermented in exactly the same manner. That with the greatest time to first full rise is said to have a greater tolerance to fermentation for whatever reason (protein quantity and protein quality are the main factors responsible for this).

I should also add that there is one other test for measuring flour quality, this is the Mixograph. The Mixograph is very similar to the Farinograph in operation but the equipment needed to conduct the test is much less costly.

Tom Lehmann/The Dough Doctor

[Re: Use of a pluviometer to judge and correct the development of a neapolitan dough.](#)

3647

If your finished dough temperature was under 85F it should be just fine with the additional time in the fridge.

Tom Lehmann/The Dough Doctor

[Re: How long can I keep dough in the refrigerator?](#)

3648

Why not just reduce the dough size to 750 or 500-grams? Life will be a lot easier for your mixer. As far as mixing speed is concerned, too slow of a speed is not good as it does not develop the gluten very well which results in overly long mixing times which make it hard on the mixer as well as controlling the finished dough temperature (bowl friction). On a K5-A mixer second speed is shown as 216 r.p.m. which is pretty close to the recommended 200 r.p.m. for dough development in a planetary mixer. If you go on a hunt for a larger mixer seek out a 20-quart Hobart A-200 or A-200-T, just make sure you get a reverse spiral dough arm with the mixer or you'll be adding the cost of one to the mixer. These mixers also have an attachment head so you can add a modified "pelican head" to it if you want, this will make the mixer something of a pizza maker's Barbie Doll as you can have fun looking for all of the attachments in the internet.

Tom Lehmann/The Dough Doctor

[Re: Mixing speed](#)

3649

If any of you live in or near, or are planning to visit Urbana, Ohio I would highly recommend a visit to R.T. Bundy/Russel T. Bundy and Associates. They are one of the largest suppliers of new, used and reconditioned bakery equipment in the U.S. but more importantly, they have a large, dedicated museum on baking and everything related to baking, including a lot of early dough testing apparatus. The museum is open to the public and is well worth the visit It is the only one of its kind in the U.S.. if not the world.

Tom Lehmann/The Dough Doctor

[Re: Use of a pluviometer to judge and correct the development of a neapolitan dough.](#)

3650

A good general purpose flour, in my opinion, is Pillsbury Bread Flour. This is available at most supermarkets and it has roughly 12.2% protein content. Many of the King Arthur flours are good too, just look for something at 12% or more protein content. If you find that your finished pizzas are too tough/chewy for your liking drop down 0.5% to 1% in flour protein content.

Tom Lehmann/The Dough Doctor

[Re: What causes dough to loose strenght?](#)

3651

Too much starter, starter too strong (acid), insufficient protein content in the flour that you used, excessive fermentation time for your dough management procedure will all contribute to a weak dough. My personal experience with Caputo "00" flour is that it doesn't do well with a lot of fermentation.

Tom Lehmann/The Dough Doctor

[Re: What causes dough to loose strenght?](#)

3652

Norma;

Bigmoose did exactly what we did.

Rolls, our oven had the same solid deck as Norma's and yes, it does appear that over time they do warp a little. The difference in height at the break wasn't a whole lot but it was enough to constantly snag the metal peel but the grinder made quick work out of fixing it.

As for the Marsal oven, we absolutely loved it! Baked better (more consistently)

than the B.P. but don't believe their claims that the pizzas don't need to be moved in the oven, they DO! The only time that claim seemed to work was when we placed a single load of pizzas in the oven and closed the door, not to be opened until the pizzas were about ready to come out of the oven. We did find that we didn't need to spin the pizzas as frequently with the Marsal but when running the oven in production where we were continually removing pizzas from the oven and putting new ones in we found that it was necessary to rotate the pizzas over the deck area as the pizzas in the back of the oven would bake differently from those placed in the front of the oven near the door. This is common to all deck ovens as the door is opened frequently during production cycles resulting in some loss of heat. I might also add that we found our baking times were a bit shorter in the Marsal oven, probably due to a greater BTU burner.

Tom Lehmann/The Dough Doctor

[Re: Bottom oven stone broke](#)

3653

Welcome to the wonderful world of "fermentation", there is a perfectly logical explanation ...you just need to figure out what it is :)

Tom Lehmann/The Dough Doctor

[Re: Dough didn't rise and had weak gluten](#)

3654

Norma;

We were still using the oven on a regular basis for our pizza research and training programs right up until it was sold. The reason for selling it was that we were being given a new Marsal deck oven so at that price point we figured it was time to make the upgrade and as far as I know that Marsal oven is still in use at AIB.

Tom Lehmann/The Dough Doctor

[Re: Bottom oven stone broke](#)

3655

The guy who was buying it for his pretzel making endeavors was most likely using it to replace the caustic (lye) solution that the pretzels are dipped in just prior to baking. It is the caustic solution (2% in water) that gives the pretzels their unique color and flavor. A lot of people will use a malt solution (10 to 15%) for the dip to replace the caustic solution. This will impart a darker color (more like that of an Auntie Ann's pretzel) which is better than nothing at all but not nearly as dark as a caustic solution, and it does not impart any of the unique flavor characteristics common to the caustic dip.

Tom Lehmann/The Dough Doctor

[Re: Diastatic Malt vs Brewer's Powdered Malt Extract](#)

3656

Any IR (infra-red) thermometer will work just fine but before you buy, make sure it has the capacity to measure temperature in the range that you want to measure. Some only go up to a bit over 500F and others go to 750F and still others go up to 1,000F. Check on the internet for one that will work for you. By the way, my experience with most of the thermometers supplied on the ovens is that they are on about par with a sun dial on a cloudy day. The biggest problem is that they only give you an average deck temperature at best, and they do not show you where the hot spots are located which a hand held IR thermometer will.

Tom Lehmann/The Dough Doctor

[Re: First Neapolitan Pizza - bottom caught on fire](#)

3657

Norma;

Until we sold it, at AIB we had a B.P. deck oven with several cracks in the stone and we never had a problem with it over the many years that we used it. I have to admit though that one of the cracks ran perpendicular across the deck causing our metal peels to constantly snag up on it but a little handy work with a hand held grinder soon had both pieces back on the same plane again and that's how we used it for probably a good 15 or more years after the crack developed.

Tom Lehmann/The Dough Doctor

[Re: Bottom oven stone broke](#)

3658

Here's what I'd do, make a dough using the exact same formula EXCEPT use yeast for the leavening. Then make another dough using your pre-ferment and capture side by side pictures of them. If the yeast leavened dough comes out better there is a distinct probability that something has gone wrong with your pre-ferment (like that has never happened before) and you will need to start one all over again. I would suggest starting one from scratch rather than inoculating a new one with the old pre-ferment since you don't have a clue as to what is growing in it, and that might be the source of your problem. It would make for an interesting test to also make a new pre-ferment using a portion of the old one to inoculate it. In this case if the pre-ferment ends up performing in the same manner you have a very strong case for something unwanted growing in the pre-ferment.

Tom Lehmann/The Dough Doctor

[Re: Dough didn't rise and had weak gluten](#)

3659

Yep, just change over to a lower protein content flour. The G.M. Superlative and Full Strength both come in at about 12.6% or you can also try Rex Royal (aka Pillsbury Bread Flour, available at many supermarkets) which comes in at about 12% protein content.

Tom Lehmann/The Dough Doctor

[Re: How to get to a 13.5% protein flour](#)

3660

You could also oil the dough pieces and place them into individual plastic "food" bags (discussed many time previously). Fast, clean, sanitary.

Tom Lehmann/The Dough Doctor

[Re: Dough temperature problems](#)

3661

When dough is allowed to ferment to the point which you described the protein is essentially destroyed between acids formed during fermentation and enzymatic activity. Since protein is the water carrying portion of the flour when the protein is completely degraded it releases the water it's carrying, hence the wet, slimy characteristic. Then as degradation of protein during the baking process is responsible for a good part of what we call flavor, since the proteins are already degraded, a whole different flavor profile is developed during the baking of the dough. Additionally, there is no telling what other micro-organisms have taken the place of the yeast (remember, it's now dead), but it will be an acid loving organism, at least for the present. Is old, rotten dough dangerous to eat? Yes, it can be, but thankfully the acidification of the dough prevents most of the really nasty stuff from

growing, at least for a while. However, since most of us don't consider raw dough as part of a fine dining menu the dough gets baked prior to consumption....thank GOD for the oven! Without the oven bakers would have poisoned mankind thousands of years ago.....think of it, for the most part, it's the only kill step any of the ingredients go through if you're making a pizza totally from scratch (nothing store bought). Yes, bakers use old dough for the unique properties it CAN impart to their products, BUT the "old" dough is made under controlled conditions so it can be replicated and so it doesn't impact their baked products in some unforeseen way.

Tom Lehmann/The Dough Doctor

[Re: RT vs CF detail](#)

3662

Can you buy the dough a day prior to using it? If it's cool at night they could be left outside all night in the individual bowls and be ready to use later on the following day.

Another thing you might do is to open the dough balls an hour or so before you need them to make your pizzas. Open the cold dough balls roughly into "skins" if you want to call them that. The opened dough will be smaller and thicker than what you want for your skins, place them on an oiled sheet pan and cover with a sheet of plastic to prevent drying. In this form they will warm up MUCH faster. After about an hour (shouldn't hurt if longer than an hour) they will have warmed sufficiently to allow for opening them to full diameter and the warmer dough temperature will address the bubbling problem too.

Cold dough is always a bear to open and once you do get it opened it rewards you with copious bubbles.

Tom Lehmann/The Dough Doctor

[Re: Dough temperature problems](#)

3663

Actually, it doesn't do much good to just add the water, then the flour and let it rest for 15-minutes without mixing the water into the flour for just a couple of seconds. The idea is to allow for better hydration of the flour and that is achieved when the flour and water are in direct contact with each other as is the case after a few seconds of mixing. If mixing large doughs usually a minute to 90-seconds mixing is sufficient.

Tom Lehmann/The Dough Doctor

[Re: 58% Hydration?](#)

3664

As long as the water doesn't smell like sulfur (rotten eggs) and it is from a municipal water supply there should be not problem with the water.

Tom Lehmann/The Dough Doctor

[Re: Dough didn't rise and had weak gluten](#)

3665

In my humble opinion, there is no way to tell by just looking at the fermented dough through a clear plastic container. The dough could be totally collapsed on top but you would not see it from the bottom. Different flours, different dough formulations, different dough management procedures, different environmental conditions will all impact the "optimum/ideal" amount of fermentation needed by a dough to make a fermented product, be it a pizza crust, bun, roll, bread, pita, donut or cracker. After over 50-years of conducting and directing research on yeast

leavened products as well as fermentation systems the only thing that I can say about fermentation is that you have to look at it as a separate entity from the rest of the dough. By that, I mean you have to look at it as providing something to the dough (like an ingredient), fermentation can provide flavor, control over color development, extensibility, elasticity, dough strength, dough flow, oven spring, baked volume, as well as a host of other things. So you decide what characteristics you want it to impart and then you select the fermentation process which has the best chance of providing those characteristics within the constraints of your formula, dough management procedure and space (some of the fermentation procedures can require more space than others), this is then matched to the product you're making and adjusted until the desired results are achieved. This is why there is no one correct or optimum amount of fermentation for any product....it is specific to each product under the conditions by which it is made. With all of that said, looking at the picture, there is clear indication of active fermentation by the visual appearance of bubbles seen through the container, so we may assume that the dough has been fermented....to what degree? Then your question: How much fermentation is needed, is this enough? Too much? Or not enough?...This is where the baking begins as it will provide the only true answer for your product (pizza) under your conditions.

If we really want to assess the status of a fermenting dough we can do that through pH and TTA (titrateable acidity) measurements as well but as we painfully learned back in the 80's this is not an accurate way to determine if a dough is properly fermented or not. Possibly the most effective way that I've seen for assessing the correct amount of fermentation for a specific flour or dough is to observe it for the "first full rise", this is the point where the dough will rise to its maximum volume and then begin to recede. This is normally considered to be ABOUT 80% of the full amount of fermentation the flour/dough requires to be "fully" fermented for most baked products, BUT because of the thin shape of the pizza crust and ease with which it is baked the dough can be easily over fermented (and in most cases it is) to provide unique characteristics (remember, these were discussed above) to either the dough or the finished crust so this rule is no longer valid but you could easily develop a new rule which would state something like this: First full rise of the dough represents 50% of the optimum fermentation for this flour, in this dough formulation, under these specific conditions. Note: If any of the conditions are changed the rule might no longer apply as such and a new % value would need to be developed.

Sound confusing??? Who ever said the study of fermentation was easy???????

Working with chemical leavening systems is a snap compared to working with yeast leavened systems, they are inert and follow very specific rules that can be calculated and are highly predictable, while yeast is alive and has a mind of its own, at least that the way it seems at times.

Tom Lehmann/The Dough Doctor

[Re: Of course I should know this but..](#)

3666

If the dough didn't rise from the "get go" and it was very weak, tearing easily there is a probability that the problem might have been your yeast. If the dough exhibited rise during the 36-hour bulk fermentation period it is probable that the yeast depleted its nutrient source and began feeding upon itself thereby releasing glutathione into the dough resulting in weakness observed. If there were bubbles in the dough but it just didn't rise the starter might have been too acid resulting in a very weak dough structure (it would have to be VERY acid for this to happen). I think more information will be required as well as maybe a picture or two before

anything definitive can be said.
Tom Lehmann/The Dough Doctor
[Re: Dough didn't rise and had weak gluten](#)
3667

It also helps to put the water in the bowl first, then add the flour salt and sugar if used along with the yeast (IDY).
Tom Lehmann/The Dough Doctor
[Re: 58% Hydration?](#)
3668

I'm in total agreement with increasing the fat content of the dough. I would suggest starting at 5% and going up from there if necessary.
Tom Lehmann/The Dough Doctor
[Re: focaccia getting hard too fast](#)
3669

Jason;
AT (All Trumps) flour is not the best for your intended purpose, unless you want to have a tough, chewy pizza. Instead try using a flour with a lower protein content (11.4 to 12.6%) should work well. I cannot comment on the IDY as I don't know how the dough is being managed.
Tom Lehmann/The Dough Doctor
[Re: Changing dough for carry out](#)
3670

Some of the best things come from mistakes. :)
Looks good!
Tom Lehmann/The Dough Doctor
[Re: Help! Baking in 3 hours!!](#)
3671

Taste the dough, just a pea size piece is all you need to taste. If you forgot the salt the dough will taste very "starchy".
Tom Lehmann/The Dough Doctor
[Re: Help! Baking in 3 hours!!](#)
3672

Looks like your dough was too warm. If you oiled the container you should be able to pop the lid and invert the dough into your pan, then using oiled fingers carefully fit the dough into the pan, allow to proof/rise for 30 to 45-minutes, dress and bake. With only 1.5-days in the fridge I think you'll be just fine.
Tom Lehmann/The Dough Doctor
[Re: Help! Baking in 3 hours!!](#)
3673

I've had good success using Forno Bravo as well as Woodstone ovens. Make sure your location will allow wood fired ovens and be sure to check your insurance costs before committing to anything. As for \$50,000.00...not enough for a restaurant (dine-in) facility. In your space be sure to allow at least 2X the depth of the oven as free space in front of the oven as room for the oven tender to work in, anything less and someone will end up wearing a hot pizza.

You might want to talk to George Mills over at www.pmq.com/think tank, George does a lot of installation work and is very generous with his knowledge.

Tom Lehmann/The Dough Doctor

[Re: Pizzeria Restaurent](#)

3674

Rolls;

It is a separate process entirely. On the reverse side alkalinity (high pH) promotes crust color development....but don't jump on that too fast! Alkalinity will significantly SLOW yeast activity and contribute to the development of a "funky" flavor in the finished crust, and if you put too much in it can saponify the fat, resulting in a soapy after taste in the finished crust...but that's in extreme cases.

Tom Lehmann/The Dough Doctor

[Re: Sugar vs. Molasses vs. Maple Syrup vs. Honey vs. Coke](#)

3675

Bill;

Puff pastry is made without yeast, and croissant dough gets its only fermentation from that over night rest in the fridge. No other fermentation is required or desirable.

Tom Lehmann/The Dough Doctor

[Re: Croissant dough for pizza?](#)

3676

Sure! Guaranteed one coat coverage too. :)

Even the Lloyd non-stick pans require that you wash them to remove any production oils and then season them only once prior to the first use. After that further seasoning is not required. I don't know anything about your baking steel but it might require seasoning more than once before it becomes non-stick. If the bottom is baking too fast move the steel to a higher rack position in your oven so the pizza receives more top heat (heat rises). Let us know if this works for you.

Tom Lehmann/The Dough Doctor

[Re: Over Fermentation](#)

3677

Brett;

You said it was a "new" steel. Did you season it before attempting to use it for the first time? If not....problem solved.

Even a new cast iron frying pan needs to be seasoned before using it.

Tom Lehmann/The Dough Doctor

[Re: Over Fermentation](#)

3678

The whole idea behind putting small pieces of frozen butter into the dough is to achieve a dough-fat matrix, as the dough begins to warm the butter melts creating a void which accomplished some of the benefits of laminating the dough without the need to go through a number of laminations. If the butter is not frozen or if its melted it will just mix into the dough with absolutely no benefit to producing this unique type of dough which is created through the development of multiple layers of dough and fat throughout the entire dough structure. The Blitz (fast) method as describer using the frozen pieces of butter doesn't allow for creating the laminations but it does result in a similar type of structure and eating characteristic.

If you study up on making a laminated dough it will help you quite a bit if you decide to try your hand at making a croissant dough. You will need to have a rolling pin or pastry pin and a little time as well as knowledge in how to make the different lamination folds. As I said before, two three folds and a book fold are plenty for making pizza. When making your laminated dough it is best to use a Danish butter (Lapur) I think the name is. This butter is VERY DIFFERENT from table grade butter in that it is still plastic at refrigerated temperature. The amount of butter added will be 15 to 25% of the dough weight. When adding the butter it needs to be added at room temperature for ease of application, after the first folding procedure the dough is refrigerated for about 60-minutes and given the second lamination followed by a recommended over night refrigeration period before being given the last lamination fold. There is a WHOLE LOT more to it than what I've described here so you will really need to read up on the process to get a feel for it prior to attempting it.

Tom Lehmann/The Dough Doctor

[Re: Croissant dough for pizza?](#)

3679

And don't forget about the impact of pH/fermentation on crust color as it is VERY significant. The longer you allow the dough to ferment the more acid (lower pH) it becomes, acidity (low pH) inhibits the Maillard browning reaction making for a significantly lighter colored crust or at the very least it is more difficult to develop a darker crust color. This is why sourdough bread is always so light in color.

Tom Lehmann/The Dough Doctor

[Re: Sugar vs. Molasses vs. Maple Syrup vs. Honey vs. Coke](#)

3680

Brett;

Can you be more specific when you say that when you bring the dough up to room temperature (70F) it makes the dough soft and hard to stretch out. Specifically, soft at 70F as compared to what other temperature and when you say that the dough is hard to stretch out specifically what issues are you having when stretching the dough out (opening it into a skin)?

Dough which is held under refrigeration will always be firmer than dough at a higher temperature, this is why it is recommended that the dough be removed from refrigeration and allowed to warm to something between 50 and 60F prior to opening into a skin, the dough is just sooo much easier to open, especially by hand. If you are allowing the dough to come up to 70F the dough is probably becoming too warm and too soft and exhibiting too much extensibility making it difficult to handle and open without tearing it.

Tom Lehmann/The Dough Doctor

[Re: Over Fermentation](#)

3681

That's like a French bread pizza by Stauffer Foods. One of the tricks to making it is to brush the crumb surface of the split bread/roll with melted butter to create a barrier so the sauce won't be absorbed into the crumb.

Tom Lehmann/The Dough Doctor

[Re: Pizza Sub](#)

3682

There may also be some flavor contribution from the molasses with very little perceived flavor contribution from the honey or sugar except for sweetness. And

then there is the pH factor of each. The Coke will have the lowest pH (most acid) which will impact fermentation. The color of the sugar (especially molasses) and in this case the Coke, will also potentially impact the finished crumb color, making it darker to some extent. Both the honey and molasses I believe will come in at about 18% water content with the remainder being solids. I have no idea of the solids content of the Coke but it would be easy to find out what it is by weighing a pot, putting 250-grams (not ml) into the pot and boiling off all of the water, then weighing the pot, subtract the tare weight of the pot and divide the remaining number by 250 and then multiplying that number by 100. This will give you some idea of the percent water in the Coke which will need to be taken into account when calculating how much water to add.

Tom Lehmann/The Dough Doctor

[Re: Sugar vs. Molasses vs. Maple Syrup vs. Honey vs. Coke](#)

3683

You bet! Tony's (frozen pizza) did just that a good number of years ago when they introduced their Italian Pastry Crust Pizza. The basic dough formula isn't all that much different from a pizza dough formula until you begin adding the roll-in fat (10 to 15%). Two three-folds and a book-fold should be sufficient for what you want to do. You can also use a blitz pastry dough method too. By this method butter is cut into small pieces, frozen and mixed into the dough, the dough is then folded a few times, set aside to rest for a couple hours in the cooler, brought out, and allowed to warm JUST until the dough can be rolled out to about 3/16-inch in thickness, it is then allowed to rest for about 20-minutes, dressed and baked. We made them for about two years until the interest cooled so we stopped making them in our class.

Tom Lehmann/The Dough Doctor

[Re: Croissant dough for pizza?](#)

3684

If you are planning to use it IN the dough step back and think about all the other flavors and aroma which will be present....will you REALLY be able to tell a difference?? If you're planning to put it ON the pizza a better quality olive oil is advised but again, there will be all those "other" aromas present, will you REALLY be able to distinguish between a decent olive oil and one that is outrageously priced?

Tom Lehmann/The Dough Doctor

[Re: High end olive oil](#)

3685

Begin by backing down the finished dough temperature and/or the total dough fermentation time until you achieve handling properties that allow you to better work with the dough. The finished dough temperature can have a significant impact upon the fermentation rate of your dough. Also, check the dough temperature at the conclusion of fermentation, you will want to controll it to something under 90F.

Tom Lehmann/The Dough Doctor

[Re: Problems with holes while stretching dough, gluten underdeveloped?](#)

3686

Peter is correct in saying that there is no one test that can be used to indicate when the dough has been properly fermented and ready to use in making skins and pizza. The one common denominator that I've seen over the years though is that if the dough is easy (I know that's a subjective term subject to the experience of the

person opening the dough) to open into a skin possessing the sought after physical characteristics it is most likely correctly fermented for that particular application, or put another way, if the dough is easy to work with and performs as you wish, it is correctly fermented for the application for which it is being used for. That's about as wide of a brush stroke I could make in defining when a dough has been properly fermented. As Peter said, there are just so many different type/styles of pizzas, as well as dough management procedures that one cannot provide a picture with a five word caption describing a properly fermented dough. At one time we tried using such criteria as TTA (titrateable acidity), pH, temperature rise, and increase in dough volume but all failed to define when a dough was properly fermented unless the dough was fermented to the specific values already known for making a specific product. A classical example of this was when the baking industry was using brews/liquid ferments to replace sponges in providing fermentation to the bread making process, some fermented the brew to a specific pH (acidity), other fermented it to a specific TTA (measurement of the amount of acid present), and still other used both measurements. The industry was in a state of turmoil for several years and dozens of papers were written on the topic, but alas, the industry continued to suffer with inconsistency in finished product due to the inability to accurately determine when the brew was properly fermented. I was working on McDonalds Bakery Products International Task Team as they went International, in some countries (like the U.K.) the brew system of fermentation was the order of the day, but even there, it could not produce the consistency in quality demanded by McDonalds for a simple hamburger bun (McDonalds Bun in their terminology) so I spear headed the movement to return back to the traditional, time proven sponge and dough proces which ultimately became the "law of the land" as it was a required process for any bakery to produce their buns. Just in case you're wondering, the liquid ferment/brew process is very similar to what we would call a poolish (30 to 45% of the total flour, 100% absorption/water = to flour weight, and from 50 to 80% of the total yeast.

Tom Lehmann/The Dough Doctor

[Re: Opening short fermented dough vs long with poolish](#)

3687

Ditto.

Temperature control is the key to effective dough management.

Tom Lehmann/The Dough Doctor

[Re: Over Fermentation](#)

3688

A slightly over fermented dough, as you know, is soft and extensible, just the thing needed for oven spring. As long as the dough has not been over fermented to the point where the yeast has been damaged or the dough has been weakened so much that it is incapable of retaining gas anymore it should exhibit decent oven spring properties even though the handling properties of the dough are anything but great.

Tom Lehmann/The Dough Doctor

[Re: Opening short fermented dough vs long with poolish](#)

3689

Large industrial mixers as well as the commonly used planetary type mixers (spiral mixers included) do indeed raise the finished dough temperature which is adjusted through manipulation of the temperature of the dough water to give the desired targeted finished dough temperature. VCM (vertical cutter mixers as well as the

Robot Coupe mixers), are high speed mixers which result in a VERY significant increase in dough temperature. Home bread machines work the dough in an enclosed chamber where the dough is exposed to high frictional forces which result in a significant temperature gain, at least that was the case with the bread machine that I had a number of years ago. I got rid of it when I bought a food processor which served multiple duties in our kitchen. I rarely use it for making dough as I do essentially all of my dough using fermentation to develop the gluten that I'm looking for.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3690

I agree that a greater percentage of bread flour would be beneficial. The weakness of the dough as is clearly visible can be due to either of two factors, an extremely weak flour (increased percentage of bread flour would help) as well as an over fermented dough for the flour being used. From the looks of the dough I'm guessing that excessively high dough temperature might be playing a significant role in this.

Tom Lehmann/The Dough Doctor

[Re: Problems with holes while stretching dough, gluten underdeveloped?](#)

3691

I'm guessing that the doughs made using a poolish as described are over fermented.

Tom Lehmann/The Dough Doctor

[Re: Opening short fermented dough vs long with poolish](#)

3692

Talk to us about what your actual dough temps are.

- 1) After mixing. (bread machines have a habit of increasing finished dough temperature)
- 2) At the time of scaling and balling.
- 3) At the time you open the dough balls into skins.

Punching the dough has a specific purpose, that is to 1) keep the dough in the container. 2) It allows for turning of the dough to help equilibrate the temperature throughout the dough mass. To a lesser extent it provides for a more consistent environment for the yeast which in turn results in a more consistent fermentation rate. Punching the dough does not de-gas the dough in a way that would reduce oven spring properties.

An easy way to increase oven spring is to maximize dough absorption (you have already done that) and then increase the yeast level using a lower (colder) dough temperature to control the rate of fermentation. This will result in greater oven spring.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3693

His comment was that there were lots of bubbles but he did not say the dough balls were gassy (a sign of probable over fermentation). I suggested he increase the IDY to give more fermentation in the same period of time. In this case I'm going more on the difficulty of opening the dough rather than the appearance of bubbles (bubbles can be the result of any number of factors, but an elastic dough is pretty

easy to nail down....with that said, IF he was referring to the dough being overly extensible when opening into skins then either a reduction in yeast or a reduction in finished dough temperature. In this case though he has indicated that the dough came out fine the first time so I would make an educated guess that he has a temperature control issue. A temperature change of just a few degrees will significantly impact the amount of fermentation that the dough receives during an extended bulk fermentation period. With the data provided and no pictures to go on it's assumption and educated guessing.

Tom Lehmann/The Dough Doctor

[Re: My very first WFO pie - please help make the next one better](#)

3694

If you bulk ferment prior to scaling and balling the flattening procedure goes a long ways in helping to cool the dough down more efficiently. As you know, a round ball is a shape good for only one thing, rolling. It seems to fail at just about everything else including freezing or cooling. The smaller the cross section the more efficiently the dough will cool (core temperature is the name of the game here), until the core is cooled you don't have a cooled dough ball or dough mass.

Tom Lehmann/The Dough Doctor

[Re: Problems with holes while stretching dough, gluten underdeveloped?](#)

3695

I think we covered this very question a short time ago, perhaps Peter could weigh in and pull up the posts for you.

Tom Lehmann/The Dough Doctor

[Re: Effects of Different Ingredients](#)

3696

If you're going to put the dough ball in the fridge after bulk fermenting be sure to flatten it out like a hockey puck, if you don't there will be little impact of putting the dough in the fridge for the first 8 to 10-hours (dough, especially fermented dough is an EXCELLENT insulator).

Fridge set temperature: The fridge should be operating at between 36 and 40F. When removing dough from fridge in preparation for use, just set it out at room temperature (covered to prevent drying) and allow it to come to between 50 and 60F (internal dough ball temperature). You will want to experiment to see which internal temperature works best for your specific conditions.

Once the dough ball reaches the desired internal temperature proceed with opening it into a skin for immediate dressing and baking.

Tom Lehmann/The Dough Doctor

[Re: Problems with holes while stretching dough, gluten underdeveloped?](#)

3697

One thing to remember is that IDY doesn't like to be put into the water, instead, add it along with the flour in its dry form.

Try this for mixing:

Place water in mixing bowl.

Add salt (no need to stir)

Add flour

Add IDY

Mix until the dough just begins to come together and add the oil.

Go to second speed if you can and mix for 8 to 10-minutes.

Go with 48-hours CF

Allow dough ball to warm to 60F before attempting to open it (you will need to use a dial/stem type thermometer to get the internal temperature of the dough ball prior to opening.

Let us know how this works for you.

Tom Lehmann/The Dough Doctor

[Re: My very first WFO pie - please help make the next one better](#)

3698

Generally, when the dough becomes extremely extensible and tears easily it is an indication of excessive fermentation. What was the finished dough temperature at the time it went into the bulk fermentation phase? Even a difference of a couple degrees will have a dramatic impact upon the amount of fermentation the dough receives when bulk fermenting over a lengthy time. This may seem hard to believe, but the temperature of the environment can change several degrees F. without significantly impacting the rate that the dough will ferment at (bulk fermentation only). Assuming you are weighing all of the ingredients too, if not all cards are off of the table.

Tom Lehmann/The Dough Doctor

[Re: Problems with holes while stretching dough, gluten underdeveloped?](#)

3699

Take the stubs and soak in water for several days, stir vigorously whenever you think of it, strain through cheese cloth and use for insect control on your flower garden. What we just made was once sold under the name of Black Flag. Nicotine is the lethal ingredient here. It works GREAT!

Tom Lehmann/The Dough Doctor

[Re: Cigars!](#)

3700

All of the work that we've done over the years shows that it is not necessary to that a seamless dough ball just SO LONG AS THE SEAMS ARE ON THE BOTTOM OF THE DOUGH BALL WHEN PLACED INTO THE DOUGH BOX. The weight of the dough ball will cause any open seams to close up. Open seams on top of the dough ball will cause the dough ball to open up after being placed into the box which typically results in the dough ball expanding more in size and flowing into another dough ball which makes handling the dough ball after fermentation just that much more difficult.

Tom Lehmann/The Dough Doctor

[Re: Should I care about a seamless dough ball?](#)

3701

Your comments about the whole grain crust are pretty common...it seems to be a love or hate relationship. You might want to try using a 50/50 blend of your whole grain flour along with one of your other white flours, this will lighten the color and do away with the "grainy" flavor. In truth, here in the U.S. what most people call whole wheat is actually a blend of white and whole wheat flours and a very popular bread type as well as pizza crust (growing in popularity) is what is called "multi-grain". This is a flour blend made from about 70% white flour and 30% ground grains. If you try this be sure to make a soaker out of the multi-grain blend as they are slow to hydrate (about 60-minutes) then add the hydrated multi-grain blend as an ingredient to the dough. Most people describe the flavor as "nutty" rather than "grainy".

The pizzas look good, but the bacon pizza looks like the bacon is not sufficiently done, you might try pre-cooking the bacon until it just begins to crisp before adding it to the pizza, this will improve both the appearance as well as the flavor of the pizza.

Tom Lehmann/The Dough Doctor

[Re: Pizza bottom nice and brown, top side wet - why?](#)

3702

There is "yeasty" which is a flavor commonly associated with high yeast levels (actually it's a flavor associated with high yeast levels and shorter fermentation times (common to a lot of the home made bread), and then there is the "tangy" flavor that you mention, this is due to the increased acid formation due to fermentation as a result of long fermentation times or it can also be the result of using a sourdough starter as a component in the dough (think sourdough bread). Both of these are common in pizza crusts. To determine which one you're really looking for you might try using 3X the ADY yeast level in your first formula and process the dough in the same manner.

To see if a starter or sourdough starter is in your future you can make a starter using 50-grams of flour and 1-gram of ADY mixed into 50-ml of 80F water, set this aside and allow to ferment at room temperature for 12-hours, then add 10-grams of additional flour and 10-ml of additional water, allow to continue fermenting to 36-hours, repeat the flour and water addition again and allow to ferment for 24 more hours.

Remove 100-grams of the starter to add to the dough. Reduce the amount of water added to the dough by 50-ml/grams and use only half of the amount of ADY called for in the dough formula (0.1%) and make the dough by your usual manner.

Remaining starter can be saved in a glass container (DO NOT COVER TIGHTLY) and fed every few days to save it for the next time you make pizza.

The other option is to follow any of the methods used by a good many of us here to make a "natural" sourdough starter which can also provide some different flavors to the finished crust. I won't go into the methods used to make these as they have been discussed at great detail in other posts here.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: A more flavorful crust](#)

3703

Take it from me....for the most part, they know little about what they do or why they're doing it. Some have inherited the shop and run it "monkey see, monkey do" fashion. A great number of them had someone help them get started by giving them a formula and some type of dough management procedure to follow....but neglected the training part...so they don't have a clue as to why they are doing something but it seems to work so I'll continue doing it....and then something goes wrong....that's where I finally end up getting called in. As for line workers, well...that's just what they are, workers. They follow directions/orders and get paid for it...that's all. For all too many, it's just "a job". If you really want to get a feel for the depth of knowledge in the store you're going to need to speak with the owner...it all starts with him/her and some of it then flows down to the other workers, but more than likely it will not.

Tom Lehmann/The Dough Doctor

[Re: Rant...what should pizza place employees be expected to know](#)

3704

I would start with a dough loading factor of 0.0973 per square inch of surface area for the round and 0.1239 for a pan style.

12" = 113-square inches

14" = 152-square inches

18" - 254-square inches

$\text{Pi (3.14) X Radius (1/2 of the diameter) squared} = \text{surface area of a circle.}$

Thin crust:

12" = 113 X 0.0973 = 10.99 (round to 11-ounces)

14" = 152 X 0.0973 = 14.78 (round to 14.75-ounces)

18" = 254 X 0.0973 = 24.71 (round to 24.75-ounces)

Pan style:

12" = 113 X 0.1239 = 14-ounces.

14" = 152 X 0.1239 = 18.83 (round to 18.75-ounces)

18" = 254 X 0.1239 = 31.47 (round to 31.5-ounces)

There you go, now you know why you weren't supposed to sleep through math class! :)

Tom Lehmann/The Dough Doctor

[Re: Weight of dough per pizza](#)

3705

Yes, it is pretty typical for the electronic scales (even very expensive ones) to begin to show inaccuracy when the batteries are low. Ditto on the KD-8000. I love mine!

Tom Lehmann/The Dough Doctor

[Re: Issues with scale](#)

3706

Agreed, either parm or romano or both are hard to beat. I like to use parmesan at about 20% of the cheese blend or romano at about half of that.

Mozzarella cheese by definition is pretty bland in flavor...that's why you couldn't find a flavorful one.

Tom Lehmann/The Dough Doctor

[Re: What are some good mixes to amp up the flavor of mediocre mozz?](#)

3707

I think this will answer your question.

All liquids included in the dough formulation are a part of the dough absorption. In the case of adding water containing ingredients such as milk, eggs, syrups, etc. only the water portion of the ingredient is included in the dough absorption. While the use of oil in the dough formulation can influence the total dough absorption it is never included as part of the dough absorption.

Tom Lehmann/The Dough Doctor

[Re: Active Dry Yeast!](#)

3708

The pizza certainly looks done to me and it appears to be firm and probably somewhat crispy too? If you want to experiment with more bake, target a slightly higher bottom temperature and about 15C higher for the top temperature to add a little more color.

Tom Lehmann/The Dough Doctor

[Re: Temperature electric](#)

3709

Joe-B;

Call me simplistic but I would work off of a N.Y. style dough and just make adjustments to the baking of the pizza.

Tom Lehmann/The Dough Doctor

[Re: New Haven Pizza](#)

3710

Hummm. Didn't see any reference to the temperature of the "starter" or the finished dough temperature. When you are using a dough management procedure such as yours where there is considerable RF the dough temperatures become MUCH more critical with regard to dough consistency over time.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent crust](#)

3711

Clarkth;

The only change I would make is to delete mixing the salt into the water. Just add the water, drop in the salt and sugar (if used) and then add the flour and crumble the CY right on top of the flour, then begin mixing. Your mixer will take care of the rest for you.

Tom Lehmann/The Dough Doctor

[Re: When/How to add CY](#)

3712

No it doesn't due to the fact that the dough itself is full of air which is incorporated and entrapped during mixing where as in the liquid brewing process you can have a fully anaerobic environment.

Tom Lehmann/The Dough Doctor

[Re: Hi Doc,](#)

3713

Your press likes t have a SSOOFFTT dough, one that is very relaxed. Absorption will get you the softness needed but only fermentation or a reducing agent such as dead yeast or PZ-44 will get you the relaxed condition necessary to get a uniform press.

Your dough formulation and dough management procedure complete with times and temperatures will help us to get you pointed in the right direction.

Tom Lehmann/The Dough Doctor

[Re: dough xpress DMS-18](#)

3714

A stone would certainly help as would allowing the pizza to bake longer before hitting it with the broiler.

As you go up in protein content the dough absorption will also increase as will the ability of the dough to tolerate longer fermentation for flavor development BUT at the same time you might also find that the finished pizza is getting increasingly tough/chewy so the flour protein content has to be balanced against the type of pizza you are making as well as your dough management procedure.

Tom Lehmann/The Dough Doctor

[Re: No undercarriage browning - disappointed](#)

The problem with A.P. flour is that it isn't designed with anything in particular in mind....think of it as a "jack of all trades but master of none". It can be used to make a lot of different types of baked products but none of them especially well. Add to that the problem that it varies considerably from one manufacturer to another. A.P. flour might be made using a relatively strong winter wheat so it might be better suited for making bread type products while that from another manufacturer might make it from a soft red wheat, making it more suited to making cookies and pastry. Typically, when made using a soft wheat variety we find that the starch damage can be a bit higher thus further limiting its application in making fermented doughs, especially those which will receive significant fermentation. The addition of VWG can improve the dough handling and baking properties of SOME A.P. type flours but not all. It just depends upon the type of wheat that it was made from and the amount of starch damage present (nothing can reverse the starch damage issue).

When making dough using A.P. flour you will not need to use the delayed salt mixing method (used only for very strong doughs) so I'd put the salt into the water in the mixing bowl. Sugar should be MINIMIZED so I wouldn't go with more than maybe 2%. Forget the honey unless it's all you have as it will not provide any benefit at levels below 5%, and only then if it is a dark (flavorful) honey...but then it can also make the crust crumb darker in color too (great in a multi-grain type dough/crust). Use lower yeast levels, not more than 0.2% IDY or 0.5% compressed yeast. Dough absorption is impossible to say as I have no idea of what it is for your A.P. flour, but for every 1% VWG that you add to the flour you will increase the protein content of the blended flour by 0.6% also for every 1% VWG that you add you will need to add an additional 1.75 to 2% absorption to hydrate the VWG. As for mixing, I'd recommend following the practice of just mixing the dough to a smooth consistency targeting a finished dough temperature of 75F and probably not more than 24-hours CF to start with. If the dough will take more, go for it.

Tom Lehmann/The Dough Doctor

[Re: all purpose flour](#)

3716

I always think of a New Haven pizza as being like a New York pizza but more crispy.

Tom Lehmann/The Dough Doctor

[Re: New Haven Pizza](#)

3717

Retired? Who's retired?? My son says I'm like a car, I get re-tired and I'm good for another 50,000-miles.

Tom Lehmann/The Dough Doctor

[Re: Hi Doc,](#)

3718

Ing;

It would help in answering your question to know your dough "recipe" as well as the dough management procedure you are using and how you are baking your pizzas. This is one place where TMI (too much information) is welcome.

Tom Lehmann/The Dough Doctor

[Re: Inconsistent crust](#)

3719

Regardless of the type of oven you use, it will, for sure, bake differently from the one which you will have in Japan. This is reflected in the much repeated rule that "Every oven is a law unto itself and only itself". Additionally, keep in mind that gas ovens bake somewhat differently than electric ovens. This is not to say the electric ovens are bad, they just bake differently due to the dry heat so you may need to bake your pizzas longer and at a lower temperature using your electric oven regardless of what kind/type it is. One of the laws of physics says that dry air in an electric oven doesn't conduct heat as well as moist/humid air in a gas, wood or coal fired oven. Depending upon the type of oven you are planning on, one trick that works well in electric ovens is to bake the pizza right on the deck and then "dome" it for the last few seconds (this is where you lift the pizza using your oven peel into the dome of the oven to finish the top of the pizza).

Tom Lehmann/The Dough Doctor

[Re: Where to get training in NY style pizza making?](#)

3720

Just a "heads-up", I am preparing to evaluate a new type of yeast which will have a unique application in pizza production, and if it proves itself it may cause me to rewrite dough management. I can't say anything more about it until I receive approval (from the manufacturer) to release the results of my testing in one of my published articles. I'm really looking forward to this.

Tom Lehmann/The Dough Doctor

[Re: Hi Doc,](#)

3721

Yes, I'm familiar with that but it gives you a different finished crust flavor just as it does in brewing.

Tom Lehmann/The Dough Doctor

[Re: Hi Doc,](#)

3722

Your pizza looks GREAT!

Tom Lehmann/The Dough Doctor

[Re: My first attempt to pan pizza\(?\)](#)

3723

Antlife;

"of glucose"?

Please explain.

Tom Lehmann/The Dough Doctor

[Re: Hi Doc,](#)

3724

If the problem is that your bottom crust color is too light the addition of more sugar to the dough formula (recipe in your case) will help to induce crust color development. Another ingredient that can be used very successfully is the addition of dairy whey (available at health food stores). The whey is high (about 73%) in lactose aka milk sugar which is not metabolized by the yeast so it will not impact your current dough fermentation in any way. We typically do not make any changes to the dough absorption when adding whey as it is not necessary. The amount of whey to add will be 5%. This is a good point to bench mark at, then you can adjust

the level to provide you with the specific color you are looking for.

Tom Lehmann/The Dough Doctor

[Re: No undercarriage browning - disappointed](#)

3725

Not speaking specifically to NYC, but its a fairly common practice and in my opinion it makes for a very good pizza, especially where crispiness is the order of the day.

Tom Lehmann/The Dough Doctor

[Re: Par Baking](#)

3726

It sounds like he is using one of the brewer's yeast strains.

Tom Lehmann/The Dough Doctor

[Re: Hi Doc,](#)

3727

Yes.

I developed this procedure just for individuals who were having trouble opening the dough and getting an overly thin center in the opened skin.

You want your dough to be soft and extensible.

Place the dough ball onto a floured surface and flour the dough ball.

Use a rolling pin to open the dough up to about 2-inches within the finished diameter that you want to have.

DO NOT allow the rolling pin to roll off of the edge of the dough and be sure to roll the dough from multiple directions.

Then table stretch the dough skin to full diameter. The method works great and it will allow you to practice opening the dough skins and very soon you will find yourself putting the rolling pin away and doing the entire opening by hand.

I have this method demonstrated on my web site at <www.doughdoctor.com>

Tom Lehmann/The Dough Doctor

[Re: Dough stretching!](#)

3728

I'd suggest increasing the IDY to 0.4% of the flour weight and allowing the dough to CF for 48-hours.

Tom Lehmann/The Dough Doctor

[Re: My very first WFO pie - please help make the next one better](#)

3729

Before doing anything else, I would HIGHLY encourage you to have your gas burners checked so we can at least put that behind us. Normally when there are complaints of smoke even without anything in the oven it is due to a gas/air ratio issue or there might be oil on the deck but in the photographs it appears that the deck is clean (as the oil burns off it causes the deck to develop a black color) which I don't see in the pictures.

Tom Lehmann/The Dough Doctor

[Re: Gas powered stone oven problem with soot.](#)

3730

Looks a lot like a Detroit style pizza...looks good!

I notice in the dough formulation that the salt level is only 0.9% which is too low and might be responsible for "what's missing". I would suggest that the next time

you make your pizza that you just double the salt level which will provide 1.8% salt (I think 1.75% is about the minimum). If you want, you can go up to 2.25% and maybe improve the flavor of the crust even more.

Tom Lehmann/The Dough Doctor

[Re: My first attempt to pan pizza\(?\)](#)

3731

How many pizzas did you bake to get that much build up?

Tom Lehmann/The Dough Doctor

[Re: Gas powered stone oven problem with soot.](#)

3732

It is normal for the burner to modulate other wise the oven would just keep getting hotter and hotter throughout the day, and especially so during idle times.

How are you removing the excess accumulation of carbonized material from the oven? What kind of over broom do you use? Do you also use an oven rake to remove and stubborn baked on material adhering to the deck? Remember, it is not unusual to broom the oven after each load of pizzas has been baked.

What kind of ventilation do you have for your oven?

Any pictures or video would be helpful.

Tom Lehmann/The Dough Doctor

[Re: Gas powered stone oven problem with soot.](#)

3733

Are we talking about "soot" normally associated with inefficient combustion, or are we talking about carbon build up on the oven deck/hearth?

Tom Lehmann/The Dough Doctor

[Re: Gas powered stone oven problem with soot.](#)

3734

What was the deck temperature?

Tom Lehmann/The Dough Doctor

[Re: My very first WFO pie - please help make the next one better](#)

3735

We just recently had some discussion on this very topic.

Tom Lehmann/The Dough Doctor

[Re: What do you use to store items at home?](#)

3736

In cases where the required water temperature is lower than your tap (or coldest) water temperature we have a longer and more complex "ice calculation" that we use. It's just a whole lot easier for the home baker to just experiment with adding ice (chipped or shaved only). Freezing the flour will not help as the cold flour will not absorb water as readily as warmer flour will so it will force you into a longer mixing time which equals more friction which equals more temperature gain. You would be better off filling at least half of the mixing bowl with ice or brine water for 10 or 15-minutes prior to mixing a dough. When using ice remember that it will replace an equal WEIGHT of water, and it MUST melt completely during the mixing cycle in order for it to provide the cooling effect upon the dough. The rule that we have always followed is that the total amount of ice MUST completely melt in the mixer no less than 2-minutes before the termination of the dough mixing time, when the ice melts it creates wet spots in the dough and this practice allows time

for those wet spots to be thoroughly incorporated into the dough mass.

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3737

It more than likely is but once you implement the suggested changes (especially leaving the container uncovered for 3-hours after placing it in the fridge) we can make a better determination.

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3738

Maybe I'm still missing the point of the question, but after the dough is made, and by the time it is scaled and balled, short of putting the dough back into the mixing bowl and making a formula change, like the time I made a dough and couldn't figure out why it was fermenting so fast, I kept going over the ingredients that I had scaled and I distinctly remembered scaling everything as specified in the formula and then I went over the addition of the ingredients to the mixing bowl and I could envision adding each ingredient....but wait! Not the salt! Could I have forgotten to add the salt? Yep! There it was a small plastic bowl with the salt still in it...oops! I took all of the dough and added it back to the mixer along with the salt that was not previously added, I remixed the dough and for as good as it could be, all was good at the end of the day. Aside from forgetting to add an ingredient, I don't advocate ever remixing a dough unless the dough is blown and I need dough TODAY. In a normal setting, if one sees that the dough is fermenting at too fast or slow of a rate the best option is to expose the dough to a warmer or colder temperature, BUT because the dough has already fermented to some extent it is going to be less dense than when it was mixed so it will present something of a challenge to change the temperature of the dough (less dense dough is an excellent insulator) so the best approach is to flatten each dough ball to about 1 to 1.5-inches/25 to 37.5 mm before exposing the dough to the external temperature. By decreasing the cross section of the dough piece in this manner it will be easier and faster to bring about a change in the dough temperature, thus affecting the rate of fermentation in the desired manner. Remember, the rate of fermentation is not affected until the core (center) temperature of the dough is adjusted. Just putting the dough into a warmer or colder environment will not appreciably impact the rate of fermentation and by the time that it might have the desired impact you will have probably forgotten why you put the dough into that environment to begin with. The problem with putting the dough into a very warm environment to speed up the fermentation rate is that only the outer portion of the dough will warm up and expand, further complicating any hope of impacting the core temperature so any expansion of the dough that you see will be due only the expansion of the outer portion of the dough/dough ball.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for accelerating/retarding dough fermentation?](#)

3739

Me too!

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3740

A "sour" taste? Possibly "bitter" instead? Bitterness is caused from the flour

scorching under the pizza or around the edges of the pizza. If that's the case you're just getting too much flour into the oven, try dusting off the dough skin better to get most of the flour off, or if using it as a peel release you might be using too much which means that a change in peel dust might allow you to use less and reduce or eliminate the bitterness.

Tom Lehmann/The Dough Doctor

[Re: Dustinator](#)

3741

Formulation changes/modifications are just that, made to the dough formulation at the time the dough is made while procedural and environmental changes/modifications can be made at any time.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for accelerating/retarding dough fermentation?](#)

3742

OK, that helps a lot.

Cake = your dough ball weight/scaling weight. :) got it.

Without knowing your specific dough formulation I might suggest the following:

Set the bottom temperature at 274C/525F and the top temperature at 218C/425F and bake a pizza until the bottom is nice and brown...this will take several minutes. When the bottom of the pizza is done remove it from the oven and look at the top of the pizza, if it needs to be baked more increase the top temperature by 25C for your next pizza, if the top needs to be baked less, reduce the top temperature by 25C for your next pizza. This will allow you to achieve a basic temperature balance for your oven using your dough formulation. Once you have achieved this base line temperature balance you can begin to bake at higher bottom temperatures while making adjustments to the top temperature (higher) to accommodate the shorter baking times.

If you will share your dough formulation and dough management procedure I'm sure we can provide additional suggestions for improving your pizzas.

Tom Lehmann/The Dough Doctor

[Re: Temperature electric](#)

3743

Peter;

Spot-on with the reason for adding the soybean oil, it also helps to prevent the mixture from segregating during handling.

Tom Lehmann/the Dough Doctor

[Re: Dustinator](#)

3744

To speed up the rate of fermentation:

Increase the finished dough temperature.

Add a small amount of vinegar to the dough (replace 2% of the dough absorption with vinegar), this acidifies the dough slightly to speed up the rate of fermentation, don't worry about the flavor, acetic acid is one of the acids formed by the yeast during fermentation.

Reduce the salt level to 1.5% (less salt = faster fermentation rate).

Place the dough in a warm environment (115F) is the warmest you will want to go as anything above that will actually begin to slow the fermentation rate (thermal death point for yeast begins at 138 to 140F).

To slow down the rate of fermentation:

Decrease the finished dough temperature.

Add a small amount of baking soda to the dough (1%) to neutralize any acids present or being initially formed by the yeast. Yeast is an acid loving organism so keeping the pH a little higher will slow the fermentation rate slightly until the yeast can overcome it through production of its own acids (acetic, lactic and propionic).

Increasing the salt level will slow the fermentation rate.

Place the dough in a cooler/cold environment to slow the fermentation rate (when combined with decreased finished dough temperature this is VERY effective). This is how we prevent frozen dough from fermenting prior to the freezing process.

Note: By flattening the dough slightly (reducing its cross section) the dough will adjust to a higher or lower temperature much faster than it would if left in a dough ball form.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for accelerating/retarding dough fermentation?](#)

3745

That's exactly what I've been using for well over 30-years, equal parts of your regular "pizza" flour, fine corn meal and semolina flour.

Works great.

Here are some things about storing it that you should know.

1) It will keep at room temperature for quite some time (insect infestation is the only real issue) so all I can say is that it might last for a year or more, or it might last for a week, it all depends upon how insect/insect egg free the constituent ingredients are. Tip: Store a couple pounds of each (flour, corn meal, semolina flour) in a bag in your freezer for a minimum of 45-days then blend together in equal parts, remove what you will use over the period of a month or so leaving the rest in the freezer, that which was removed from the freezer should be stored in a tightly covered bowl and stored at room temperature. You can also do this with the entire amount if you wish as it will last for up to a full year when stored at any temperature of 85F/29C or lower. This is possible because the 45-day frozen period will kill any insects or their eggs which might be present. Why not store it in the fridge or freezer? Because every time you open the container you will allow warm, moist air to enter the container which, over time will increase the moisture content to a point where you could begin to develop mold or wild yeast growth :(by storing it at just plain old room temperature this will not be a problem.

Tom Lehmann/The Dough Doctor

[Re: Dustinator](#)

3746

Good points as that will give direction to baking time and temperature.

Tom Lehmann/The Dough Doctor

[Re: Temperature electric](#)

3747

Let's discuss this.

Where is all that water in the container coming from? Answer: From the dough that you placed into the container.

How did it get there? Answer: You covered the container right away with a warm dough ball in it, the container itself cooled down way before the dough did so the moisture from the dough condensed on the inside surface of the container where it collected as water.

But won't that water be reabsorbed back into the dough? Answer: No

Solution: Leave the container UNCOVERED for at least 3-hours to allow the dough to cool to a temperature closer to that of the fridge temperature BEFORE you place the lid on the container. Be sure to lightly oil the dough ball before you place it into the container, this serves two functions 1) It prevents excessive drying of the dough for those 3-hours in the fridge while it's uncovered (actually, dough will not dry out very much in the fridge, even if uncovered and not oiled but the oil is just a safe guard to any possible drying or skin formation on the dough. 2) It facilitates removal of the dough ball from the container.

Additionally, if you can use a smaller size container it will also help as there will be LESS head space around the dough ball for moisture to gravitate into (this is why we never experience this problem when using plastic bags to store the dough in). I hope this helps to better understand the problem and leads to a potential solution.

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3748

Assumptions:

- 1) We are talking about a commercial pizza oven (electric).
- 2) Up and down is in reference to top and bottom heat?
- 3) What can you tell us about the oven deck, what type of material, how thick is it?
- 4) You are baking your pizzas directly on the hearth.
- 5) What is EVO cake?
- 6) You say your individual dough ball weight changes when you use additives in the dough? This leads me to believe that you are dough for a single dough ball but baking in a commercial electric pizza oven.
- 7) How long do you allow your oven to heat up prior to baking?

Please address any/all assumptions which are incorrect.

Tom Lehmann/The Dough Doctor

[Re: Temperature electric](#)

3749

I've told this story once before but I'll repeat it again. A good number of years ago we had a rather large bread project that required us to make nearly 2,000-pounds of dough a day, we only made 20-loaves of bread from each dough with the rest of the dough going into the trash.

Knowing that the dough was going into the trash we heavily salted each dough after removing the dough that we needed and before kicking the dough out of the mixer. The dough was placed into 50-gallon size trash barrels for the trash man to pick up. Trash man was called to ensure he was going to make the pick-up as scheduled...no problem, I'll be there. We finished the day and all of the barrels of dough were taken to the trash pick-up room, we turned the lights off and went home secure in the faith that the trash man would keep his end of the bargain. Fast forward to the next morning: I arrived at AIB at 7:00 a.m. and our building engineer was having a "hissy fit" that would rival the Chernobyl melt down, it seems he had just returned from making his building inspection tour that he makes each morning, he was so red in the face I thought he was having a stroke or something, he lead me to the trash room and told me to open the door, OMG!!! The dough line was about 8-feet above the floor! It seems the trash collector didn't hold up his end of the bargain and during the night s..l..o..w..l..y.. the dough fermented away and rose not just out of the containers but onto the floor and up the walls, at some point during the night the room was completely filled with fermenting dough, then as usually happens when dough over ferments it collapsed, leaving a stringy

mess behind that had now crusted and hardened. After that little episode it was required that ALL DOUGH first be baked prior to being placed into the trash room. Point is, salt doesn't kill the yeast unless it is in direct contact with it in sufficient quantity to pull the plasma out of the cells, at high levels in the dough it just slows down the rate of fermentation, but baking/heating the dough does kill the yeast. I've got a story about that one too...how a local farmer almost killed several of his cattle when he loaded a bunch of "baked" dough into his truck in addition to the bread he was supposed to pick up.

Tom Lehmann/The Dough Doctor

[Re: Improved Bread from Salt-Stressed Baker's 1/2s Yeast](#)

3750

Yep, you just made and used a "goodie bag". Works every time.

Tom Lehmann/The Dough Doctor

[Re: Cold Ferment longer than 3 days?](#)

3751

As you might already know, this is one business that is commonly entered into by the inexperienced. As in just about everything else, business experience is more important than hands-on experience. Have sufficient funding to carry you through at least the first year of operation. Gain an understanding of operations by attending seminars at Pizza Expo as well as at the Ohio Restaurant Association show. Gain some hands-on experience by working in a pizzeria if at all possible, then get some more hands-on assistance actually making pizzas in YOUR store using YOUR equipment about two weeks prior to opening, lastly, and this is the pivotal question that I ask all of my new potential clients; Do you feel like you have to be on top of things 24/7/365? If so, you're probably a micro-manager and doomed to failure through burn-out within the first few years of operation, that being the case I advise my potential client to find something else to aspire to. Two shining examples of what you can do with some business experience and very limited pizza experience and no desire to micro-manage are seen at Courthouse Pizza, Medina, Ohio (I worked with them in opening their first store, now he has a second store, wife and two kids and still happily married) the other example is AJ's New York Pizza, Manhattan, Kansas. I worked closely with Adam Peyton (owner) in opening his first store, he took his first vacation (about a week) after a little over 14-months, he takes trips out of town and vacations regularly and he has three successful stores (one in Topeka, KS and two in Manhattan, Ks), Topeka store won best pizza in Topeka last year, and his main Manhattan store won best pizza by K-State University as well as the coveted best pizza in Manhattan. Yes, I did ask Adam that pivotal question and as you might have guessed, he abhors micro-management. Now, look in the mirror and ask yourself that same pivotal question and answer honestly as an untruthful answer may cost you dearly in the end.

Tom Lehmann/The Dough Doctor

[Re: Why is it worth it?](#)

3752

Ted;

One thing I forgot to ask you is: Do you find that there is a lot of water/condensation in the container when you first open it after 3-days of CF?

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3753

The reason for the pin holes (and I do mean pin holes) is to release any excessive pressure which will prevent the lid from being dislodged due to excessive pressure in the container.....a lot of pressure can be formed! The opening of the plastic bag is twisted into a pony tail and tucked under the dough ball which allows the bag to vent off any excess pressure. I've seen, on numerous occasions, where a Ziplock bag has either opened at the closure or burst at the seams due to the pressure within the bag....hence my recommendation no to use Ziplock bags, additionally, the plastic Food Bags or bread type bags tend to expand a lot more than Ziplock bags thus further preventing blow-out.

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3754

Jacob;

There must be something special about having your own restaurant/pizzeria and running it yourself because over the years I've had the following come over from the "dark side" to learn pizza and start up their own business.....mind you, these people were in pretty decent occupations to begin with but the one thing they all had in common was a lack of satisfaction with what they were doing. There is a lot to be said for what Walter said.

Lawyer (more than you could imagine)

CPA

Teachers (many of them)

High School Student Counselor

Clothing buyer for a large department store chain.

Building contractor (sound familiar?)

These are just some of the professions that a few of my clients have come from, the vast majority are just regular folks looking to be their own boss and to make an honest living in a rewarding job. Pizza Expo is filled with these people and their success and failure stories abound.

Tom Lehmann/The Dough Doctor

[Re: Why is it worth it?](#)

3755

Ted;

Let's try this:

- 1) Increase the IDY to 0.3%
- 2) Increase the dough absorption to 62%
- 3) Target the finished dough temperature for 75F (this will mean using 70F water, or possibly a little cooler).
- 4) Oil the dough ball(s).
- 5) Place the oiled dough ball into container and leave it UN-Covered in the fridge for 2.5-hours.
- 6) Place the lid onto the container (Note: you should have a few pin holes in the lid to release pressure)
- 7) Come back to the dough after 72-hours and remove from fridge.
- 8) Allow dough to warm AT room temperature until the internal temperature of the dough reaches 50 to 60F. (about 2-hours)
- 9) Turn the dough out of the container onto a floured surface, dust both sides of the dough and proceed to open into a skin in your normal manner.
- 10) Dress the skin and bake as you normally do.
- 11) Capture some pictures along the way and let us know how this works for you.

Tom Lehmann/The Dough Doctor

[Re: My dough always dry out](#)

3756

High protein flour can seriously impact the toughness of pizzas in a DELCO type of operation (think commercial pizzeria) where 48 to 72-hours CF is the norm. If you manage the dough in such a way so the dough receives plenty of fermentation time the by-products of yeast fermentation will weaken the high protein flour resulting in crust textural properties more like that of a lower protein flour. If it is toughness/chewiness that you are looking for manage the dough (made with a 14+% protein content flour) for an 18 to 24-hour CF, target the finished dough temperature at 75 to 80F and you should see a difference. Another option that you have for a thin crust pizza is to use a rolling pin to open the dough to full diameter and then bake as normal, you should see a tougher, more chewy finished crust. For a thick crust or pan style pizza you're going to have to reduce the total dough fermentation time.

Case in point: Back around 1969 Pizza Hut introduced their first departure from a thin cracker type crust, it was called their "Thick and Chewy". The flour of the day for them at that time was a high protein flour at just over 13% protein content, all of their doughs were made in-store at that time so fermentation time was VERY LIMITED, the resulting pizza was so chewy (TOUGH) that you couldn't eat more than one slice, because your jaw got sore from all that chewing! It wasn't too long after that when P.H. went to their pan pizzas with a better eating characteristic. We've come a long ways since then.

Tom Lehmann/The Dough Doctor

[Re: Vital wheat gluten effect on taste](#)

3757

The use of a proofer at 80 to 85F for tempering the dough ball prior to opening will work but it seems like a bit of over kill to me. Remember, the objective is to allow the dough to warm up to at least 50F (some like to go as high as 60F). Keep in mind that this is the INTERNAL temperature of the dough ball. If your proofer is at 85F the outer portion of the dough will be warm enough to ferment quite vigorously while the inner portion could still be cold. Assuming that the dough ball will have an internal temperature of around 40F when coming out of the fridge we're only allowing it to warm up 10F or thereabouts.

Tom Lehmann/The Dough Doctor

[Re: Cold Ferment longer than 3 days?](#)

3758

I like to oil the dough balls prior to bagging them, others like to spray some oil into the bag prior to placing the dough ball into the bag, both methods work well, you might give that a try, when I oil the dough balls they just plop right out of the bag.

Tom Lehmann/The Dough Doctor

[Re: results of tom's dough management suggestions](#)

3759

While flavor isn't a major issue, when you get to adding much over 4 to 5% VWG the resulting dough begins to take on different characteristics from a flour with that amount of naturally occurring protein. This is due to the fact that the VWG has already been fully developed and it imparts those characteristics to the dough making them tough and bucky (lacking extensibility) to work with which creates a much greater issue to deal with. When building protein content of a flour with VWG for each 1% VWG added you will increase the protein content of the flour by 0.6%.

A portion of the crust flavor is developed through the denaturing of proteins during the baking process, fermentation weakens the gluten forming proteins allowing for a greater percent of the protein to be denatured in the oven resulting in more flavor development. It's kind of a complex thing but you can experience it yourself pretty easily by making a crust using a low protein A.P. flour and something like A.T. (about a 4% difference in protein content). Both doughs MUST be managed in the exact same manner which might get to be rather interesting if you are managing the dough out to several days as now there will be differences in dough performance which will impact the way the dough bakes and hence the way flavor is developed during baking. Like I said...complex.

Tom Lehmann/The Dough Doctor

[Re: Vital wheat gluten effect on taste](#)

3760

None at all, in fact, some research that we did many years ago on dough mixing showed that mixing the dough much past the "smooth and satiny" appearance point results in a more dense, bread like crumb structure in the finished crust.

Tom Lehmann/The Dough Doctor

[Re: Gluten development and stretch&folding](#)

3761

Allow me to address some of your questions;

#2) When using IDY you can actually make a "goodie bag" containing IDY, salt and sugar. The salt and sugar actually help to protect the IDY. NOTE: I am saying "IDY". With compressed yeast (CY) you DO NOT want the yeast to come into direct contact with either the salt or the sugar.

#3) No, I'm just saying that when you use oil in the dough it is best to use the delayed oil addition method for adding the oil, especially when the amount of oil in question is over 2%. The more oil being added, the greater the probability of the oil soaking into a portion of the flour thus rendering it incapable of producing gluten.

#4) Nothing wrong with what you have been doing but there is no benefit from doing it...so why do it? I find that breaks in the procedure like that create a mental distraction which just increases the possibility that I will get side tracked or make a mistake...I make enough already, I don't need any more encouragement! The more streamlined process which I outlined is both faster and it helps to keep you focused on what you're doing meaning there is a reduced possibility of something going wrong.

#5) The easiest way to cool a mixing bowl is to fill it with ice water and allow it to stand for 5-minutes, then pour it out immediately prior to beginning the ingredient addition part of your dough making process. Don't allow the bowl to sit with the ice water for less than 5-minutes as the bowl may not be COMPLETELY cooled, you can leave it go longer but not shorter. If you're in a really hot environment and you need to super chill the bowl you can use a brine water instead of plain ice water. Water + ice + salt will get colder than just water and ice.

Tom Lehmann/the Dough Doctor

[Re: Cold Ferment longer than 3 days?](#)

3762

Timo;

Testing gluten development by the "window pane" test is not applicable to pizza production unless you are making commercial frozen pizza dough, in that case it is absolutely critical for determination of correct gluten development since the dough will not receive any biochemical gluten development.

In order to make a good assessment of the pictures they need to either be taken side by side or from the same angle and distance, but from what I can see it appears that your dough "A" is significantly under mixed, for whatever reason, while "B" appears to have a smoother skin/appearance. Dough "A" looks weak to me while dough "B" appears to be stronger and more robust. If the dough rose very fast at 22-23C this might indicate an over fermentation condition and my comments earlier about the benefits of kneading the dough would be appropriate.

Ambient temperature, while having an influence on the rate of dough fermentation pales in comparison to the effect of finished dough temperature on the rate of fermentation, this is why it is always important to know the finished dough temperature and to strive to keep it as consistent as possible, this is especially important when RF is used.

Tom Lehmann/The Dough Doctor

[Re: Gluten development and stretch&folding](#)

3763

I can't speak for the brand you're referencing but as a rule, some cheese tolerates freezing quite well but others do not. When they don't tolerate freezing the end result is a cheese that oils out badly and develops a VERY tough, bubble gum like eating characteristic. People have actually choked on the cheese under these conditions (yes, it CAN be that bad). My advice is to buy some and freeze it for at least a full month, thaw it and try it. If you're satisfied with the results....go for it! Maybe someone else has tried freezing this cheese and be more definitive as to whether it can be frozen or not without loss of quality.

Tom Lehmann/The Dough Doctor

[Re: freezing galbani fresh?](#)

3764

3-days is probably pushing the envelope with your dough formula and procedure. Try these modifications to what you are doing and you should be able to use the dough anytime between 2 and 4-days without any problems. Additionally, your dough making procedure is time consuming and offers no added benefit so I'll propose some changes there too.

Your salt level is very low at only 0.76% at this level the salt cannot properly regulate the rate of fermentation or provide for a decent crust flavor. Many say the crust flavor is "starchy" when the salt level is too low. I suggest increasing the salt to between 1.75 and 2.25%.

You're also going to need to add some sugar to support fermentation so my recommendation is to add 2% sugar. Your Caputo flour is not malted so the sugar is necessary to support fermentation much beyond about 36-hours.

Hopefully, you're baking at or above 750F using the Caputo flour, if not, you're probably just wasting money.

There is absolutely no reason to dissolve the salt in the water as you are, unless you're using rock salt, and then letting it set for 5-minutes after adding the oil serves no function either (saved you 5-minutes already) :). I suggest using 70F water throughout the dough making process. The colder water should give you a lower finished dough temperature of between 77 and 82F which is more suitable for a 3 to 4-day CF.

To make your dough, add all of the water to the mixing bowl, add salt and sugar (do not stir), add the flour and add the IDY right on top of the flour. Mix at low speed until the flour is completely whetted, then add the oil (this delayed oil addition method is important in view of the amount of oil you are using), then continue mixing as you would normally do. After mixing, turn dough out onto lightly floured surface and knead/fold for no more than 30-seconds, form into a ball, lightly oil the dough ball and place into your container CF. This dough will be ready to use after 48-hours and will remain good to use through 96-hours and might even give you 93-hours (5-days).

Tom Lehmann/The Dough Doctor

[Re: Cold Ferment longer than 3 days?](#)

3765

To get an assessment of how much gluten development you've achieved in your dough you will need to see how far you can open each of the doughs. Believe it or not, the problem could also be due to lack of fermentation providing the necessary bio-chemical gluten development, in which case the hand kneading would have provided the bulk of the actual gluten development. It can also be due to a high acid content in the dough due to the use of a starter and a lot of RF. In a case like that those hand folds would have helped to oxidize the gluten bonds making for a stronger dough. Without more information, finished dough temperature, room temperature, dough temperature after the fermentation period, and the appearance of the dough balls immediately prior to being opened into skins, one cannot say for sure just what created the situation you've experienced.

Tom Lehmann/The Dough Doctor

[Re: Gluten development and stretch&folding](#)

3766

If your oven deck is 6-inches thick I can't see where the deck is fully saturated in just two hours. The surface might be up to temperature but the center probably isn't.

Tom Lehmann/The Dough Doctor

[Re: Deck cooling down](#)

3767

At what temperature are we baking at for the comparison?

Tom Lehmann/The Dough Doctor

[Re: all-purpose vs 00 for neopolitan?](#)

3768

The first thing I would do is to open the dough so there is less dough around the edge of the skin. The more dough you leave around the edge the more pronounced the edge becomes on the finished crust.

tom Lehmann/The Dough Doctor

[Re: My pizza oven / dough conundrum](#)

3769

Your assumption is correct.

Tom Lehmann/The Dough Doctor

[Re: what happen if you use All-Purpose Flour to make your dough?](#)

3770

It could be an issue of heat saturation as you suggest (2-hours is not a very long

warm up time), or it may be due to a thin deck. How thick is the deck and what is the composition?

Tom Lehmann/The Dough Doctor

[Re: Deck cooling down](#)

3771

Todd;

I did a comparison of all of the "new generation" air impingement ovens a few years ago in PMQ Magazine. You might be interested in reading it. You will need to search the "In Lehmann's Terms" archives. I don't remember the exact title of the specific article but if memory serves me correctly it was something to the extent "a new generation of air impingement ovens" or something of the like.

Welcome to the site!

Tom Lehmann/The Dough Doctor

[Re: Lincoln Ovens](#)

3772

I've never tried a heat gun as a hair dryer was easier to find at the time, Using a heat gun I would use the low heat setting and hold it some distance away from the skins, as all you want to do is to form a dry skin on the top side, then invert onto another screen or floured peel. To use the skins off of the peel just slide off of the peel as you will want to have the dry side down, dress and bake. Dock if you need to just prior to dressing.

Please let us know how it works for you.

Tom Lehmann/The Dough Doctor

[Re: Making a batch of pizzas for WFO and peel/oven transfer](#)

3773

As you move to a lower protein content flour you reduce the ability of the dough to resist the effects of fermentation so with all things equal, with longer fermentation times (beneficial in developing crust flavor and texture) the dough made using a lower protein flour will be weaker, tear more easily, have less elasticity, and possibly even collapse under the weight of the topping ingredients resulting in a finished crust with all of the eating characteristics of an art gum eraser. Since the protein content of the flour also plays a direct role in flavor development the crust made using a lower protein content flour will have less flavor or a different flavor profile. This is not to say that great pizza cannot be made using a low/lower protein content (under 10.5%) flour, it certainly can, the dough just needs to be formulated and managed a little differently than a dough made using a higher (over 11%) protein flour. The lower protein content flour will generally result in a more tender eating crust (this is why lower protein flours (11% to 12.5%) are favored for making thick crust and deep-dish pizzas) but if the limit to processing tolerance is exceeded the dough can collapse during oven spring giving just the opposite effect. Keep in mind that when we are dealing with flours in the 11 to 14.5% protein range we working with flour milled from a suitable variety/varieties of hard red winter wheat or hard red spring wheat with good to excellent bread baking properties making them highly suitable for making pizza, but when we go to the lower protein flours, typically sold as "all purpose" we never know exactly what we are getting as some manufacturers use soft wheat varieties in their AP flour (soft wheat is primarily used in cake, cookie and pastry production), while still other manufacturers will use it sorta as a place to use their "not so good" wheat/flour . After all, it IS an ALL PURPOSE flour, it can be used to make many different baked foods but is not great at making any one of them (jack of all trades, master of none)

where as "bread flour" congers up the notion that the flour is suitable, by some standard, for making bread type products and for the most part the flours live up to their inference. This is why I always tell people if they are using an AP flour and want to change to a different brand, do so with caution as all AP flours are not equally suitable for making bread and pizza type products where long fermentation times are the order of the day where as higher protein flours are some what standardized in their performance characteristics, given their protein content, and tend to perform much more similarly between different brands.

Tom Lehmann/The Dough Doctor

[Re: what happen if you use All-Purpose Flour to make your dough?](#)

3774

There's that word again...."gamey". I've had poultry pepperoni, bison pepperoni (absolutely GREAT), regular pork and beef pepperoni, ostrich pepperoni, and even venison pepperoni and I've never had the word "gamey" come to mind. :-D

Tom Lehmann/The Dough Doctor

[Re: Why is pepperoni so popular?](#)

3775

Victor;

You can incorporate "old" dough back into new dough at an amount not to exceed 15% of the total new dough weight. For example, 50-pounds of flour will give you about 85-pounds of dough weight 15% of 85-pounds is 12.75-pounds, so you could add as much as 12.75-pounds of dough back into your new dough without influencing the performance of the dough or flavor of the resulting crusts. Even if dough is RF you can still open it into skins and place it in the cooler to stabilize the fermentation process and use it later in the day. Once the dough is opened into a skin it cools down to a temperature where fermentation is stabilized (40F <) is a very short time. I've not had good success in holding the pre-opened skins overnight.

Tom Lehmann/The Dough Doctor

[Re: Crispy bottom crust](#)

3776

What am I looking at there? Did you place the dressed dough, in the pan, in the oven to promote faster proofing?

Tom Lehmann/The Dough Doctor

[Re: Pizza crust](#)

3777

Your proposed approach "B" would be the one that I would pursue for greatest consistency/uniformity in the dough as it significantly diminishes the impact of any differences in the finished dough temperature on the rate of fermentation.

I would just use your standard dough making process, either 75 or 80F finished dough temperature will work well (pick a temperature and try to hit it as consistently as possible for greatest consistency in fermentation rate.

As for humidity in a fermentation room the magic number is 85 to 87% R.H.

(relative humidity). At that R.H. you will control evaporative loss from the dough while still avoiding developing a tropical rain forest which is what happens when the R.H. reaches 100%, but as you get closed to 100% the room will begin to drip due to developing condensation. I don't know how big or small the "room" will be but keep in mind that we have gotten away from using fermentation "rooms" in the baking industry due to the highly acidic/corrosive nature of the environment inside

of the room literally eating away everything including the concrete floor over time. Instead, what is now used is a fermentation "shelf". This is nothing more than a suitable large container to hold the fermented/fermenting dough with about 12 to 18-inches of head space above the dough, this head space fills with carbon dioxide, and since carbon dioxide is heavier than air, it displaces the air on top of the fermenting dough creating a green house effect, trapping moisture and heat in the dough which prevents the dough from drying and ensures a uniform fermentation rate. Now all you need to do is to have a temperature controlled room (no humidity). The term "fermentation shelf" comes from the fact that a shelf/lid is suspended above the "dough trough" (fermentation container) to fend off any possible drafts which could disrupt the carbon dioxide layer. In your case you can just DRAPE a piece of plastic sheeting over the fermentation container to accomplish the same thing.

Tom Lehmann/The Dough Doctor

[Re: Crispy bottom crust](#)

3778

Your yeast level is quite low at only 0.05882% (fresh/compressed yeast). For 1,700-grams of flour 2 to 3-grams (0.11764 to 0.17647% should work much better for you.

Additionally, if your "00" flour isn't malted you will need to add some sugar (2%) to support fermentation. Can you tell us something about your oven too?

Tom Lehmann/The Dough Doctor

[Re: Help!! My Dough is FLAT](#)

3779

A lot of it depends upon the toppings and amounts and what you are looking for. Some like sauce first while other go with cheese first (Chicago style), if using raw meats they should go on last to ensure they get thoroughly cooked. Chicago style pizzas will have the meat (raw sausage) buried under everything BUT these pizzas are given a long baking time so the meat is cooked. As for pepperoni, some pepperoni doesn't tolerate heat very well so it's buried under the cheese while some like the pepperoni toasted so it gets put on top. Today, many will use a precooked meat product so it can get buried under the toppings without any problem, in most cases though the vegetable toppings will be oriented near the top of the pizza to allow them to steam-off freely during baking. The type of oven used to bake the pizza will also impact the placement of the toppings too. In a pizzeria using an air impingement oven the intense airflow can scorch the vegetable toppings so they may be buried under the meat and cheese.

In short, vegetable toppings (due to their high moisture content) are generally oriented towards the top of the pizza but in the end your preference and oven performance will dictate the order of placement.

That's a good looking pizza!

Tom Lehmann/the Dough Doctor

[Re: Pizza topping order](#)

3780

Wrapping the dough tightly won't stop or slow down fermentation....it will still ferment. Refrigerating the dough will help to regulate the rate of fermentation, freezing the dough will stop fermentation BUT it creates a whole different set of issues.

Tom Lehmann/The Dough Doctor

[Re: Pizza crust](#)

3781

Stefanos;

I can't encourage you enough to dig out that scale and use it to weight your ingredients rather than using volumetric portions. By weighing each ingredient you will be able to achieve much greater consistency from dough to dough and you will be much better able to make the formula adjustments needed to give you what you're looking for in a finished pizza.

It sounds like you are only allowing the dough to ferment at room temperature for 5 to 6-hours which in all probability, is not enough fermentation to develop the type of flavor that you're looking for. The amount of yeast that you are using (is it active dry yeast or instant dry yeast?) seems quite high for allowing the dough to ferment at room temperature or in the fridge for a sufficiently long time (24 to 48-hours) to develop a great fermentation flavor. If the top of the pizza is now getting done (fan turned off) but the bottom of the crust isn't sufficiently done I would suggest reducing the oven temperature in 25C increments while extending the baking time. From a flavor stand point, you will probably achieve the best crust flavor as well as regulation of the fermentation process by adjusting the salt level to 2% of the total flour weight. The amount of yeast that I would suggest adding would be 0.2% of the flour weight (1-gram for 500-grams flour weight).

Please keep us posted on your progress.

Tom Lehmann/The Dough Doctor

[Re: Pizza crust](#)

3782

Mitch;

I just finished an order for 15 bird houses for my son, now I'm making him a bat box (the kind that eats flying insects) after that I've got the head of the buck that I shot last fall (it is presently under the lawn cart (inverted) on an ant hill so the ants can clean it up for me, they do a very thorough job at removing all tissues, then I'll be soaking it in bleach water and letting the sun finish the bleaching process then I'll be making a mounting plate from red oak that I have and I'll have a European mount to give him to hang in his "cabin" in up-state Minnesota. That's where all those bird houses are headed too.

I really enjoy wood working as it lets me completely "change gears" and do something different for a few hours each day. During the winter months I like to amuse myself doing leather work, I build a few custom knives and leather sheaths but mostly rifle slings and pistol holsters.

I needed a stitching pony to hold my projects while I'm hand stitching so I made one out of red oak (better than any one I could buy) and then I needed a rifle cradle/vice to hold a rifle secure while mounting sights, yep, built that too. Looking around here in my office I see all the shelves and book cases that I've built. Even made a Mission style shoe rack for the bedroom. I get these wild hair ideas and head out to the shop, aka garage and immerse myself in some mental relaxation.

Tom Lehmann/The Dough Doctor

[Re: Table Saw Purchase Guidance](#)

3783

Moving to a higher protein content flour will just make the pizza crust more chewy/rubbery when eaten as cold pizza.

Things to consider:

- 1) Use flour with 12 to 12.8% protein content.
- 2) Incorporate a lot of fermentation time into your dough making procedure for

both flavor and developing tenderness in the finished crust.

3) Include oil in the dough formulation at 5%.

4) Open the dough into skins by hand to achieve a better bake and lighter texture in the finished crust.

5) Bake your pizzas at a lower temperature for a longer time to ensure a THOROUGH bake.

6) Don't use a thin sauce, instead use drained whole tomatoes which are torn into pieces for your sauce...it does wonders for the flavor of cold pizza.

7) NEVER refrigerate pizza unless you plan on reheating it.

Cold pizza here (Manhattan, Kansas) has another name with the students at Kansas State University (KSU)....BREAKFAST.

Tom Lehmann/The Dough Doctor

[Re: protein % in flour effect on pizza?](#)

3784

A well fermented dough would be one that has significant fermentation time, for example, if using CF (cold fermentation), at least 3-days in the fridge would typically qualify as "well fermented". New York style pizzas are made with what is essentially the highest protein flour commercially available which is a minimum of 13.5% protein to as much as 14%+ protein content. Any of the pan style pizzas (California style included) are made using a lower protein content flour which would be considered 10.5 to 11.8% protein content, or something close to that.

Tom Lehmann/The Dough Doctor

[Re: Differences between New York/Chicago/California style dough?](#)

3785

Stephanos;

I really need more information from you to say what the problem might be. I really need to know your entire dough management procedure complete with ALL times and temperatures as well as information on how you are baking your pizzas (type of oven, baking temperature, baking time, baking platform such as pan, screen, disk or right on the oven hearth).

Additionally, do you have access to a small electronic scale capable of weighing in grams? If so your dough formulation in weights (grams) would be more helpful than "about" and "a pinch", if you cannot access a scale it would be more helpful if you can provide volumetric portions to replace the pinch and about measurements. In the mean time if you go to <www.pmq.com> and go into the RECIPE BANK, use dough for your search word, I've got a home made pizza dough "recipe" posted there in volumetric portions which will serve to get you started in making pizza while we sort out your existing dough.

Once we have a little more information to go on it shouldn't take too much to get you pointed in the right direction and making pizzas you will be proud of.

Tom Lehmann/The Dough Doctor

[Re: Pizza crust](#)

3786

Since I bought my compound radial arm saw I've seldom needed to break out my table saw. About the only thing I use it for anymore is for ripping a board.

I've got a router and a router table but I think I use my trim router more than either.

I'm like you, raised around wood working, retired, 73-years old, and love wood

working as a hobby. Building bird houses, bat boxes, rod racks for fishing rods and some furniture too when the mood strikes me.

Tom Lehmann/The Dough Doctor

[Re: Table Saw Purchase Guidance](#)

3787

Since a good part of "flavor" is due to the denaturing of proteins during baking, and flour constitutes a significant source of protein, yes, significant differences in flour protein content can impact finished crust flavor, but in all likely hood, you would see other significant changes, especially in the way the dough handles first so the likely hood isn't very great that you will see differences in crust flavor due to changes in flour protein content.

Tom Lehmann/The Dough Doctor

[Re: RT vs CF detail](#)

3788

I wrote a very detailed article on what causes the "dreaded" gum line in PMQ Magazine <www.pmq.com>. You might see if you can access it through my article (In Lehmann's Terms) archives.

Here are the main things responsible for a gum line:

Baked too fast (oven too hot).

Too much sauce.

Insufficient yeast in dough formula.

Dough too hot resulting in reduction of yeast level to control fermentation.

Excessive dough fermentation.

Dough collapse, poor oven spring.

Bright colored/silver pan resulting in insufficient bake.

These are the most common causes.

Tom Lehmann/The Dough Doctor

[Re: Butter in the PAN of Grandma's Style Pie](#)

3789

JPB;

For the most part that assumption is correct. The reasoning being that acids are formed in greater amount during the initial RF and then holding the dough, even as CF allows those acids to continue to degrade the flour proteins/gluten. Think of it like marinating a piece of meat where the degradation of the meat protein continues even after we put the marinating meat in the fridge. So, to be absolutely correct, one might have to say "It all depends". It all depends upon the amount of acid formed during the RF period as well as the resistance exhibited by the flour proteins to acid degradation (this is correctly referred to as fermentation tolerance).

Tom Lehmann/The Dough Doctor

[Re: RT vs CF detail](#)

3790

That's about twice or a little more than twice the amount of IDY that I would use with a 90+ F dough temperature unless I'm making an emergency dough which is a whole different story. When you have a finished dough temperature of 90F or more there is a possibility of growing some of the "other" bacteria which we normally don't encounter at lower dough temperatures. While not dangerous, these bacteria can contribute to an "off" flavor or aroma to the finished crust, this is

especially so when long fermentation times are employed in the dough management procedure.

Tom Lehmann/The Dough Doctor

[Re: My dough didn't cure properly in dough box.](#)

3791

I've not tried it but you might try a plant moisture indicator, the type that you stick in the soil next to the plant and it gives you the moisture content of the soil....does anybody have one? Have you tried it with flour? Like I said, I don't have any idea if it will work or not but if anyone has one it would be interesting to find out.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3792

There are different flavors produced between CF and RF and it all depends upon where your tastes lie as to which you prefer. I was raised in the baking industry so I know very well what the flavor of RF is all about, and for me it brings up memories of bread. I want something different in the flavor of my pizza crusts so my preference is for CF....BUT you cannot compare CF and RF on an equal time basis. Because of the difference in flavor profile you cannot really say that if you RF for x-time you need to CF for XX-time. From a dough performance stand point you can do that but not from a flavor stand point. As you know flavor is a highly subjective thing, I've said it before and I'll say it again: "The best flavor is the one that you like the most." If one feels that a combination of both RF and CF gives then the flavor that they prefer, so be it. There is no right or wrong, just so long as it WORKS FOR YOU.

For many years I did sensory evaluations for AIB on a vast myriad of different types of products and I can attest to the fact that for any sensory evaluation/taste test to have any glimmer of validity a lot of thought has to go into the process. We used to do a triangular test first to see if there was indeed any difference in flavor to pursue any further, if there was we would then go to a hedonic testing scale for our next test. In this test the panel was asked to taste a control product and rate it on a 1 to 10 scale (10 = like very much) and then they were presented with another (test) sample and asked to rate it also. From this most basic sensory test we could determine that the panel recognized a difference between the two samples, which one they preferred, and to what magnitude they preferred it over the (control) sample. I won't even go into the selection and profiling of the panel members. To have any validity we had to have at least 20 participants in our panel for any study, and we had to have nearly twice that number of participants in a pool to draw from so we could always ensure we could get the minimum number of panel participants and the participants had to be available for the entire testing/evaluation series which in many cases could take a full week or more. Think of it like a jury, you have a large group to draw from, you select the ones best suited to evaluating the type of product(s) and get a commitment that they will be available to participate for the duration of the testing, we would always shoot for anything between 22 and 25-people just in case someone got sick or couldn't participate at any time.

A lot of work went into those studies.

Tom Lehmann/The Dough Doctor

[Re: RT vs CF detail](#)

3793

I make it using a straight dough procedure with 3.5-hours bulk fermentation, then scale into 16-ounce pieces and form into balls, place balls onto lightly oiled cookie

sheets and final proof for about 75-minutes or until the balls are nice and full in shape, cut a cross hatch (#) on top of each loaf to prevent bursting, bake at 425F until golden brown in color (loaf will sound hollow when you tap on it). As soon as the bread comes out of the oven brush it with melted butter and wrap in a clean towel (this prevents the crust from cracking upon cooling). Allow the bread to cool for at least 90-minutes before cutting into it. We love it! :)

Tom Lehmann/The Dough Doctor

[Re: What's your favourite bread recipe?](#)

3794

Yes, flour most certainly can/will change in moisture content if left exposed to the open air (open container). Fresh flour has approximately 13% +/- moisture content. In cold climates when the winter air is very low in moisture (low relative humidity) the flour will dry out to approximately 10% moisture content (it's hard to get it to go below that naturally) and in a humid environment it will pull moisture from the air until it's moisture content is around 15%. Think of how that can impact your dough absorption. Like I've always said, there is a huge difference between flour and hockey pucks....Hockey pucks are always the same, flour is always different or changing.

This is one very good reason to break down a large bag of flour into several smaller ones which can be used before the flour changes too much.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3795

Are you using 57-grams of water at 100F in addition to the 100F water used to activate the yeast in? That will give you a very hot finished dough temperature. A good finished dough temperature to target for is 80 to 85F for a warm dough or 70 to 75F for a cold dough.

Tom Lehmann/The Dough Doctor

[Re: \[Recipe\] White Basil Pie](#)

3796

Regarding the dough weight, it's YOUR pizza, you know what YOU like, if YOU want it to be thicker, use more dough. Remember, we're making PIZZA not rocket fuel or nitroglycerin.

As for the ADY, did the dough perform well for you? Were you happy with it? Did the finished pizza look good? (I personally think it looked great) If yes, you're "good to go". Remember, dough formulation and dough management go hand in hand. If the amount of yeast is working for you with YOUR dough management procedure why change it?

Tom Lehmann/The Dough Doctor

[Re: Crispy bottom crust](#)

3797

Mo;

To add "chew" to your pizza replace 25% of the regular flour with durum semolina flour (it will take more water so be prepared to increase the dough absorption (and it absorbs water SLOWER so don't be fooled by a slightly tacky dough after mixing).

To test for a gum line just cut a slice from the pizza, flip it over (bottom side up) and carefully cut the slice in half lengthwise using a VERY SHARP SERRATED knife (use light pressure cutting the crust) as soon as the crust is cut fold the crust

in half so the two topped sides are in contact with each other. If you have a gum line you will recognize it as a gray/wet looking area under the sauce 1/8-inch thick or more. To confirm, take another slice and grasping it by the rim, pull/tear it apart as if pulling a slice of bread apart. As the crust cleaves look for the crumb to form a short film as it pulls apart (you want it to tear/cleave cleanly). If it "feathers" (that's what we call that film or membrane) you have a gum line.

Tom Lehmann/The Dough Doctor

[Re: Butter in the PAN of Grandma's Style Pie](#)

3798

In looking at the picture presented if you do some scale assessment, assume those two rocker switches at the bottom right front of the oven are a total of 1-inch wide, measure it, now measure across the width of the oven. It's about 10-times as wide as the switch. Do the same thing for the dials, assuming they are 2-inches in diameter and you come up with what looks to be a 10-inch wide deck. Just looking at the oven it seems all out of proportion (too boxy) for a 20-inch wide deck.

Just my observation.

Tom Lehmann/The Dough Doctor

[Re: Double deck pizza oven for home use?](#)

3799

Roll/pin it out thin, brush with melted butter and sprinkle with a cinnamon-sugar mixture then bake until lightly browned when partially cool drizzle with a simple powdered sugar-water icing. Cut into squares (party slice) about 2-inches square, set out on the table and the grandchildren eat them like cookies until they're gone.

Tom Lehmann/The Dough Doctor

[Re: Things to do with excess dough?](#)

3800

It tastes the same as black pepper, you just don't see it when you use white pepper.

Tom Lehmann/The Dough Doctor

[Re: What's your favourite bread recipe?](#)

3801

When we take friends out for pizza I always figure on 3-slices per person (usually a 16- of 18-inch pie sliced into 8 pieces). A 14-inch pizza is for my wife and I.

If we eat it all, great, everyone has had several slices, if there is any left over we always give it to our guests to take home with them.

Tom Lehmann/The Dough Doctor

[Re: Important questions on pizza-eating and etiquette?](#)

3802

When you say leaving it activate too long, how long are we talking about?

Do you measure the temperature of the water that you use to activate the ADY in?

How much water and how much ADY?

Right now more questions than answers.

Tom Lehmann/The Dough Doctor

[Re: My dough didn't cure properly in dough box.](#)

3803

Mo;

Both butter and margarine are the same fat content (approximately 20% water and 80% fat) so a blend of margarine and butter will have the same fat content of either

one alone. If you want to make your own clarified butter just "nuke" some butter until melted and you will see a particulate floating on top of the butter oil, skim this off or decant and you're left with clarified butter, just the thing for dipping your lobster tail into! :) :).

Another trick that I use occasionally if the dough has a bit more memory that I like is to refrigerate the pan after buttering it, this seems to help the butter hold the dough in place a little longer allowing the dough to relax.

Tom Lehmann/The Dough Doctor

[Re: Butter in the PAN of Grandma's Style Pie](#)

3804

First let's define each:

New York type pizza: Moderately thin crust, tough/chewy mastication properties, foldable.

California style: This is a thick crust pizza with a very light, tender eating characteristic and a crispy bottom crust.

Deep-dish Chicago style: Thick crust with a crispy, biscuit like eating characteristic, somewhat dry mouth feel.

What accounts for the differences?

New York style: Made using a very high protein flour, typically baked at higher temperatures, dough absorption about 62%.

California style: Made using a lower protein content bread type flour, dough is well fermented which exhibits a tenderizing effect upon the flour proteins, dough absorption typically around 65% +.

Deep-dish Chicago style: Higher fat content in the dough provides a unique eating characteristic, does not utilize a long fermentation time, dough absorption is typically 57%+.

Mixing time has little to nothing to do with the unique characteristics of each of these pizza types, instead, it is due more so to the flour strength, dough absorption and dough fermentation time and dough formulation.

Tom Lehmann/The Dough Doctor

[Re: Differences between New York/Chicago/California style dough?](#)

3805

Only if you leave your flour open and exposed to the air.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3806

Flour: 100%

Salt: 2%

Butter: 6%

IDY: 1.25%

Sugar: 6%

Potato flour (dehydrated mashed potato) 5%

White pepper: 0.25%

Water: 68%

Tom Lehmann/The Dough Doctor

[Re: What's your favourite bread recipe?](#)

3807

Peter;

I just got back to my computer after retching from reading the article on donuts.

Put icing or glaze on an inner tube and call it a "donut"!

From the article I'm guessing it might taste better too.

Just give a a good, old fashion yeast raised donut (cut weight 2-ounces) with a honey glaze or chocolate fondant icing and be done with it. For variety, cut it using a biscuit cutter, fill it with Bavarian cream filling, top it with a white or chocolate fondant icing, call it a Bismark and drop a few in the box with the donuts too. Now we're talkin' DONUTS.

Tom Lehmann/The Dough Doctor

[Re: Krispy Kreme Donut Recipe](#)

3808

Use clarified butter in the pan, or Butter Flavored Crisco (better than the real thing).

Tom Lehmann/The Dough Doctor

[Re: Butter in the PAN of Grandma's Style Pie](#)

3809

I'll toss my hat into the ring.

1) Lunch out sells slices by a significant margin over dinner time. All pizzerias do not offer slices. I think more information is needed to answer this question accurately.

2) This will depend upon the size of the slice being offered but for the most part 1 slice with a soft drink is a typical order.

3) Where we're at multiple toppings and the order of the day and they out sell cheese and/or pepperoni by a significant margin. We offer out slices with any toppings the customer wants. Many shops only have a limited offering of slices so this would make a difference.

4) Regular customers.

Tom Lehmann/The Dough Doctor

[Re: Questions on consumers preferences.](#)

3810

If you can go with electric rather than gas take a look at Dahlen Ovens/Sveba Dahlen (Sweden). These are great ovens with an excellent history.

Tom Lehmann/The Dough Doctor

[Re: commercial gas pizza oven recommendation ?](#)

3811

I've been around bagged flour for well over 50-years, and even when flour came in 100-pound bags, I can't remember ever having a bag rip apart on me. Now that it's only offered in 50-pound bags there is even less chance of a bag ripping. Thank OSHA for the 50-pound bags.

If you're talking about bags of cement coming apart, you have a lot to be concerned over, I've had numerous bags rip apart on me, just look at the area where they're stored, torn/ripped bags, and cement dust all over the floor where they're stored. I've been known to buy a partial (torn) bag of cement from time to time and just place it into a plastic trash bag to keep it all together until I get home to use it.

Tom Lehmann/The Dough Doctor

[Re: How do I order King Arthur's Bread Flour in bulk?](#)

3812

When it comes to domestic mozzarella, I'm 100% for Grande, especially their Fleur de Latte (I think that's correct for their fresh, brine packed mozzarella cheese). Their regular mozzarella is hard to beat from both a flavor and performance standpoint too.

Tom Lehmann/The Dough Doctor

[Re: Are any of the high-end cheeses worth it?](#)

3813

I might reverse the parmesan and romano percentages, depending upon the romano cheese it can make your cheese a bit strong.

Tom Lehmann/The Dough Doctor

[Re: Ideal Ratio for 4 cheese blend?](#)

3814

Add roasted red peppers, roasted garlic, egg plant, the list ends where your imagination stops.

Tom Lehmann/The Dough Doctor

[Re: Vegetarian toppings?](#)

3815

Sauce:

Fresh, garden ripe tomatoes sliced thin (about 3/16-inch) placed on towels to remove excess moisture, place fresh basil and sliced fresh garlic on the dough skin, apply tomatoes to cover about 75% of the top of the skin (no need for 100% coverage like a sauce), dress the pizza to the order. Can't get fresh, ripe tomatoes? Try Stanislaus 74/40 Tomato Filets (drain for 20-minutes, then use as is. Wonderful fresh tomato flavor and great texture. You get a burst of tomato flavor with each bite.

Tom Lehmann/The Dough Doctor

[Re: Anyone have a good sauce recipe?](#)

3816

- 1) It comes from corn as opposed to olives.
- 2) It doesn't taste anything like olive oil (not made from olives)
- 3) Is neutral in flavor as opposed to olive oil, sesame oil, and other oils with a dominant flavor.
- 4) It can be substituted pound for pound for olive oil BUT you will get a different flavor. See #2 above.
- 5) I've not found it bad for different types of doughs/pizzas from a performance standpoint.
- 6) Corn oil or canola oil are commonly blended 10% olive oil 90% corn/canola oil / 20% olive oil 80% corn or canola oil and sold as a "blended oil". Blended oils have much of the same flavor/aroma characteristics as olive oil but are sold at a much lower cost.

I have never been a strong advocate of putting EVOO into the dough, straight corn or canola oil works just as well in the dough. If I do use olive oil in the dough I always try to use pomace olive oil (lowest grade olive oil) and then sprinkle a little EVOO on top of the pizza as soon as it comes out of the oven, the heat of the pizza "pops" releases the aromatics from the EVOO giving the pizza a great aroma and flavor that the consumer readily picks up on.

Tom Lehmann/The Dough Doctor

[Re: How does Corn Oil differ from other oils?](#)

3817

That crust edge looks very good! Well baked from all appearances too. Well done! :)

Now that you're making a better pizza you can begin to experiment with the dough formulation and dough management procedure to further refine the finished pizza. I'm glad to hear the recommendations work well for you.

Tom Lehmann/The Dough Doctor

[Re: cornice not ready, bottom burned?](#)

3818

As a general rule, higher dough absorption = crispier finished crust due to the reasons cited in my previous post. The is especially true when baked in a hot oven.

Tom Lehmann/The Dough Doctor

[Re: Crispy bottom crust](#)

3819

Rather tart too, it's my all time second favorite for a pie.

Tom Lehmann/The Dough Doctor

[Re: Gooseberries.....labor of love!!!!](#)

3820

You want to be careful with A.P. flour. Since there is not predetermined level for performance of A.P. flour (all purpose = jack of all trades but master of none) the protein content as well as the type of wheat the flour is made from can/will vary all over the board. If you fins an A.P. flour that works for you changing brands may give you a flour with very different performance properties. Bread flour, on the other hand, has a predetermined level for performance/expectation, that is to be able to make decent bread so in a way this type of flour is somewhat standardized between the different milling companies and changing brands is,'t as critical. High gluten flour (actually there is no such thing in existence) has absolutely no predetermined identity (High....with reference to what?) In a sampling that we did some time ago we found that the protein content of "high gluten" flour from different millers/manufacturers/brands would vary from a low of just over 11% protein content to a high of 14%+. When buying "high gluten" flour be sure to check the ingredient and nutritional panel on the bag as it will provide information as to the protein level of the flour. This is the reason why when I talk about flour I almost always speak in terms of protein content. There is one good bench mark flour that I will reference quite frequently, Pillsbury Bread Flour AKA Pillsbury Bread Machine Flour. This specific flour was introduced back in the days when everyone had to have a bread machine and everyone wanted to make bread just like that made at the bakery so there was a demand for a "bakery grade bread flour". This flour consistently runs at 12% protein or just a little more. I consider it to be a good "go to" flour for making just about any type of pizza, especially for someone just getting started at making pizza at home.

Tom Lehmann/The Dough Doctor

[Re: How much of a difference does brand of flour make?](#)

3821

Come on guys!!! Cut it out!!! You're driving me crazy with all this talk about those great gooseberries, especially that gooseberry chutney or relish that really got me going...sounds GREAT. We are still nearly 6-weeks out from our gooseberry picking season so now I've got to live with 6-weeks of depression unless I can find a home made gooseberry pie at Hy Vee (our local supermarket sells hand made pies from a

small Kansas manufacturer and gooseberry is one of them). :)

Tom Lehmann/The Dough Doctor

[Re: Gooseberries.....labor of love!!!!](#)

3822

Benny;

Welcome to the table. :)

Tom Lehmann/The Dough Doctor

[Re: Looking for mozzarella that's sweet but not gamey](#)

3823

I would say that your dough ball looks to be about as good as one might strive to achieve. :)

Tom Lehmann/The Dough Doctor

[Re: results of tom's dough management suggestions](#)

3824

Don't over think it. The vast amount of research that I've done over the past 50-years all indicates that pizza was being made before rocket fuel.

Further research has unequivocally confirmed that it tastes better too. :-D

Tom Lehmann/the Dough Doctor

[Re: What makes a dough recipe an "emergency dough" recipe](#)

3825

More water/higher dough absorption results in a softer dough which expands more readily during the critical oven spring period of baking which results in a less dense crumb structure which is a better thermal break than a denser crumb structure. This improved thermal break prevents the heat from the bottom of the pizza passing right on through the dough and into the sauce and toppings where it is dissipated as steam, as a result the bottom of the crust receives a more intense heat and actually reaches a higher temperature for a longer time which results in a crispier crust....physics 101.

As for a lighter dough weight/thinner crust not getting as crispy as a slightly thicker one, this plays into the above also. The skin is thinner so it cannot develop as good of a thermal break during oven spring as a slightly thicker skin.

Additionally, a skin that is too thin, while it will develop some crispiness during baking will readily absorb moisture from the top of the pizza (basically 90% water) and become quite soft in mere seconds after removing it from the oven. Example: When was the last time you saw a thick crust pizza turn soft and soggy....assuming it was baked properly to begin with?

Tom Lehmann/The Dough Doctor

[Re: Crispy bottom crust](#)

3826

Victor;

It appears that you are baking your pizzas both on a stone and also using one of the old Power Disks. Try this: About a minute before the pizza is finished baking, slide the disk out from under the pizza and allow the pizza to finish baking right on the stone. This is successful most of the time in achieving a crispier center section to the pizza.

The pizza looks GREAT!

Tom Lehmann/The Dough Doctor

[Re: Crispy bottom crust](#)

JB;

Actually, what you are showing is not a true emergency dough formula, it is just a regular dough formula incorporating warm water to speed up the fermentation process. A true emergency dough formula is designed to allow the dough to ferment faster while at the same time providing a finished crust with some similarity (at least appearance wise) to the same dough formulation without the emergency dough modifications.

You don't identify the type of yeast that you are using: CY, IDY or ADY; and you don't provide the finished dough temperature which is also an important aspect in making an emergency dough.

Taking the dough formula as provided and changing it to an emergency dough formulation, here are the changes that would need to be made.

1) Adjust water temperature to provide a finished dough temperature of 88 to 90F.

2) Increase the total dough absorption by 2% (this is to compensate for the firmer dough consistency

resulting from the reduced amount of fermentation time.

3) The amount of yeast, regardless of type is doubled from that which is used in the non-emergency version of the dough.

4) Due to the fact that the dough is not fermented as long there will be more residual sugar in the emergency dough so the normal sugar level is typically reduced by about 50%.

5) Total fermentation time for an emergency dough is typically set at 2-hours from mixing to opening the dough balls into skins. If less fermentation time is employed severe bubbling may become a problem.

I hope this provides you with a little more understanding of emergency doughs.

tom Lehmann/The Dough Doctor

[Re: What makes a dough recipe an "emergency dough" recipe](#)

3828

Timo;

You may find this hard to believe but you will actually achieve a better, more thorough, bake-out with a higher dough absorption than a lower one, this is especially true where high baking temperatures are employed. The crust actually doesn't look too bad. My suggested action is to increase the dough absorption from your present 56% to 60% by adding additional water to the dough and see where that gets us. If you see improvement you can make further adjustments to the dough absorption to fine tune your dough. If the increase in dough absorption doesn't give you what you are looking for I would double the amount of salt making it 2% (which will result in a better flavored crust) while adding a small amount of yeast to the dough formula. The added salt will help to control the rate of fermentation with the added yeast (AKA yeast spike).

Tom Lehmann/The Dough Doctor

[Re: cornice not ready, bottom burned?](#)

3829

We eat wild game (deer and turkey) several times a month and I've never likened the flavor to that of mozzarella cheese. We just had venison back strap medallions (thin sliced), fried in butter and smothered in caramelized onions and sauteed morel mushrooms, with baked potato and half of an ear of corn on the cob for dinner tonight. In my humble opinion, that's a gourmet meal!

Tom Lehmann/The Dough Doctor

[Re: Looking for mozzarella that's sweet but not gamey](#)

3830

There are very few treats as good as an old fashion gooseberry pie! Just slightly tart, not too sweet. :)

Tom Lehmann/The Dough Doctor

[Re: Gooseberries.....labor of love!!!!](#)

3831

It's a lot like using a pelican head on a Hobart mixer with an attachment hub for shredding block cheese.

Tom Lehmann/The Dough Doctor

[Re: Pre Cut vs Fresh Mozz in commercial setup](#)

3832

None, never felt an urgent need to use it when salt was available.

Tom Lehmann/The Dough Doctor

[Re: MSG in tomato sauce: "Ideal" concentration interval](#)

3833

OK, so your comment about duck fat just begs one important question.....Did you use it in making a "quacker" type crust? :-D

Tom Lehmann/The Dough Doctor

[Re: Solid fat incorporation](#)

3834

Ditto.

The only time I see a store cutting mozzarella (except to shred it) is when making something like a Chicago deep dish presentation, in that case they slice it off and place whole slices on the pie (cheese first). I have seen a very few stores slice the bricks/logs and then tear off pieces from the slices to add to the pizza. My personal favorite is to use the Grande brine packed fresh mozzarella cheese balls pre-scaled at 4-ounces each and then peel the cheese ball like an orange. This gives me a pre-measured 4-ounces of cheese which when combined with 1-ounce of Parmesan cheese is about perfect for a 12-inch pizza.

Tom Lehmann/The Dough Doctor

[Re: Pre Cut vs Fresh Mozz in commercial setup](#)

3835

One other thing I might add, there is no such thing as TMI here. The more information you can provide, the better the chances are that we can help you soon make great pizzas you'll be proud to share with your friends. Oh yes.....pictures are a great help too.

Tom Lehmann/The Dough Doctor

[Re: Hi, I'm a pro pizza cracker maker. I have failed 100%. Why am I so unlucky?](#)

3836

I seldom bake a thick/thicker crust pizza that hot, I like to use 475 to 500F with top and bottom temperature set the same.

I'd also suggest letting the oven warm up longer too this is to make sure you have all the heat possible stored in the deck/stone.

Tom Lehmann/The Dough Doctor

[Re: Ideal Temperature Range for Medium Thick Crust Pizza](#)

3837

Nope, not necessary, just put it on top of the flour when you begin mixing and you're good to go. BUT if you are mixing the dough by hand it should be softened (not melted) prior to addition. If you don't pre-soften the fat prior to addition you stand an excellent chance of mixing the fat into the dough matrix more like a pie crust (pieces of fat dispersed throughout the dough) than an integral part of the dough.

Tom Lehmann/The Dough Doctor

[Re: Solid fat incorporation](#)

3838

Right after mixing, remove the spoon from the dough, cover/drape with a piece of plastic and allow to ferment for 20-minutes. Then scrape the dough from the bowl onto a floured surface and knead for about 10-minutes. Oil the bowl and place the dough back into the bowl, drape with a piece of plastic and allow to ferment for 2-hours (you can go as long as 4-hours if it fits your scheduling better.

Tom Lehmann/The Dough Doctor

[Re: My dough never stretches or kneads well. I feel hopeless.](#)

3839

Take a look at my web site <www.doughdoctor.com> see if you find anything that works for you.

Tom Lehmann/The Dough Doctor

[Re: Is there a video on dough-mixing and shaping that you can recommend?](#)

3840

Because I'm kinda stuck here at home I could only be a consultant to the effort. Right wrong or indifferent as to the quality of the pizza, it was still a monumental task to pull it all together. It was really interesting to see it evolve from the first concept put on the table to a working model several weeks ago to the final task. Congrats to all!

Tom Lehmann/the Dough Doctor

[Re: Tony Gemignani attempts to make the world's longest pizza.](#)

3841

Whatever it was it tasted good on my pizza and he never complained about the pizza which I gave to him for sharing....come to think of it, I always wanted more after we finished the pizza....(munchies?) :-D

Tom Lehmann/The Dough Doctor

[Re: Which dry spices are worth and which are not?](#)

3842

When mixing dough by hand I depend upon biochemical gluten development to do the bulk of the gluten development for my and room temperature fermentation allows that to take place faster and more efficiently.....assuming room temperature is between 65 and 80F.

Tom Lehmann/The Dough Doctor

[Re: My dough never stretches or kneads well. I feel hopeless.](#)

3843

I don't have much information to go on but I'll give it my best shot.

With a larger dough there is a better than good probability that the dough was over

fermented. Large/larger size doughs tend to ferment faster due to their better heat retention (remember that a dough will increase in temperature during fermentation by approximately 1F per hour due to heat of metabolism created by the yeast. This is one reason why the finished/mixed dough temperature is so CRITICAL when using a dough management procedure which utilizes bulk fermentation with larger dough sizes. Smaller doughs (for one or two pizzas) are not as sensitive to finished dough temperature due to their considerably smaller mass. The over fermented dough will become bucky (very elastic) and difficult to open into skins. Re-mixing the dough in a dough mixer is a solution which normally works to restore the dough back to something that we can work with, but hand kneading isn't very effective. Once the dough has been re-mixed and balled, it usually takes a couple of hours before the dough can be opened into skins. As far as gluten development, you had plenty of gluten development due to biochemical gluten development.

Tom Lehmann/The Dough Doctor

[Re: Not so relaxed](#)

3844

Nino;

What did I do?

I was originally on the team but had to sit it out due to five blood clots in my left leg that were discovered upon my return from Pizza Expo. The doctor has me side lined until at least August right now. :(

Tom Lehmann/The Dough Doctor

[Re: Tony Gemignani attempts to make the world's longest pizza.](#)

3845

Matt;

Water the herbs once, maybe twice a week at the most. Maybe there wasn't sufficient sun light exposure time from the skylight. Indoors I've found a window exposure facing any direction except for north works well. We lived in an apartment for the better part of a year when we were between houses and I grew my basil in a pot by the steps leading up to the front door. My neighbor used to grow it in his basement under grow lights....at least I think it was basil, that's what he told me it was.

:-D

Tom Lehmann/The Dough Doctor

[Re: Which dry spices are worth and which are not?](#)

3846

The dough is always going to feel sticky and weak until you begin to get some gluten development taking place. That's just the nature of a yeast leavened wheat flour based dough. By allowing the dough to rest for those 20-minutes you are allowing time for the flour to absorb some of the water (just like an autolyse) and for the enzymes to begin changing protein into gluten which will make the kneading process easier and more effective.

Tom Lehmann/The Dough Doctor

[Re: My dough never stretches or kneads well. I feel hopeless.](#)

3847

Hare is a dough formula that I've used when baking at high temperatures:

Flour: 100%

Salt: 2.25%

Idy: 0.15%

Water: (70F) 68 to 72% (variable)

I normally use a very fine corn meal for my peel dust and broom the deck frequently.

[Re: Dough formula for my blackstone pizza oven](#)

3848

If you're only making a couple of pies try buying a couple of fresh (RIPE) tomatoes plum are fine but any variety will work, slice them about 1/8-inch thick, place onto a clean towel to absorb and excess moisture, LIGHTLY oil the skin, add fresh basil leaves as desired, fresh sliced garlic as desired, and then cover with the slices from one whole tomato (the tomato slices become your sauce) now dress the pizza as you wish and bake as normal. A great pizza on the cheap but it sure doesn't taste or look cheap! :)

Tom Lehmann/The Dough Doctor

[Re: Don't buy Hunts](#)

3849

I only use 0.375% IDY, target my finished dough temperature at 75 to 80F and I get excellent results at 24, 48 and 72-hours cold fermentation time providing the dough is managed properly.

Tom Lehmann/The Dough Doctor

[Re: How much IDY for 24 hr vs 48 hr?](#)

3850

Mozzarella cheese by definition has a very mild flavor, so mild in fact that most of the time we blend it with another cheese to add to the complexity of the cheese flavor. My personal preference is to use a blend made of 3-parts mozzarella and 1-part Parmesan. Occasionally, I'll substitute the 1-part Parmesan with a 50/50 blend of Parmesan and Romano for an even better flavor. You can use just about any other flavorful cheese to blend with the mozzarella. If you want a mozzarella with a very mild flavor but with a dairy note to that flavor the Grande whole milk mozzarella will be hard to beat.

Tom Lehmann/The Dough Doctor

[Re: Looking for mozzarella that's sweet but not gamey](#)

3851

Basil and oregano can easily be grown indoors, a large pot and some potting mix and a packet of seeds or starter plants and you're good to go.

Be sure to place them where they will receive plenty of sunlight. Edwardo's Pizzeria in Chicago used to grow all of their own basil in planter boxes inside of their store under grow lights.

Two basil plants kept picked will keep you in basil for a long time.

Tom Lehmann/The Dough Doctor

[Re: Which dry spices are worth and which are not?](#)

3852

You don't mention anything about how you are managing your dough (everything you do to it from the time of mixing to use in making a pizza skin). This is possibly the most important aspect to making pizza and bread doughs as it allows for biochemical gluten development. If you will go to the PMQ web site

<www.pmq.com> and go into the Recipe Bank you can search my home made

pizza dough "recipe". While this "recipe" is shown in volumetric portions you can use your pizza dough formula in weight measures for improved formula accuracy. Just substitute your formula for my recipe, then follow the dough management procedure given. Let's see if that gives you ant better results.

If you don't want to go that route, try this.

At 3.5% I an assuming that the yeast that you are using is compressed yeast/fresh yeast....correct? If it is, reduce it down to only 1%. If you can get some instant dry yeast use it at 0.25% or use active dry yeast at 0.5%. Regardless of the type of yeast that you use, suspend it in just a couple ounces of 100F water (USE A THERMOMETER).

Use YOUR dough formula with the above change to the yeast amount.

Put water (70F) in mixing bowl.

Add yeast suspension.

Add flour.

Add salt and sugar.

Using wooden spoon stir until very thick.

Remove spoon, lightly cover bowl and allow dough to ferment for 20-minutes.

Scrape dough from bowl onto floured surface and lightly oil the inside of the bowl.

Knead the dough for about 10-minutes or until you begin to see the dough becoming elastic.

Place the dough back into the bowl, lightly oil the top of the dough and drape with a piece of plastic (plastic grocery bag works well).

Allow dough to ferment for 2-hours.

Remove dough from bowl and knead once again until the dough begins to look smooth.

Allow the dough to rest on a lightly floured surface for 15-minutes, then scale to desired weight pieces and form into balls.

Wipe each dough ball with oil and drop into plastic Food Bags (available from any supermarket for about \$3.00 for a roll of 100).

Settle the dough ball into the bottom of the bag, and pull the bag so it just touches the dough ball, twist the open end of the bag into a pony tail, and tuck the pony tail under the bag as you place it into the fridge.

Allow the dough to cold ferment for 48 to 72-hours.

Remove dough from fridge and allow to warm AT room temperature until the internal temperature of the dough ball reaches 50 to 60F.

Remove dough ball from bag by rolling the bag back onto the dough ball and inverting allowing the dough ball to strip the bag inside out as it falls from the bag onto a floured surface.

Flour both sides of the dough ball and open into a skin using your preferred method.

As I don't know if you have a pizza stone or not, or if you bake on a pan, screen or disk I cannot provide any information on baking at this time.

Tom Lehmann/The Dough Doctor

[Re: My dough never stretches or kneads well. I feel hopeless.](#)

3853

Ask Walter about his story concerning Thunderbird mixers.

The Vari Mixer is another one to look at.

Tom Lehmann/The Dough Doctor

[Re: 60 qt mixer](#)

3854

The dough is still somewhat under mixed, looks pretty dough to me, this is also evidenced by the rough looking dough balls, this most likely explains the sticky dough. Without seeing how you are bagging the dough ball I can't say too much about the shape of the dough after the fermentation period. Are you using ZipLock Bags, or are you using Food Bags? Are you pulling the bag snug (NOT TIGHT) around the dough ball and then twisting the open end of the bag into a pony tail and tucking it under the dough ball as you place it in the fridge? Bags are used a lot in this manner and when the dough is removed from the bag by rolling the bag down to the dough ball and inverting the bag and dough ball allowing the dough ball to fall by gravity from the bag (inverting the bag as it does so) onto a floured surface we always get a reasonably round dough piece that is ready to be opened into a skin.

Tom Lehmann/The Dough Doctor

[Re: results of tom's dough management suggestions](#)

3855

Nick57:

No, malt powder was not being used in the dough formula. In my world DMP = Dough Management Procedure. Sorry to get you mislead there.

Tom Lehmann/The Dough Doctor

[Re: Best pizza types for a small business?](#)

3856

The Hobart P-660 is the king of the 60-quart mixers. If you plan to mix only dough a spiral mixer might be a better investment.

Tom Lehmann/The Dough Doctor

[Re: 60 qt mixer](#)

3857

The long fermentation process both develops flavor in the crust and conditions the gluten for ease of opening the dough balls into skins. The idea is to re-ball the gassy dough balls and then allow them to relax sufficiently long to easily open into skins, this way you are not trying to open a gassy dough ball.

Bleaching has no impact upon the performance of the flour unless we are dealing with a high ratio cake flour, which to the best of my knowledge is not marketed in any Latin America countries.

Yes, you can go the gluten washing route but it will be a lot faster and easier for you to just make some doughs side by side using different flours and select the one which performs best for you. Can you get a bag of the flour that those other pizzerias, which say they are using bread flour, are using? For an 11-inch finished crust diameter I would suggest using about 250-grams for your scaling weight. Then experiment with the baking temperature to determine what temperature YOUR oven bakes YOUR pizzas best at.

Tom Lehmann/The Dough Doctor

[Re: Crispy Neapolitan style dough and questions](#)

3858

Is there any way you can get a delivery of your dough balls about half way through the event?

Managed properly, your dough balls should remain in good, usable condition for 3-hours once they reach 50F.

Tom Lehmann/The Dough Doctor

[Re: mobile on site pizza making](#)

3859

Only one, increase the dough absorption, the dough ball looks a bit tight to me. Start experimenting with 2% incremental increases until you get the oven spring you're looking for. My guess is you will end up in the mid to high 60's.

Tom Lehmann/The Dough Doctor

[Re: Suggestions for greater oven spring?](#)

3860

Unless you compensate by adding sugar to the dough formula.

Tom Lehmann/The Dough Doctor

[Re: What flour should I use](#)

3861

I've worked with Woodstone ovens for a long time, all you need to do is to find the correct bottom heat for the pizzas that you're making and forget about it. If you are targeting a short baking time or if you just like some additional color on the cheese I've found that I normally have to lift the pizza up into the dome for a few seconds just before removing it from the oven. Have you identified the rotation pattern for that specific oven yet? All of the Woodstones that I've worked with over the years have a clock wise rotation direction. Place the pizza at the entrance, just inside the oven (6 o'clock) for about 30-seconds or just until the dough releases from the deck. Then go to 9 o'clock, then 12 o'clock, then 2 o'clock, then move it to the center of the deck to finish (remember to spin the pizzas as your are rotating them in the oven).

Tom Lehmann/The Dough Doctor

[Re: Pizza Consulting](#)

3862

Victor;

How do the flour distributors distinguish between their different types of flours? That will be the key to finding a flour that will work well for you with the least amount of effort. Have you visited bakeries making pan breads (pan de caja) or similar types of breads to see what flour they're using?

The amount of yeast needed at higher altitudes remains the same as at lower altitudes BUT you will see the dough change in density much faster and to a much greater extent due to the reduced atmospheric pressure at higher altitudes. Reworking the dough/re-balling prior to opening the dough balls into skins will help to address this issue. Forming the skin a little thinner will also help as the dough will exhibit greater oven spring. The dimension of the rim can be addressed by making the rim/edge a bit thinner too as well as by increasing the baking temperature which will help the dough to begin setting-up in the oven faster thus limiting oven spring.

There has been some recent discussion on high altitude baking that you might want to research.

Tom Lehmann/The Dough Doctor

[Re: Crispy Neapolitan style dough and questions](#)

3863

What kind of pizzas are you trying to make? Or do you want to make? Do you have a dough formula and dough management procedure that we can review for you? Will/are you mixing the dough by hand or machine? These are all important questions

The advice that I always give to my students is to use a commercial bread type flour when just starting out and once you develop your pizza making skills then begin to experiment using different types of flours or other ingredients.

Tom Lehmann/The Dough Doctor

[Re: What flour should I use](#)

3864

\$1.13 (almost \$1.14) per pound.

There is a reason why I stick to G.M. Full Strength for under \$0.30 per pound.

I've never understood the high premium on Caputo, I realize that it's imported, but really at almost 4X domestic flour prices????

Tom Lehmann/The Dough Doctor

[Re: Caputo Flour \\$2.50 1kg Walmart](#)

3865

Don't worry about that Woodstone oven maintaining deck heat when things get really busy. That deck is at least 4-inches thick. The thing to remember when consulting is to work with the client to give them the pizza that "they want". You can make a suggestion but that's where you have to draw the line. The reason why I say this is because at the end of the day, if the pizza fails, and it's YOUR pizza, it automatically becomes YOUR fault.

Now, if they are contracting with you to develop a menu or a pizza for their specific market, you have a clean slate to work from.

Speaking from 50-years of experience.

Tom Lehmann/The Dough Doctor

[Re: Pizza Consulting](#)

3866

I've been able to do that in conventional deck ovens but not very well in really hot wood and coal fired ovens.

Tom Lehmann/The Dough Doctor

[Re: Making a batch of pizzas for WFO and peel/oven transfer](#)

3867

Peter;

This is a great article. It really underscores the reason why pizza, in one form or another, has remained so popular, not just in the United States, but for the most part, world wide. It exhibits the ability to morph and change to meet consumer demands without loss of product identity. It has gone from what was once called a "snack food", to a low cost quasi meal (remember the great pizza wars of the 70's?), to a high value meal entree (in the 80's the mantra was "we put more toppings on our pizzas than anyone else") and then it morphed into a convenience food/meal entree with the introduction of the Freschetta and DiGiorno type pizzas which coincided with the introduction of the take and bake concept (think Papa Murphy's/Figaro's), in addition to all of this there was the thick crust period followed by the thin crust phase and more recently it had to be baked with a "brick" in the oven which has lead us to the artisan style pizzas and just to keep things interesting the toppings used on the pizza continue to evolve, multiple cheeses, multiple meats, herbs in the crust, Tex-Mex, Asian, Italian (whatever that is), low carb, and now we have gluten free and the introduction of new, different topping presentations, all of this has transpired without the pizza losing its identity. The purists may not wish to call it "pizza" anymore but to the average consumer it's still pizza and that's what counts.

To give you an idea of how popular pizza really is, I was credited with introducing pizza into Saudi Arabia, so how did the pepperoni go over? Well, we didn't use pepperoni, instead we used chicken, lamb, goat, and fish for the meat toppings, the Saudis were already big into vegetables so that part was an easy sell. Today there are frozen pizza manufacturing facilities in Riyadh. There are not many, if any cultural boundaries that pizza cannot cross, again all of this is accomplished while still retaining its identity.

Long Live Pizza!!!

Tom Lehmann/The Dough Doctor

[Re: Consumer pizza preferences evolving](#)

3868

I saw this advertised the other day.....It's a SANDWICH! They can call it what they want but it's still nothing more than a sandwich, and not a very enticing one either.

Tom Lehmann/The Dough Doctor

[Re: Arby's dives into pizza](#)

3869

Remember, it is not what YOU think about the finished crust, instead, it's what YOUR CUSTOMERS think about it. Go with the flow man! If the customers are happy you too will be happy, not a bad place to be in :).

Tom Lehmann/The Dough Doctor

[Re: Help with my recipe](#)

3870

Why so much dusting flour? After balling the dough try just wiping when with a little salad oil when placing them into the cooler.

Tom Lehmann/The Dough Doctor

[Re: Help with my recipe](#)

3871

By all indications your flour is much too low in protein content. Do you have access to a different flour or type of flour? How about vital wheat gluten?

Tom Lehmann/The Dough Doctor

[Re: Best pizza types for a small business?](#)

3872

Actually, while the mixing process does incorporate air into the dough a lot of those nuclei are formed as a result of the air in the flour. The air is entrapped in the dough as the flour hydrates. When we did work along those lines back in the early 70's we were mixing doughs under a vacuum to eliminate as much of the nuclei as possible, it didn't matter if the dough was mixed to gluten development of just barely incorporated, when mixed without the vacuum we got leavened dough, but when we did the mixing under a vacuum we got a dough that had very little rise/leavening at all. The British have a bread making process (Tweety Bread Making Process) which mixes the dough under a partial vacuum which results in a finished bread with a very fine, dense crumb structure, as a side benefit to mixing dough under even a partial vacuum you get a significant reduction in total mixing time too. If anyone has a copy of the book Baking Science and Technology by E.J. Pyler, this bread making process is explained in good detail in one of the book's chapters.

Tom Lehmann/The Dough Doctor

[Re: The role of yeast during baking](#)

J;

Just for smiles and grins, try this method for opening the skin.

Use a rolling pin to carefully open the dough ball to about 2-inches less than the desired finished skin diameter, then bench stretch the skin to near full diameter, be sure to pick up the edge of the skin and using your fingers finish opening the skin by stretching only the edge of the pizza. Your photograph shows a skin that was only opened from the center, not from the edge too. There have been some very good videos posted recently showing this procedure using a dough ball that is opened fully by hand, but in this specific case use the rolling pin, making several light passes rather than trying to roll the dough out in a single pass, this will help you keep the entire skin more uniform in thickness, then once you master that, you can easily progress to opening the dough ball fully by hand.

Tom Lehmann/The Dough Doctor

[Re: Dough still not right](#)

3874

Craig has the best solution but here is something that we did in Turkey a number of years ago that worked reasonably well.

1) Make all of your pizza skins.

2) Flip them over so they're resting upside down.

3) Use a hair dryer set on high heat and carefully play the heat over the bottom (side facing up) of the skin, the idea being to form a dry skin, nothing more.

4) Invert the skins back over onto your prep peels using fine corn meal or semolina flour for the peel dust.

5) Dress the skins.

6) Begin peeling prepared skins into the oven as needed.

Tom Lehmann/The Dough Doctor

[Re: Making a batch of pizzas for WFO and peel/oven transfer](#)

3875

While the yeast does generate gas during the very early stages of oven spring it is not sufficient to be considered a significant contributor to oven spring. Existing gas, air incorporated into the dough during mixing and water vapor are the main contributors. The thermal death point for yeast is about 135F so the length of time it takes for the dough to reach 135F would be the limiting factor here. That time can vary quite a bit with the thickness of the skin, it would be much shorter for a thin crust skin and much longer for a thick crust skin. Add to that the temperature and humidity within the oven which causes the dough to quickly skin over thus preventing further oven spring but not necessarily yeast activity. Due to all of these extraneous forces you will see little effect of more or less yeast on the oven spring characteristics of a thin crust BUT you will see a greater impact of yeast amount in a thick crust application. If you look at bread for example, oven spring takes place over about 10-minutes, maybe a little more in bread baking due to the much greater cross section of the dough (remember that dough is an excellent insulator), in many cases you can adjust the size of a finished/baked loaf of bread by simply adjusting the yeast level slightly, in other cases the yeast survives in the baking process long enough to allow for the development of the top crust, when this happens the crust is pulled free from the side wall of the load and lifted up creating a condition which is referred to as "scalping".

I hope this sheds a little light on your question, there is very little about baking

that is painted in black and white and fermentation combined with baking is a complex mix of chemistry, microbiology and physics hard at work. Remember, it hasn't been all that many years ago that Uncle Louie (Louis Pasteur) with help from a fellow named Anthony van Leeuwenhoek discovered that it was yeast which was responsible for fermentation, we have been researching it ever since trying to fully understand it.

Tom Lehmann/The Dough Doctor

[Re: The role of yeast during baking](#)

3876

PPJ;

If your intention is to make an "American" style pizza (I liken that to a Domino's pizza) why not just increase the dough absorption to 58%?

Tom Lehmann/The Dough Doctor

[Re: What do you think of this formulation?](#)

3877

The dough after mixing looks pretty rough, like it needs more mixing time. We normally like to mix the dough until it takes on a smooth, satiny appearance. The dough that I see in the first photograph is very under mixed. The dough balls look pretty good after the CF period (biochemical gluten development) but the last picture of the dough, to me, shows a dough that has not been properly opened into a skin...might that not be your problem?

Tom Lehmann/The Dough Doctor

[Re: Dough still not right](#)

3878

Steve, which would also account for more difficulty in opening the dough balls into skins.

Tom Lehmann/The Dough Doctor

[Re: Help with my recipe](#)

3879

I used to do a lot of work with flavoring companies and they always stored their herbs in the freezer, it helps to retain the original flavor profile much longer and it eliminates any possibility of an insect problem, just remove what you need and immediately place back into the freezer to prevent condensation from forming on the contents or the inside of the container.

Tom Lehmann/The Dough Doctor

[Re: How do I store Dried Oregano](#)

3880

There is no difference in performance between ADY and IDY when used at the correct substitution levels for your dough formulation. Whils ADY needs to be activated in 100F water (about 4 to 5-times the weight of ADY as water) a lot of people will add a very small amount of sugar to help activate the yeast but it isn't absolutely necessary. IDY on the other have is typically added directly to the flour without any pre-hydration/activation stage. My preference has always been for IDY as the activation stage for ADY is just another place for something to go wrong. To add more flavor to the crust try allowing the dough balls to CF for 3, 4 and 5-days to see if that gives you a flavor profile that you like. If that doesn't do it for you I'd suggest changing gears and going with developing and adding a sour to the formula. If you want to achieve more porosity in the edge try to maximize dough

absorption to achieve the softest dough possible. I assume you were saying that the dough is on the tough/elastic side when opening it into a skin, this is generally an indication that the dough needs more fermentation time which should be addressed by going to a longer CF time.

Tom Lehmann/The Dough Doctor

[Re: Help with my recipe](#)

3881

Agreed, the dough balls look good. Your finished dough temperature would help in determining if more fermentation is needed. You also note that you allow the dough balls to warm for an hour before opening them into skins, an hour may not be long enough, depending upon the room temperature, your best bet is to use your thermometer to check the internal temperature of the dough ball prior to opening. You want to look for a minimum temperature of 50F but that is the MINIMUM, you might find that your dough will be easier to open at 55 or 60F, so don't be afraid to experiment.

What characteristics were you saying you wanted to improve upon?

Tom Lehmann/The Dough Doctor

[Re: Help with my recipe](#)

3882

I've always advocated using nothing warmer than "tepid"(80 to 85F) water. The flour will hydrate a little faster in warmer water (70F) as opposed to ice water, but the amount of water absorbed by the flour will be the same.

Tom Lehmann/The Dough Doctor

[Re: Autolyse - hot water or cold water?](#)

3883

Type of mixer? How long are you mixing the dough and at what speed? What is your finished/mixed dough temperature? How long do you cold ferment for? After the CF period do you allow the dough balls to warm to at least 50F before opening them into skins? What kind of oven will you use? Will you be baking on a pan, disk, screen or hearth? Baking surface in the oven? Baking time and temperature? Lastly, you ask "how can I improve my final product?" (pizza) What do you see as being wrong with it or how would you like to see it changed?

Tom Lehmann/The Dough Doctor

[Re: Help with my recipe](#)

3884

Ashneil;

I found your e-mail address written on a scrap of paper on my desk so I resent the Dough Management Procedure to you again requesting a confirmation of receipt by return e-mail. If you don't have it or get it on your terminal soon check your junk mail/spam folder.

Tom Lehmann/The Dough Doctor

[Re: Best pizza types for a small business?](#)

3885

That should work just fine for you.

Tom Lehmann/The Dough doctor

[Re: dough management](#)

3886

It will depend upon the dough management procedure you're using. If you take the dough directly from the mixer to the bench for scaling, balling and boxing and then get it in the cooler all within 20-minutes you can vary as much as 2F on either side of the target finished dough temperature providing the targeted temperature is no higher than 80F. If your targeted finished dough temperature is 90F or close to it, the total variation before you see a difference will be closer to +/-1F of targeted temperature. Ditto if you will be allowing the dough to ferment prior to getting it into the cooler.

Tom Lehmann/The Dough Doctor

[Re: dough management](#)

3887

Dough which is fermented at room temperature is always going to be more gassy and more fermented at any point of time after mixing than one which is placed in the cooler soon after mixing for cold fermentation. During mixing air is entrapped within the dough forming a nuclei into which carbon dioxide and alcohol (byproducts of yeast fermentation) are collected, with time more carbon dioxide and alcohol are collected in these nuclei and the dough begins to expand ultimately becoming what we refer to as being "gassy", then the real fun begins when the dough is heated in the oven, now BOYLE'S LAW comes into play and all those gasses and alcohol begin to expand very rapidly creating what we call "oven spring".

Tom Lehmann/The Dough Doctor

[Re: Activity in the dough before balling](#)

3888

Already sent the D.M.P. to you. hope you received it, if not please resend your request as I do not retain communications for more than a day or two.

Use any salt you wish, you will not see any great difference. As for your pastry flour you may want to start out using no more than 12 to 16-hours (overnight) cold fermentation on the dough balls as pastry flour CAN be quite weak or unpredictable. If the dough performs well after 12 to 16-hours begin extending the cold fermentation time out to see how far your flour will let you cold ferment (CF) your dough.

Check around at local bakeries to see specifically which flour they use for making bread type products.

One other thing that I should mention, some pastry flours have a VERY HIGH level of starch damage so if you find that the dough absorption is very high (70%) or possibly higher this is a sure indication of high starch damage. Flour with high starch damage CANNOT be fermented for more than 60-minutes AT MOST. If you find this to be the case get back to me and I'll lead you through the process to make pizza crusts from that kind of flour.

Tom Lehmann/The Dough Doctor

[Re: Best pizza types for a small business?](#)

3889

Yep, can be done. In fact I wrote an AIB Technical Bulletin on the very topic a number of years ago titled: Chemically Leavened Pizza Crust. I've got some of the dough formulas posted in the PMQ Recipe Bank. Look in the "pizza dough" category and use "bake to rise" for your search word. One of the formulas shows the use of soda and SALP (sodium aluminum phosphate) for the leavening agent. Also, you can make a pretty decent VERY THIN, cracker crust by just deleting the yeast, rolling the dough out very thin and par-baking, then dressing the par-baked

crust and finishing the pizza as you would any other pizza. Think pizza made using Matzo bread for the crust...crispy but good!

Tom Lehmann/The Dough Doctor

[Re: Yeast free Dough?](#)

3890

CSNACK;

Amen to that!

Tom Lehmann/The Dough Doctor

[Re: Activity in the dough before balling](#)

3891

Joe;

Hot tap water? Good grief! It could be as hot as 120F/49C. You don't mention what kind of yeast that you are using but I will go out on a limb here and assume that it's IDY??? Your dough must be quite hot and I'm surprised that you are not pouring the dough out of the fermentation container. Here is an old trick to tell when a dough is properly fermented when fermenting the dough in bulk. Allow the dough to rise (undisturbed) until it finally stops rising and then begins to fall back onto itself (recedes), this is known as the first full rise. Note the time required for this to happen. Now punch the dough back down into the container (always punch the dough from the center, don't just bump it to make it recede) this results in blending/mixing the outer portion of the dough with the warmer inner portion and brings more nutrient to the yeast in the warmer center portion of the dough, the first full rise is considered to be 80% of the total fermentation time so divide the first full rise time by 4 and add that time to your fermentation schedule (allow the dough to ferment for that amount of additional time), the dough is now fully fermented and developed, no further fermentation is needed. Any fermentation beyond this point is purely for impacting the dough consistency as well as flavor impact upon the finished crust. Typically, dough that is fermented too long will not exhibit as much oven spring as dough that is allowed to ferment to something closer to full fermentation, so it all depends upon what you are looking for in the finished crust that will determine how long you will actually ferment the dough.

As for temperatures:

- 1) Adjust the water temperature to not more than 80F or 90F if you are using an autolyse.
- 2) Check the finished/mixed dough temperature, you should be looking for something around 80F/27C.
- 3) Monitor the room temperature during the fermentation period as it does impact the rate of fermentation over a 24-hour long fermentation period.
- 4) Check the temperature of the dough after the 24-hour fermentation period (take the temperature in the center of the dough mass) you should be looking for something between 85 and 90F/ 29 and 32C (but never over 32C). Ideally it should be 87F/30.5C. Strange things begin to happen to the dough when the temperature exceeds 90F/30.5C, bacteria can multiply at an accelerated rate creating "off" flavors and the gluten begins to disassociate (come apart/weaken) making for an overly soft and weak dough structure.

Tom Lehmann/The Dough Doctor

[Re: Dodgy flour or dodgy weather?!](#)

3892

It all depends upon how you are planning to manage your dough. For me personally, I like to cold ferment my dough to develop the flavor profile that I like in

my crust so for me, I seldom ever allow for any fermentation in the dough prior to scaling, balling and placing in the refrigerator. The reason for this is because fermenting the dough results in a change in dough density (the dough becomes less dense) due to the leavening of the dough by the yeast which in turn makes the dough a MUCH better insulator which impedes the ability of the dough to be cooled at a predictable rate in the fridge so my whole dough management procedure is off kilter. Plus, when the dough is allowed to ferment prior to balling and placing in the fridge the dough is MUCH more prone to showing differences in total fermentation due to differences in the finished/mixed dough temperature, the reason being that the less dense dough now traps the heat in the dough ball which in turn impacts the rate of fermentation. These issues tend to have a greater impact upon the dough as you CF for a longer time, for me I like to CF my dough for a minimum of 2-days but occasionally I will go out to as much as 4 or 5-days. The sweet spot for my dough, using my dough management procedure is between 2 and 3-days.

This is not to say that you cannot ferment the dough prior to scaling, balling and placing in the fridge, you certainly can BUT your dough management procedure must be designed to accommodate it. This is why we see so many differences in the dough management procedures used by home pizza makers. One common step that we often see when the dough is fermented prior to balling is re-balling the dough a few hours prior to opening, this allows the over fermented dough to be re-strengthened thus making it easier to open into a more uniform dough skin. For me, I just CF for whatever number of days I'm in the mood for, pull the dough out of the fridge 90-minutes before opening the dough balls into skins (this is when I do all of my topping prep) and then go straight into opening and dressing the dough skins and baking the pizzas. I like to keep my life as simple as possible. :)

Tom Lehmann/The Dough Doctor

[Re: Activity in the dough before balling](#)

3893

Shane;

I've found that it's not necessary nor desirable to re-ball a 24-hour cold fermented dough, just turn it out of the bag onto a floured surface, turn it over to have both sided floured, and begin opening the dough ball.

As for the dough "getting away from you" are you saying this because the size of the dough ball is quickly increasing? If so, I'm guessing that it is your altitude (7,600-feet) that is giving you that impression. It isn't actually over fermenting, there just isn't as much atmospheric pressure pressing on the dough so it expands more readily. The solution is to use less yeast and allow the dough to cold ferment for a longer time. It's probably the gassy nature of the dough ball that giving you the issues you have been experiencing.

Let me know if this moves you in the right direction or not.

Tom Lehmann/The Dough Doctor

[Re: RT vs CF skin stretching issues](#)

3894

A good grams scale should not cost you much over \$35.00 at the very most. The one that I use was recommended by someone here, it's the KD-8000. It operates on regular flash light batteries, I've had mine for several years now and I've yet to replace the batteries. I use it for all kinds of kitchen weighing chores such as venison for making jerky, vegetables for canning and breaking down those big lots of stuff that we buy at Sam's Club into smaller usable lots/packages. But you can buy a good scale for even less and a postal scale can come in handy at times too.

To convert a "recipe" to a "formula" portion out each ingredient at least 3 times putting each ingredient into its own container. Then weigh each container, subtract the tare (weight of the container) which will give you 3 times the weight of each ingredient, now just divide that weight by 3 to find the average actual ingredient weight.

Once you know the average actual weight of the flour divide each ingredient weight by the weight of the flour and multiply by 100. This will give you the ingredient weight in bakers percent. By the way, flour is ALWAYS 100%. Now, to build a dough using bakers percent. Decide how much flour you want to use, I like to express my flour weight in grams when doing this at home. Enter the flour weight in a calculator, then press "X" and enter the ingredient percent that you want the weight of, now press the "%" key and read the weight of the ingredient which is correct for the weight of flour that you have elected to use. Remember that all ingredient weights will be expressed in the same weight measures that the flour weight is expressed in (grams, ounces, pounds, kilograms, etc.) Now you know the basics of bakers percent.

Tom Lehmann/The Dough Doctor

[Re: Best pizza types for a small business?](#)

3895

John;

Thank you for the very kind words. Something that I coined many years ago and still live by today: "Knowledge learned but not shared is knowledge wasted." You will find a lot of sharing people here at this web site, I'm just one of the many.

Tom Lehmann/The Dough Doctor

[Re: question: how do you manage a multi-day ferment in a commercial setting?](#)

3896

Peter;

Great example and a study of why you need more than a concept to develop a great business or in this case restaurant.

Every pizzeria or restaurant that I've consulted with will tell you that the first thing we discuss in detail is customer service. I wrote an article on this a number of years ago spelling out how you can have great food and lousy customer service and fail miserably while the guy down the street has good/mediocre food but outstanding customer service and is doing very well. I find myself complimenting more and more on great customer service whereas a few years ago I never felt it necessary to do so as everyone had good customer service skills but today is a different world in my view, and customer service is severely lacking in so many places where it shouldn't be. I feel that by complimenting both staff and management on great customer service and tipping accordingly I am doing my small part to encourage this important aspect of any business. This is where I really feel that the small mom and pop stores really excel. For many years now my wife and I have traveled around the country looking for those great family operated restaurants and pizzerias where our business is appreciated rather than taken for granted. Lately we have been on a "kick" of visiting small, very small, family owned and operated "farmer cafes" around our state of Kansas. We have experienced great food and great conversation at all but a very few.....I sure can't say that for many of the big chains, but that's just me, a dinosaur from a different time.

Tom Lehmann/the Dough Doctor

[Re: Are the Fast Casual Pizza Places Having Problems?](#)

3897

Here is a dough formula that is about as bullet proof as it gets. It has record of over 35-years of success and it has been copied by many successful pizzerias over the years. The dough management procedure that it is made by gives you a very consistent and uniform pizza with little or no waste/loss.

Here is the dough formula:

Flour: strong bread type flour (12 to 12.8% protein content) 100%

Salt: 1.75%

Sugar: (optional) 2%

IDY: 0.375%

Water: 60 to 62%

Oil: 2%

The type of pizza made by this formula might be described as a New York style while other refer to it as a Domino's style. Whatever the case, it works well for making pizzas, calzones, bread sticks, garlic knots, dipping bread, focaccia, and if you brush it with melted butter and sprinkle with a cinnamon-sugar mixture it can be baked as is for a tasty treat or you can add a thin layer of ricotta cheese, some fresh fruit and garnish with a sugar-water icing for a dessert pizza which can be served hot/reheated or cold or even with a scoop of ice cream.

If you e-mail me at <thedoughdoctor@hotmail.com> and request a copy of my Dough Management Procedure I'll be glad to provide you with a copy.

This exact same dough formula and procedure are presently serving duty in the Bahamas, St. Kitt and the Dominican Republic so it is well suited to your climatic conditions.

Tom Lehmann/The Dough Doctor

[Re: Best pizza types for a small business?](#)

3898

Craig;

You're correct about the sea/ocean water as it is about 3.5% salinity but remember that if you are using, on average 65% absorption as sea water the actual salt contribution in bakers percent will be about 1/3 less so that brings us right back to something close to 2% or a little more.

Tom Lehmann/The Dough Doctor

[Re: Joe Beddia Pizza Dough query!](#)

3899

Peter;

Like any new concept, it takes off like a rocket and everyone has to have a piece of the action, then all of a sudden the consumer is bombarded with the concept at every turn and it becomes "old hat" to them so they go out looking for the next new thing to come down the pike. Like other concepts it will continue to remain with us but to a lesser degree and that means that some of the major players may decide that there just isn't enough profit in the concept to maintain all of their stores so they either close a bunch of them or in some cases all of them. I've found that the smaller chains and independents are better able to survive this type of down sizing so when the music stops they're the one now in the "captain's seat" and generally survive quite well. We have seen this many time but most recently in the growth and demise of the following:

bagel shops, donut shops, and the gourmet hamburger places, going back in time a few years we also saw the demise of the pie shops and it wasn't all that long ago that it seemed that every town had a sandwich shop (Subway wanna be) of one kind or another. Pizza, on the other hand, is variable beyond imagination, just think

of all the different pizza presentations that you can have or think up, add to that the fact that most independent pizzerias have a low overhead, decision making on a dime, and most of all no franchise fees to be paid, is it any wonder that the independents outlast the big box chain stores? Due to mistrust that consumers have in commercial food today (processed food, food safety issues, perceived wholesomeness of food in general (organic and non-GMO are classic examples) we're finding that many consumers are now buying their own food (from wherever they feel most comfortable) and preparing meals at home...one can only wonder how long that will last! This is being capitalized on by the independent operators who now promote sourced locally, organic, non-GMO, or whatever makes the consumer feel good about eating.

Ye gotta love the food industry!

Tom Lehmann/The Dough Doctor

[Re: Are the Fast Casual Pizza Places Having Problems?](#)

3900

My poor old head is spinning! :-D

Let me see if I can sort this out.

Assuming that you are planning to use a 2-day (48-hours) refrigerated dough management procedure.

1) On opening day you will have 300 dough balls in the cooler that are 48-hours old plus 300 dough balls that are 24-hours old.

2) If you only sold 200 pizzas you would use the remaining 100 dough balls on the following day (remember FIFO) and pull from the inventory of 48-hour old dough for the rest of the orders throughout that day. Whatever is left over at the end of the day will be used on day 3. If you end up pushing your dough balls out to day 4 you are being overly optimistic in the number of dough balls needed so you're probably going to need to cut back on the number of dough balls that you are planning to make tonight to give you an inventory of 24-hour old dough balls tomorrow. This is going to be an educated judgement call on your part.

3) If you have an unexpectedly large/busy soft opening and sell 500 pizzas you will have depleted your inventory of 300 48-hour old dough balls and have cut into your inventory of 24-hour old dough balls to the tune of 200 pieces, leaving only 100 pieces that will have 48-hours age on them for tomorrow, so to rebuild your inventory you will need to make 500 dough balls tonight (200 to augment the short inventory of 48-hour old dough balls (only 100) plus the 300 needed to provide the daily 300 dough ball inventory.

4) I've yet to see a true soft opening that ever outstripped its projected daily inventory of dough balls on the first day. That aside, if you really anticipate getting slammed at opening (I pity your staff) there is nothing wrong with making additional dough balls that will be 48-hours old at the time of opening and pushing them out to 3 or possibly 4 days if necessary if things don't go as planned.

It's the number of 2 day old dough balls that are being moved into the 3-day slot that you want to be watching because on the 4th day it becomes a case of use it or dispose of it (any number of ways to do this: by trash dumpster, by making the dough balls into something useful like bread sticks, garlic knots, etc., or by incorporating it into new dough at an amount not to exceed 15% of the new dough weight).

Most well managed pizzerias will only be moving a few boxes of dough balls from the 2 day slot into the 3rd day slot. This is an indication that the store always has "spec" dough on hand to meet daily orders with a little extra (just in case they get a special order like an office party or birthday party).

While it is never a good thing to run out of dough on your maiden flight, it does

occasionally happen (you're not a mind reader and you cannot be prepared for everything) but when it does happen I've found that people are really quite understanding, just don't let it happen again if at all possible, then you're going to begin getting a reputation that will be hard to live down, but if it does happen there are always ways to mend those fences, like a customer appreciation night (full price for the pizza but maybe a free fountain drink or a free order of bread sticks).

Tom Lehmann/The Dough Doctor

[Re: question: how do you manage a multi-day ferment in a commercial setting?](#)

3901

Joe;

To see if the flour is responsible for the issues #1, you will need to buy another bag of the same flour, just be sure it has a different lot number.

As for #2 I'd need to see your complete dough management procedure to give you suggested temps and places to take those temps, but if you do not have a targeted finished dough temperature and you are not monitoring that temperature you are missing one of the major control mechanisms for whatever your method of dough management might be, as I've said so many times before, "temperature is the key to effective dough management" and without effective dough management you cannot have dough consistency. While dough consistency may not be a great hurdle when making pizza at home it is a huge issue in a pizzeria setting. Where you are trying to train individuals in opening dough balls into skins you need to have the consistency provided by effective dough management.

If you can share your formula and dough management procedure we might be able to provide additional input.

Tom Lehmann/The Dough Doctor

[Re: Dodgy flour or dodgy weather?!](#)

3902

To Peter's point about the dried oregano, a number of years ago I was working with a pizzeria just outside of a retirement community. They couldn't give their pizzas away to anyone in the retirement community as everyone complained of heartburn after eating their pizza. Based on work that we did when I was employed at the AIB I removed both the dried oregano and the dried basil and replaced both with just fresh, green leaf basil, we did not add any oregano at all...it was never missed. We had some fliers printed off that we distributed to the residents of said retirement community, we invited them to come by for a free slice of pizza and a fountain drink (we figured that would be hard for them to pass up) we went on to mention that this was to celebrate our new, old world pizza made with garden fresh basil and sliced fresh, ripe tomatoes, and went on to say that this pizza is lighter (thinner crust) and does not give heartburn as other pizzas do. We invite you to try our new pizza and let us know what you think of it. Aside from the very positive comments that were received on the pizza during those first nights, we started getting return customers from the retirement community as well as glowing reports on how this was the first pizza they had been able to really enjoy for many years as it did not result in a severe case of heartburn.

In some cases the heartburn results from the acidity of the tomatoes used in making the sauce so this is why we used thin sliced fresh, ripe tomatoes to replace the sauce on these pizza, plus it didn't hurt that it contributed to the appearance of the pizza too making it look more "old world"/rustic.

This pizza didn't replace their regular pizza, it just supplemented it on the menu to it added to their bottom line.

In later years it was brought to our attention that mozzarella cheese was becoming less flavorful despite what the manufacturers were saying about it not changing....we found that the over use of dried herbs (oregano and basil) was overpowering the more delicate flavor of the cheese making the pizzas appear to have less and less cheese flavor. To demonstrate this concept we used to make pizzas at all of the pizza shows using just 4-ounces of mozzarella cheese on a 12-inch pizza but with fresh, green leaf basil replacing both the dried basil and oregano and the only questions we were ever asked from the audience was "what kind of cheese did you use? It's so flavorful!" Later on we did some sensory tests using only fresh basil, fresh oregano and blends of the two. We found that our sensory panel preferred the basil only to the fresh oregano only and that the combination of 75% fresh basil and 25% fresh oregano was the second most preferred.

Just some interesting things that we found out about dried basil and oregano.

Tom Lehmann/The Dough Doctor

Tom Lehmann/The Dough Doctor

[Re: How to minimize heartburn after eating pizza?](#)

3903

I've never seen it done without a mixer, the dough just keeps wadding up and getting worse by the minute.

Tom Lehmann/The Dough Doctor

[Re: From Pizza Pie to Humble Pie](#)

3904

I wonder what the count is on their pepperoni slices? Wasn't it P.H that did a pepperoni count of one of their pizzas a number of years ago but the fact in the matter was that they went to a higher count pepperoni. It would be nice to be able to see a calorie count between their pizza and a like one made by each of the other big box chains.

Tom Lehmann/The Dough Doctor

[Re: Little Caesars Pepperoni and Cheese Challenge](#)

3905

An old trick that I learned a long time ago in dealing with over fermented dough is to toss it back into the mixer and CAREFULLY mix the dough just until it becomes extensible, remove from the bowl, scale, ball, allow dough balls to rest for about 20-minutes and open into skins.

NOTE: If you over mix the dough it will turn into "elephant snot" sticky, stringy, gooey and you will need to trash it.

Tom Lehmann/The Dough Doctor

[Re: From Pizza Pie to Humble Pie](#)

3906

Simple, you project the greatest number of pizzas that you might sell in a single day, let's say that number is 300 pizzas. You then rebuild that inventory back at the end of each day, so if you only sold 200 pizzas you would only make 200 new dough balls if you have an unusually slow day you're going to have a lot more carry over dough balls so you would rebuild the inventory back to the full 300 or maybe even less if circumstances dictated. In any commercial operation the key is the ability to be able to accurately project sales. Here we know how different events at K-State or other city events impact sales so we plan ahead for them by adjusting out dough ball inventory. We like to work on a 36 to 48-hour cold fermented dough as this still

allows us to manage the dough for as long as 96-hours if that ever becomes necessary. In a commercial setting managing the dough for 48-hours has its benefits in that any unused dough balls can still be held for use up to an additional 2-days before using them becomes problematic from a quality and CONSISTENCY stand point, and if an unexpected caravan of Gray Hound buses pulls up out front unexpectedly one day we know that we can still use the dough at 24-hours if we absolutely need to. This is the same operating/dough management model used very successfully by the large box chains. Example in projecting sales and how local activities impact those projections: We have a very large annual local event coming up soon, the Country Stampede. With literally thousands of people attending this event you might think that a pizzeria would show a significant sales increase, wrong....historically we know that it has little or no impact on sales so no extra dough is made, but when the students start filtering back into town in mid August the cooler gets packed with dough balls. Heavy snow or really cold weather really dampens sales, but warm weather in January or February (even if for just a couple of days) can easily fill the store so we watch the weather and plan accordingly. For those times when we do have left over dough balls we have no hesitation in converting them to cheese bricks or garlic knots.

Tom Lehmann/The Dough Doctor

[Re: question: how do you manage a multi-day ferment in a commercial setting?](#)

3907

From your description it sounds like an over fermented dough. When the dough is significantly over fermented it becomes bucky/overly elastic, has a mind of its own to the point where I describe it as trying to open a tennis ball into a pizza skin.

Tom Lehmann/The Dough Doctor

[Re: From Pizza Pie to Humble Pie](#)

3908

In addition to what Craig has said in #1 above I'd like to add the following:
Amount of yeast used will also have an impact upon the thickness of the finished crust.

How you open the dough will affect it too, for example, if you want to minimize the edge or rim height open it using a rolling/pastry pin as opposed to opening it by hand which typically results in the greatest amount of oven spring resulting in greatest finished crust height.

And the dough absorption will also impact crust height, generally, the higher the dough absorption the greater the finished crust thickness and more rise to the edge.

Your dough formula and management procedure would help greatly.

Tom Lehmann/The Dough Doctor

[Re: Help! Many many many dough questions](#)

3909

QD;

One correction there, after 1.5 to 20-minutes mixing at low speed the dough will not be coming together to form a ball, but instead it will look quite shaggy but without much, if any, dry flour remaining in the mixing bowl, that's when you want to add the oil.

Other than that, let us know how it works out for you.

Tom Lehmann/The Dough Doctor

[Re: Gluten: Strength - Development - Arrangement](#)

3910

Two points I'd like to bring up.

1) When using a mechanical dough mixer there is no benefit to putting the flour in the bowl first and then adding the dry ingredients and blending them together...it's nothing more than a "feel good" thing.

2) By putting the water in the mixing bowl first followed by the flour and remainder of dry ingredients on top of the flour you will significantly reduce the total dough mixing time.

When comparing high speed mixing to low speed mixing, the length of time typically needed to achieve a properly developed pizza dough with a smooth, satiny appearance is some where between 17 and 25-minutes, while if you initially mix the dough for 1.5 to 2-minutes and then add the oil and mix for one additional minute in low speed and then immediately go to medium speed you should be looking at 8 to 10-minutes to accomplish the same level of gluten development. This was one of the things we used to demonstrate to our students at our annual pizza seminar.

Tom Lehmann/The Dough Doctor

[Re: Gluten: Strength - Development - Arrangement](#)

3911

I would consider a 9" peel as ideal or a 10" peel if you can find one or get one made.

Tom Lehmann/The Dough Doctor

[Re: Peel width for a 14" door width?](#)

3912

Hawaiian pizza with pieces of FRESH RIPE pineapple and Canadian bacon or ham (really not much difference) like'm both.

Tom Lehmann/The Dough Doctor

[Re: Pineapple?](#)

3913

For a 5 to 6-hour RT ferment all you need to do is to mix the dough until it takes on a smooth appearance. This typically constitutes about 50% of full gluten development. Biochemical gluten development will then take care of the rest for you.

Tom Lehmann/The Dough Doctor

[Re: Gluten: Strength - Development - Arrangement](#)

3914

You are confusing crumb "staling" with pizza firming shortly after baking. These are two very different phenomenon. Pizza firming soon after baking is a result of either loss of moisture from the crust or migration of moisture within the crust from the moist crumb portion to the much drier outer crust portion from where even more moisture is lost through evaporation. Crumb staling is a much more complex reaction between the starch and the protein resulting in a distinct firming of the crumb structure over time. This firming begins soon after the product is baked but is essentially un-noticeable for the first 12-hours or so and then after that the firming becomes more and more apparent as time progresses. Just compare a bagel made fresh and one that is 4 or 5-days old to see what staling does to a product, but a bagel that is less than 12-hours old shows minimal deterioration in quality due to staling. The use of diastatic malt will have little or no impact on crust "firming" and if used at sufficiently high levels it will result in a

sticky dough that cannot be corrected and a crumb structure that is best defined as gummy.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3915

You might also consider posting your question in the Think Tank at PMQ, <www.pmq.com> at that web site is visited mostly by store owners.

Tom Lehmann/The Dough Doctor

[Re: Looking for a new pos system.](#)

3916

For testing purposes I would suggest the following:

- 1) 25% Guar + 75 Locust bean.
- 2) 50% Guar + 50% Locust bean.
- 3) 75% Guar + 25% Locust bean
- 4) 100% Locust bean.
- 5) 100% Guar.

Not knowing the strength of the gums that you have available it is impossible to say which combination would work best in your application. If I had to choose a single combination it would be #2 above. Be sure to follow the manufacturer's/suppliers directions for hydrating the gum prior to addition to the dough.

If you find that the crumb is too gummy this is an indication that the amount of gum being used is too high. I like to begin at 2% addition level and bench mark from there to establish the use level for the gum at hand.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3917

Same here, only way to eat it fresh, with salt. That was back in the days when salt wasn't the poison that it is today...hummm, wonder what changed?

Today my wife and I also love it as a rhubarb pie (hold the strawberries please) and as a preserve.....really good! :)

Tom Lehmann/The Dough Doctor

[Re: Rhubarb Bonanza!!!!](#)

3918

I totally agree with Essen1, it would help us to figure things out better if you can get us the weight measures rather than volumetric portions.

Aside from that, don't put the dough into a Zip Lock bag, instead, just cover the bowl with a piece of stretch wrap.

Rather than using "warm" water to activate the yeast and add to the dough, instead use a thermometer to measure the water temperature (100F) for hydrating/activating the yeast. By the way, you should be using about 4 times the weight of the yeast as water to hydrate the ADY in. Allow the yeast to hydrate for 10-minutes, 1-minute is not enough time. The remainder of the water that you are adding to the dough should be between 75 and 80F.

What does your dough look like after the CF period?

After taking the dough out of the fridge use your thermometer again to measure the temperature of the dough ball, do not begin opening the dough ball into a skin until the dough ball reaches an internal temperature of at least 50F.

How are you opening the dough ball into a skin? You mention the dough being about 1/4-inch thick throughout, are you using a rolling pin to open the dough ball into a skin?

What size skins are you making?

Are the skins easy to open or do they fight you?

Sorry to have more questions than answers right now, but the answers to these questions plus the actual ingredient weights will help us to better understand your dough and figure out what might be happening.

Tom Lehmann/The Dough Doctor

[Re: reasons dough wont rise in oven](#)

3919

Corn flour no, wheat bran yes (but it will impact the color of the crust).

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3920

I've not seen any factual research done on the use of a poolish as compared to either RF or CF. To get the story correct you would have to do pH (acidity) measurements on the different doughs which is pretty easy to do but what is not so easy to do is to quantify the different acids present and their amounts between the different processes. I know a lot of people have done work along these lines but to the best of my knowledge all of the work has centered around just the flavor of the crusts and as we all know flavor is highly subjective especially when it comes to tasting things that are acid. Back when I used to do the sensory evaluations for AIB we always had a hard time identifying panel members who could accurately distinguish subtle differences in pH/acidity.

Tom Lehmann/The Dough Doctor

[Re: When is flavor maxed out?](#)

3921

The extra fridge time is what's making the difference. Because temperature is the major driver of fermentation if you try to compare 2-days CF against 2-days RT the RT will always produce the crust with the stronger flavor due to more fermentation...but the flavor will also be different from the flavor developed by CF. A 5-day CF dough should give you a pretty decent crust flavor that is typical of a CF dough. I think it takes 5 to 7-days CF for the optimum flavor to develop in the finished crust, but then crust flavor is highly subjective so some might argue that the best CF time is 3-days and others will say it's 10-days. What I'm saying is that if you really want a fair representation of CF flavor in a finished crust I think you are going to have to CF for at least 5-days.

Truth be known though, I'm not a purist when I'm feeding the family so most of my doughs get no more than 3-days CF at those times, but when I have a real taste for pizza, and it's just my wife and me, I plan ahead for at least 5-days CF time.

Tom Lehmann/The Dough Doctor

[Re: When is flavor maxed out?](#)

3922

If you use a RF before CF the dough is warm and is expanding quite nicely creating a great insulating dough which is very difficult to get cooled down. With enough time in the fridge you probably are getting the dough cooled down but I'll hazard a guess that only 25% of the time in CF is actually CF the rest of the time the dough is still warm so you are getting the flavor characteristics of RF.

My guess is that you are getting a finished flavor profile more closely resembling that of a dough which has been fermented at room temperature.

I was raised in the baking industry where room temperature fermentation is the norm rather than the exception and this is where the characteristic flavor of white pan bread comes from, for this reason I think that pizzas which are made using RF have got a flavor more closely resembling that of commercial and most home made breads. It is for this reason that I personally like the flavor achieved through CF, but that's just me, others may not have the same flavor association as I do or have a preference for RT over CF for whatever reason.

I had a professor who used to say "You pays your money and takes your pick".

Tom Lehmann/The Dough Doctor

[Re: When is flavor maxed out?](#)

3923

Pizzas made using a par-baked crust are firmer and crispier than a pizza made using a dough skin because the crust is baked not once, but twice driving off even more moisture than is normally possible with a single bake. While many find these characteristics desirable for their pizzas, if you want to have a softer, less crispy pizza the solution is to increase the moisture retention of the crust so that even after the second bake it has the same or approximately the same moisture content as a single baked crust. We did that very same type of research a number of years ago and found the approach to be quite successful. The key to achieving what you are looking for is to incorporate a gum into the dough as an added ingredient. The gum blend that we found to be most effective was a blend of locust bean gum and guar gum and when seeking out a commercial gum blend for this application we found that the Ticaloid Lite gum blend from TIC Gums Inc., Belcamp, MD Tel: 410-273-7300 was highly effective in this particular application. The amount of Ticaloid Lite that we used was 2% but if using another gum blend the amount will most likely be somewhat different. Gums are generally available throughout the world so if you need to search them out look towards a company making candy and jams and jellies as they are the most likely users of gums. If you cannot source gums try using potato flakes in your dough. Potato flakes have a very high absorption and tend to hold onto the water quite well resulting in an increase in retained water. Begin with 2% potato flakes/potato flour and work up in 2% increments. Be sure to add additional water to the dough with the potato flakes. With each 2% addition of potato flakes you will need to add roughly 5% additional water/dough absorption. If your dough formulation includes and sugar delete the sugar if adding potato flakes to prevent excessive crust color development. Another option to look at is the addition of fiber (which is actually just another gum), for example, wheat bran when FULLY HYDRATED will significantly increase the moisture content and moisture retention of the crust, the only problem being is the color imparted by the bran. If you have access to a light colored bran, such as pea or bean fiber these might be likely candidates for this application. To fully hydrate any fiber material place it in a container and add warm water incrementally over several hours until the fiber will not absorb any more water. Once you know the amount of water needed for a specific amount of the fiber you can prepare future batches by simply placing a scaled amount of the fiber material in a container and adding the required amount of warm water, stirring and allowing to hydrate for about 2-hours. The amount of fiber to add to the dough will vary with the type and purity of the fiber material, but it will most likely be somewhere close to 5% to achieve the results you're looking for. How effective is fiber at retaining water???? For those of you old enough to remember HIGH FIBER BREAD you will remember that it had the mouth feel of a

wet sponge. In that application the fiber content was about 30% of the flour weight, and water was the FIRST ingredient shown on the ingredient declaration.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3924

Because you need to ensure that the skin is thoroughly baked all the way through. At high temps only the bottom gets baked while the center of the crumb is not sufficiently baked to support itself resulting in collapse upon cooling.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3925

A couple of pictures of your dough balls at the time you are getting ready to open them into skins would help in determining if the dough is over fermented or not. Also, what is your scaling weight for what size pizza?

Tom Lehmann/The Dough Doctor

[Re: Dough still not right](#)

3926

BJC;

I'm guessing that you are using 50# of flour but you need to verify that. What kind of flour are you using? What is your targeted and actual finished dough temperature? Lastly, what is your present dough management procedure (be sure to include all steps, no matter how small as well as times and temperatures).

Actually, since your dough ingredients are given in weigh measures as opposed to volumetric portions, it is correctly referred to as a "formula". To convert your dough formula into bakers percent the flour is always shown as 100% and then, for each other ingredient just divide the ingredient weight by the flour weight and multiply by 100 and presto! You have the ingredient shown in bakers percent.

Tom Lehmann/The Dough Doctor

[Re: New to group](#)

3927

So much for product ingredient declaration! It's a good thing that stuff isn't being marketed in the U.S. as milk, eggs and soy are considered to be allergens and MUST be shown on the ingredient deck/statement.

So, with that aside, let's look at what each ingredient does in a pizza dough: Dry Yeast is for leavening the dough.

Canola seed coated in a vegetable oil doesn't make any logical sense at all. BUT vegetable or canola oil would be used in the mix to prevent ingredient segregation due to handling.

Salt is used as a multi-functional ingredient, flavor, control rate of fermentation, dough strengthening as just a few of its functions.

Milk powder could be used as a dough softening ingredient but more than likely it is being used to enhance crust color.

Wheat gluten is a dough strengthener, probably comes in pretty handy considering you are using cake flour.

Soya powder/soy flour has no real benefit specific to the dough.

Egg powder/dried whole egg again, no real benefit to the dough but it does contribute to crust color.

There is no real reason to coat the IDY with oil, and in fact it may detract from the performance of the IDY.

Let's go with the modification as proposed in my last response and bench mark from there. My professional guess is that all that other stuff is nothing more than fluff.

Tom Lehmann/The Dough Doctor

[Re: Hi Guys New Pizza Store "needing help with thinish pizza base"](#)

3928

When a rolling pin or pastry pin is used to open the dough it is done using multiple passes of the pin over the dough which in reality is quite gentle on the dough but a mechanical sheeter will accomplish the same thing in just 1, 2 or 3-passes which is MUCH more aggressive and tears the internal structure of the dough apart. In the world of BIG commercial sheeters there is a type of sheeting line called "stress free" which employs a satellite dough reduction station consisting of many smaller rollers which are specifically designed to contact the dough in such a way so as to emulate hand rolling of the dough. The biggest issue is when the sheeter is used to fully open the dough skin, in this case quite a bit of de-gassing of the dough takes place resulting in a very different finished crust appearance and texture. A number of years ago we developed a procedure for those operators who are "toss challenged" or who employ high school and/or college kids to work on the bench opening the dough balls into skins. The greatest challenge is to open the skin without getting overly thin spots in it. Our method utilizes the sheeter to open the dough to not more than 80% of the full diameter and then finish opening the skin by hand. This does not de-gas the dough nearly as bad as opening it to full diameter using just the sheeter, done correctly it does a pretty decent job of giving the crust a fully hand made/opened appearance and texture.

VERY STIFF cracker and thin crispy type doughs are all but nearly impossible to open by any other method except for using a dough sheeter to open it to full diameter, and the finished crust characteristics fit the expectations we have of a thin cracker or thin crispy type of crust so the sheeter fits well into making this type of crust.

Tom Lehmann/The Dough Doctor

[Re: Doyon DL18P for Sheeting Thin Crust... need advice](#)

3929

It sounds like you have wwwaaayyy too much oil in your container. How to get the right amount of oil in your container? Using a piece of paper towel, wet a small portion of the towel with oil and then wipe the container with the paper towel, if you can see a shine on the container you have enough oil.....you really don't need much oil at all.

Tom Lehmann/The Dough Doctor

[Re: Adding Oil Late - Problems](#)

3930

The cracking which you describe is due to dough that is either too dry or too tight.

Let's increase the yeast amount in the packet to 100-grams (a 50-gram increase) and reduce the salt to 150-grams. This will put the salt level in your dough formula at 1.5% and the yeast level at 1% IDY. The increase in yeast level will promote more fermentation within a given period of time resulting in a softer, more extensible dough which should open without cracking.

By far the most common reason for bubbling and blistering of the crust during baking is taking a cold dough skin directly from the cooler, dressing it and baking. When he is experiencing the problem tell him to pull a few skins out of the cooler and allow them to warm AT room temperature for 30-minutes before he dresses and bakes the skins....let's see if that addresses the problem.

Tom Lehmann/The Dough Doctor

[Re: Hi Guys New Pizza Store "needing help with thinish pizza base"](#)

3931

Pizza crust like bread isn't necessarily the best when made from "fresh" made dough, in that regard it is somewhat like beer, wine, bourbon and other fine liquors....they're better when aged, but then again, it is all what your customers have come to expect flavor wise. But I can say this, if you want to be able to compete with any of the larger chains, especially those like Pizza Hut and Domino's you will need to get some fermentation on your dough for flavor. It is my expert opinion that you can make your dough either once a day or every other day and still deliver a great and possibly better tasting product to your customers without the need to discard and dough while still working the dough right out of the cooler. Your premix package (350-grams weight) containing salt, sugar and IYD (AKA "goodie bag") will most likely be made up of the following amounts based on the addition of 10-kg. of flour:

Salt: 200-grams

Sugar:100-grams

IDY: 50-grams.

These amounts are based on the assumption that there has not been any filler added to the "goodie" bag/ingredient packet.

If you are trying to replicate the packet this might be a good starting point and then see if the dough made from this mix performs similarly to one made with the commercial premix packet.

Tom Lehmann/The Dough Doctor

[Re: Hi Guys New Pizza Store "needing help with thinish pizza base"](#)

3932

Reno;

Your last stipulation is a game changer. To achieve the characteristics and a decent flavor profile for your finished crust it will need to have at least some fermentation. Even an emergency dough requires upwards of 2-hours fermentation time before it is ready to use. Do you have walk-in coolers in your stores? If you don't have provision for dough boxes you can use sheet pans and bags to cover the pans of dough balls or a cover to enclose the entire rack, this would allow you to make the dough, scale and ball it and then allow it to cold ferment for 18 to 24-hours (minimum) or 72 to 96-hours maximum) before use. While we normally recommend that the dough be removed from the cooler and allowed to warm to 50F/10C prior to being opened into skins it can be formulated so as to allow the dough to be worked directly from the cooler if necessary. By this method there is little chance of ever running out of dough and there should be no lost dough at the end of the

day. The process that you have proposed will require that you be mixing dough continually through the day and any dough not used within the very short window of time that the dough is ready to use will need to be disposed of or made into a different product.

Tom Lehmann/The Dough Doctor

[Re: New Pizza Store "needing help with thinish pizza base"](#)

3933

Matt;

Use a container that is about 3 times the volume of your dough ball. Or you can always go the route of plastic bagging your dough balls (this has been discussed a number of times here).

Tom Lehmann/The Dough Doctor

[Re: What size container for proving dough](#)

3934

Davtar;

That crust looks awfully good!

Can you send a photo of the bubbles you are experiencing? Also, how much yeast are you using and what type of yeast is it?

If you are not already doing so you might try docking the skin prior to baking as this is the accepted way of controlling bubbling of the crust during baking. Since you want to have the well raised edge just dock the center portion of the skin.

You're making good progress.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3935

Can you provide pictures of the par-baked crust as well as your dough formula?

Thanks,

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3936

Craig;

NOW THAT I CAN BELIEVE!!! :-D :-D :-D

They also brought with them pies: Moon pies!

Candy: Mars Bars!

Cars: Saturn

And they left behind a silly looking dog....Pluto!

OK, I'm out...no more left that I can think of.

Pizza is just too good to have been invented by an earthling.

:-D :-D :-D :-D :-D :-D :-D :-D

Tom Lehmann/The Dough Doctor

[Re: Pizza was invented in NYC by Italian American immigrants not Italy](#)

3937

Some pizzerias put their dough balls on 18 X 29 aluminum sheet pans and then cover each sheet pan with its own large bag, place it into a rolling pan rack and place in the cooler. Some others place the individual dough balls into their own individual plastic (Food Bags), twist the open end into a pony tail and tuck it under the dough ball as it is placed onto a sheet pan and taken to the cooler (no further covering is needed in this case. Still others like to place the dough balls onto the

sheet pans and then cover the entire rack with a rack bag or better yet a plastic rack cover (you can buy them ready made or it is usually cheaper to have them made for you at a local upholstery shop), the front is made as a flap which is secured with tabs of Velcro.

None of these will typically require any open exposure to the air in the cooler (like cross-stacking). If a dough box is used it is almost mandatory in a pizzeria that you cross-stack the dough boxes for a minimum of two hours before covering the boxes for storage.

I am not aware of anyone that does not cover the dough balls, pans or racks to prevent excessive drying for the time the dough balls will be in the cooler, this is especially critical in a commercial establishment where there will be significant traffic in and out of the cooler at the same time the dough is being stored in the cooler.

Tom Lehmann/The Dough Doctor

[Re: Dough Trays vs. Plastic Baggies???](#)

3938

Thin cracker doughs are typically made using 45% +/- dough absorption, sometimes even less. The dough in the video has a higher absorption than that. In the end though buy what you are most comfortable with but keep in mind that you will probably need to tweak the dough (absorption and fermentation time) a bit to get it to run smoothly through any sheeter. Cracker type doughs are notorious for requiring multiple passes through the final sheeting roll.

Tom Lehmann/The Dough Doctor

[Re: Doyon DL18P for Sheeting Thin Crust... need advice](#)

3939

Different mixer, different flour, different shop....so what has changed? :-D

The difference in water hardness between 1-grain and 7-grains is essentially nothing, considering you need to have 35-grains or more before the water is considered to be hard water, so for now let's rule the water out.

Then there is the mixer, your mixing times should be similar between a 60-quart or larger Hobart planetary mixer and a spiral mixer, BUT you didn't provide any information on the dough size or capacity of your new spiral so I can't say anything definitive.

And then there is the flour, unlike hockey pucks (all the same) flour is more than somewhat variable, especially when changing brands. All A.P. flour is NOT created the same, some is more like a pastry flour while others are more like a bread type flour. Since there is no defined purpose for A.P. flour, unlike bread flour, pastry flour, cake flour, cookie flour, etc. it can be designed in whatever way the miller wants the flour to be designed....this is a fault with using A.P. flour, as there is little or no continuity between different brands of A.P. flour.

If the dough just feels stiffer than normal to you you might end up being lucky and just needing to add more water to the dough (yes, water is variable too). If you cannot replicate your old dough by adjusting the dough absorption you will most likely need to bring in a different type or brand of flour to experiment with.

I hope this help.

Tom Lehmann/The Dough Doctor

[Re: New to my spiral mixer, also solution to harder water than I am used to.](#)

3940

You don't have the catch tray with the Doyon in question so it really does make handling and feeding the dough more difficult. The Doyon is actually set up to do

straight grain sheeting with no turn while the Somerset sheeter referenced transfers the sheeted dough (first pass) onto a catch tray allowing the operator to easily turn it and add more flour if necessary before passing it through the second set of sheeting rolls. It's not unusual to pass the dough back through the second set of sheeting rolls a second time to get a reasonably round skin. This is easily done as the skin can be laid on the catch tray and carefully fed back into the sheeting rolls.

Tom Lehmann/The Dough Doctor

[Re: Doyon DL18P for Sheeting Thin Crust... need advice](#)

3941

Being perfectly honest with you, I'm personally not thrilled over the design of the sheeter for use in making pizza skins. Take a look at the Somerset Dough Sheeter #CDR-2000.

Remember that you will need to turn the dough piece 90-degrees between the first and second pass. The design I'm referencing here is much more user friendly in allowing you to do that. The price that I'm currently seeing for this sheeter is \$3,680.00 new.

Tom Lehmann/The Dough Doctor

[Re: Doyon DL18P for Sheeting Thin Crust... need advice](#)

3942

I run into that all the time when developing pizzas for a new pizzeria operation. We make a great Neo. Classical pizza and no one likes it, then we make a Domino's wanna be and it sells like gang busters. It all has to do with perception. One man's garbage is another man's fine dining. I've always said that regardless of what one might think of the pizza being served, the measure of a successful pizzeria is the fact that they are successfully selling their product and enough people think enough of it to keep them in business...who are we to say that they have a crappy pizza? It may not suit our specific tastes and that's what keeps the pizzeria down the street open, etc., etc., etc.

Tom Lehmann/The Dough Doctor

[Re: Pizza was invented in NYC by Italian American immigrants not Italy](#)

3943

I didn't say they invented it, I just said they ate it, and for the pasta I was commenting on portion size, not who invented it. There are very few, if any foods that haven't been passed around the world in one way or another, some cultures found something that they liked and embraced it while others shunned it. Sorta like Vegemite and Lutefish.

Tom Lehmann/The Dough Doctor

[Re: Pizza was invented in NYC by Italian American immigrants not Italy](#)

3944

Up until fairly recently (1960's) commercial cracker doughs were fermented in wood dough troughs. When they were required by law to stop using the wooden troughs it was found that the flavor of the crackers had changed....what had happened?

After a little investigation it was discovered that the wood had become impregnated with bacteria (a type of lacto-bacillus) lactic acid forming bacteria common to sourdough production, which in turn resulted in a higher level of lactic acid in the dough which impacted the finished cracker flavor. As a result of the cracker sponges being fermented in a steel trough it was necessary for the bakers

to add a lactic acid culture to the sponges to replicate the flavor previously had when fermenting in the wooden dough troughs. Point is, don't wash your dough box, just scrape it out and with time you might be rewarded with the development of a unique flavor in your baked pizza crusts, or anything else made from the dough fermented in your wooden dough box. In case you're wondering, cracker sponges were fermented for 18 to 28-hours, but now since they are adding the live cultures to the dough that time has been reduced to something in the 4 to 6-hours range.

Tom Lehmann/The Dough Doctor

[Re: Home made dough box](#)

3945

I seriously doubt that anyone had an 18-inch pizza prior to it coming to the U.S. Like spaghetti, as any Italian will tell you, in Italy they could live for a week on the portion of pasta that we, Americans, eat for a single serving. Roman soldiers were divided into 4-man squads, each person in the squad would gather any edibles during his days travel and at night they would make a rudimentary flat bread with each man contributing the toppings on the bread, it was then scored for four equal pieces and placed on the cooking stone in the center of their fire ring, some have likened this to an early predecessor of pizza too but think about it for a minute, what those soldiers were gathering along the way were various fruits, nuts and berries, then you put fruit and nuts into a bread and put a cross on top of it with icing you have something that more closely resembles the modern day hot cross bun than pizza.

That's my two cents worth.

Tom Lehmann/The Dough Doctor

[Re: Pizza was invented in NYC by Italian American immigrants not Italy](#)

3946

We just keep all of our par-baked pizza shells on an open rack near the oven (uncovered), and we discard any that are unused at the end of the day but if you place them on a wire tree rack at the end of the day and slip a plastic bag over the rack to prevent drying they can be saved for up to 3-days at room temperature. Typically, no special changes need to be made to the dough formulation but with that said, it all depends upon the dough formulation that you are using.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3947

IR non-contact thermometer \$12.00 at Menards or \$40.00 at Home Depot. Metal blade peel for peeling the pizzas out of the oven and a short handle wood peel for use as a prep-peel and peeling the dressed skins into the oven. Ace Hardware has a 12" short handle wood peel for about \$25.00 but you can buy from the internet for about \$5.00 less. There was also some pretty good discussion on wood peels a short time ago.

Tom Lehmann/The Dough Doctor

[Re: Infra red gun and Peel](#)

3948

The percent (%) in bakers percent of any ingredient is found by dividing the weight of the ingredient by the weight of the TOTAL WHEAT FLOUR and multiplying by 100.

In your example you have 100-grams of flour and 70-grams of water so 70 divided by 100 = 0.7 X 100 = 70% total dough absorption.

Tom Lehmann/The Dough Doctor

[Re: How to calculate Hydratation with Oil/Sugar](#)

3949

You might be trying to par-bake your pizzas at too high a temperature. Ideally, you should par-bake your pizzas at 425 to 450F/218 to 232C. Trying to par-bake at higher temperatures will always result in bubbling. The process makes a great pizza that is better suited to delivery than most fresh made pizzas, and the finished pizza is crispy too.

We do this procedure commercially at a local pizzeria, AJ's New York Pizzeria here in Manhattan, Kansas (we have been doing this for nearly 10-years now and very successfully too as Adam is getting ready to open another store in just a couple of days). If you would like to know more about this store please go to their web site at <www.ajsnypizza.com>

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3950

Davtar;

My advice would be to make your pizzas using par-baked shells. To make the shells just open your dough into skins, apply about 1/2 of the normal amount of sauce and bake until the crust just begins to brown (do not over bake) then store at room temperature until needed to fill an order. To use just add the rest of the sauce, cheese and desired toppings and finish off in in a hot oven. If using a deck over you will need to do the final bake on a screen but you can par-bake right on the deck. Total turn around time is about 5-minutes or a little less.

As for putting cheese on the par-baked crusts here in the U.S. it is not allowed due to food safety concerns, and if we do put cheese on the par-bakes we need to refrigerate the par-baked shells which defeats the whole purpose as it results in a longer bake time to finish the pizzas before sending them out.

Tom Lehmann/The Dough Doctor

[Re: PRE-cooked pizzas for delivery?](#)

3951

90F is a temperature where a lot of weird things start going on with dough as you can get bacterial fermentation in addition to yeast fermentation, additionally, 0.75% ADY I think, is on the high side. The highest I ever go with ADY when making pizza dough is 0.5%, so you probably want to think about dialing it back to maybe 0.25% and bench mark from that for further adjustments. Glad to hear that you're leaving the lid off for the initial cool-down period.

Tom Lehmann/The Dough Doctor

[Re: re-balling dough leads to massive air pocket?](#)

3952

Most of the time my personal preference is for using fresh herbs whenever possible. There just isn't any comparison between dried basil and oregano and the fresh/green leaf counterpart. Ditto for garlic too...fresh every time possible. One year between houses we had to live in an apartment without any garden space but we always grew potted basil and oregano in the south facing window.

Tom Lehmann/The Dough Doctor

[Re: Which dry spices are worth and which are not?](#)

3953

Peter;

A good number of years ago I had a contract with different states which required me to make presentations and provide training to inmates in state penitentiaries (ten in total). The topics covered were bread and pastry and pizza baking. The idea was to provide the inmates with a skill set that they could use after their release. Very few bakeries or pizzerias require that their employees be bonded. It's a great idea, I wish there was more of it.

Tom Lehmann/The Dough Doctor

[Re: Teaching Inmates in the Art and Craft of Pizza Making](#)

3954

CP;

The dough that is shown in the container appears to be over fermented. What is your finished/mixed dough temperature? Dough that is warmer than usual will accelerate fermentation leading to an over fermented dough condition. Do you lid/cover the containers immediately or do you leave them uncovered for a few hours in the fridge before covering? This practice can significantly accentuate any slight increase in finished dough temperature. This is why we suggest leaving the lid off for the first 2 to 3-hours in the fridge. Simple matter to check the operating temperature of your new fridge, ideally, you want it operating in the 36 to 38F range.

Hope this helps.

Tom Lehmann/The Dough Doctor

[Re: re-balling dough leads to massive air pocket?](#)

3955

Salman;

I think you meant to say 800F not 800C (almost 1,500F). Since electric heating is a dry heat as opposed to gas where water is a by-product of combustion electric heating will always produce a dryer finished product than gas (all things equal). You don't say at what temperature you're baking your pizzas at, but a lower temperature and possibly 2% sugar (16-ounces) might help you reduce the baking time to retain more moisture in the crust. Going to a slightly thicker crust will also help. Not knowing how soft you want the crust to be you could also experiment with adding some mashed potato flakes to the dough. Start with 2.5% dry, mashed potato flakes then add sufficient additional water to re-hydrate the potato flakes. This has been used by bakers to produce softer bread for well over 100-years. If you find that the crust color is too dark when adding potato flakes reduce the sugar accordingly.

Tom Lehmann/The Dough Doctor

[Re: help needed with making pizza using an electric Oven](#)

3956

If you were to "bulk" ferment for, let's say, 24-hours and then subdivide the dough into desired weight pieces, open the dough pieces into skins and make your pizzas right away you would probably have a problem getting anything resembling a round pizza, but that isn't necessarily a bad thing...who ever said pizza had to be round? There are a lot of "free form" pizzas being made these days. If you were to form those dough pieces into balls and then try to open them into skins you would most likely find that it is difficult or even bordering on the impossible to get a skin with a uniform thickness and without excessive dough memory/snap back. The way we address this is to allow the dough balls to "ferment" for a period of time which allows the dough to relax making opening it into skins a much less challenging

proposition. With that said, why even "bulk" ferment? While in commercial practice there is a decided difference between bulk fermentation and fermenting individual dough balls, in a home setting there is little, if any real difference. The dough weight/size that we are typically looking at in a home setting is in many cases no larger than the actual dough ball weight in a commercial setting (I just returned from working on a project where we were using 28-ounces for the individual dough ball weight). If we were to bulk ferment the dough the weight of the dough would have been just under 100-pounds. The fermentation dynamics are very different between 100-pounds and 28-ounces to be sure.

My own personal preference is to mix the dough and then subdivide it into desired weight pieces and ferment those individual pieces for whatever length of time I wish to use and that can be at either refrigerated temperature or at room temperature. I just find it a lot easier that way.

When discussing "proofing" and "fermentation" there is an accepted description for each. Fermentation is to allow the yeast and bacteria to leaven the dough, condition the gluten, and develop flavors in preparation for baking. Proofing, on the other hand is to allow for aeration of the dough through yeast and bacterial fermentation just prior to baking. Fermentation can proceed for any number of hours or days while proofing is seldom more than 2-hours, or so. The one exception to this is when we are making a 100% sourdough. In this case the proofing phase may take anywhere from a few hours to as long as 12-hours. This is due to the much slower fermenting properties of the sourdough as opposed to using yeast as the leavening agent.

Tom Lehmann/The Dough Doctor

[Re: Bulk fermenting vs Proofing](#)

3957

Since you are planning to bake both pizza and flat breads you might want to consider one of the gas ovens capable of reaching 800 to 900F.

Tom Lehmann/The Dough Doctor

[Re: commercial gas pizza oven recommendation ?](#)

3958

You don't say what your problems are but if you are getting clumps of discolored material worked into the dough this is due to adding the oil too soon resulting in oil being absorbed into a portion of the flour and then being incorporated into the dough mass. The other problem occurs when the oil is added too late in the mixing stage, in this case the dough is already quite cohesive and the oil just lubricates the mixing bowl resulting in the dough just riding around inside the bowl attached to the agitator and not getting any mixing action. If you are not adding the water to your mixing bowl as the first ingredient this can cause some problems in that the dough is so slow to clean off of the bowl that by the time all of the flour is hydrated there is a good deal of mixing energy put into the dough already, making the dough too cohesive to add the oil.

Tom Lehmann/The Dough Doctor

[Re: Adding Oil Late - Problems](#)

3959

Matt;

The time to add the oil is JUST AS SOON AS YOU DON'T SEE ANY DRY FLOUR IN THE BOTTOM OF THE MIXING BOWL, then just pour it in at a steady rate as the mixer is running on low speed. It should only take about 15-seconds or so to get all of the oil added, once it's added continue mixing at low speed for an additional

minute then mix at medium speed until a smooth dough appearance is achieved. The delayed oil addition mixing method is more important when using high levels of oil than when using low levels of oil. The reason for this is because if added in the traditional way (with the water) the oil floats to the top of the water, right where the flour is and the oil is absorbed into a portion of the flour. Oil and flour will make a great "rue" for making gravy but it does not allow for gluten development in that portion of the flour which has absorbed any of the oil leading to significant inconsistencies in your dough. It is our opinion that this is what has started the incorrect notion that the outside weather affects the amount of water added to the dough (dough absorption). Shortening, butter, margarine can all be added directly to the dough without using a delayed addition method of mixing.

Tom Lehmann/The Dough Doctor

[Re: When to add oil during mix](#)

3960

Scott;

Two potential issues come to mind; 1) The finished dough temperature is too high. 2) Your yeast level is too high.

Tom Lehmann/The Dough Doctor

[Re: Dough rising](#)

3961

ING:

Diastatic malt provides amylase to the dough which converts damaged starch in the flour to maltose (sugar) which is utilized by the yeast as a nutrient. Since there is a limited amount of damaged starch available for conversion diastatic malt is not a good candidate for providing sugar for long term fermentation, that job is best done through the addition of sugar such as sucrose, honey, corn sugar, or non-diastatic malt powder. When using diastatic malt it is common to utilize finished dough temperatures in the mid 70F to 80F range.

Tom Lehmann/The Dough Doctor

[Re: diastatic malt and rising time](#)

3962

Moving your pizza to a higher position in the oven will help to balance the top and bottom heat.

Tom Lehmann/The Dough Doctor

[Re: Detroit cooking question](#)

3963

Randy;

That method does a fantastic job of giving you a crust that is crispy all the way through, and best of all, it does a good job of retaining the crisp.

Tom Lehmann/The Dough Doctor

[Re: Cracker Crust Baking Temperature ?](#)

3964

Depending upon the specific type of cracker crust we have used either 425 or 450F.

[Re: Cracker Crust Baking Temperature ?](#)

3965

Advantages of a deck oven:

Infinite baking time (not controlled by a conveyor speed).

Capable of making a myriad of different types of pizzas and other foods (air impingement ovens tend to be more dedicated).

Has a "certain ambiance" (watching someone peel pizzas into and out of the oven).
Can be had with a fake log and fire in the oven to look like a wood fired oven for additional ambiance.

Can be had with baking capability of up to 900F.

Baking id done right on the deck or screens can be used as an option.

For deep-dish you will need to place a screen under the pan to prevent burning the bottom of the pan pizza.

Pizza goes in raw and comes out only when YOU take it out (this can be good or bad).

Biggest drawbacks:

You will need a FULL TIME oven tender.(a REAL fun job!/ NOT!)

Need to spin and rotate pizzas during baking.

Need to have 1.5 times the depth of the oven as free space in front of the oven for the oven tender to work in.

More labor intensive.

Generally not as energy efficient.

Larger foot print.

Less production capacity than an air impingement oven.

Not well suited to heavily topper pizzas.

May require a larger hood.

This is why your store concept typically dictates the type of oven you will use.

Tom Lehmann/The Dough Doctor

[Re: Which oven makes a better pizza.. Deck oven or the conveyor belt oven](#)

3966

We used to make ours using 24-hour cold fermented dough. The formula for the dough included 55% absorption, 0.75% IDY, and the flour that we used was GM Remarkable (about 13.5% protein content). I don't remember the dough weight that we used but I think we combined two of our 12-ounce dough pieces and used a 14-inch round 2-inch deep, deep-dish pan (dough loading = 0.15686 ounces per square inch of calculated pan surface area). We used a Belshaw Brothers Econo-Proofer set at 90F with 75% R.H. to proof the dough in the pan. We typically proofed the dough to about 3/4 of the pan depth before finger pressing the center of the dough down leaving the edge untouched. The dough was then dressed and baked at 425F in our Blodgett deck oven.

Tom Lehmann/The Dough Doctor

[Re: High rising, fast falling and selling for big bucks](#)

3967

I've not seen that specific pizza before but it looks a lot like one we used to make in our 2-inch deep pans (round as we didn't have square pans of the proper depth. We used to make them as you would a Detroit style pizza, allowing the dough to rise to about 1.5-inches in the pan before dressing and baking (425F for 18-minutes) (will vary with your dough formula). Most of our students didn't go for it as they always commented that there was just too much crust. Sorta like bread with a side of pizza.

Tom Lehmann/The Dough Doctor

[Re: High rising, fast falling and selling for big bucks](#)

I wrote a very detailed article on selecting the right oven for your specific application in PMQ Magazine that you might want to look up.

Additionally, your store concept needs to be considered when selecting your oven. For example, if your claim to fame is that we put more toppings on our pizzas than our competition and we plan on doing a land office business in DELCO a deck oven probably should not be on your short list of ovens to buy. Instead, an air impingement oven will do a MUCH better job of moisture management on your pizzas which is vitally important in the DELCO side of the operation.

As for ability to bake a great pizza, air impingement ovens do have that capability but the quality has to be built into the dough and assembly of the pizza. You can't just toss something together and place it into an oven which is pre-programmed to bake in a very specific manner and expect it to come out of the oven as a first class pizza.....GIGO to be sure.

Any of the new generation air impingement ovens are much better than the older ones (see my article on new generation air impingement ovens in PMQ Magazine (archives)). If you go to the PMQ Think Tank you will find that a lot of stores are now going with the EDGE OVENS and they are quite happy with the results they are getting. When we used to do the Ohio Restaurant Show (NAPIC Show), we demonstrated hot to get a hearth baked characteristic from an air impingement oven. The basics are:

- 1) No sugar, milk or eggs in the dough.
- 2) Set the oven temperature at about 500F (this will vary as some ovens work better at 490F while others need to go to 510F).
- 3) Set the baking time/conveyor speed at 4.5-minutes.
- 4) You MUST use the Lloyd Pans Hearth Bake Disk to achieve the desired bake. These disks were designed specifically for this one application.
- 5) Adjust the baking time as needed to achieve the desired crust color characteristics.
- 6) NOTE: When baking at these high temperatures you MAY need to modify your top finger profile to get the desired top bake characteristics. This is easily done and at no additional cost when purchasing a NEW oven as the manufacturer will provide complete oven set-up including finger profiling to bake YOUR specific pizzas.

Air impingement ovens have received a bad rap over the years due to the number of used ovens on the market, and from what I've seen, many are not properly profiled to bake the pizza in question. Here is an example: A good number of years ago I was communicating with a fellow at the PMQ Think Tank about his oven problems and inability to bake a decent pizza. We went through all the usual exercises but to no avail. So I questioned him again about his "new" oven and why he accepted it if it didn't bake HIS pizzas. Turns out his "new" oven wasn't "new" after all, it was just new to him, he bought it from some equipment supplier as a "pizza" oven, so it should bake his pizzas....right? Well, I got the serial number from the oven and called a friend of mine at the manufacturer and asked for a history of the oven. As it turned out, the oven was built for Red Lobster with a proprietary finger profile designed for baking fish, etc. NOT PIZZA! There in lies the rub, while all air impingement ovens may look like "pizza ovens" they may be configured to bake anything from pies, cookies, dog biscuits, buns and pastries, and on the outside they all look alike but when it comes to baking pizza, they sure don't bake like a pizza oven. Moral of the story, if you're buying a USED air impingement oven know how the top and bottom fingers work, know what a typical profile for pizza is in the oven you're looking at (they change with oven size, manufacturer and

whether it's gas or electric) and know what finger profile is in the oven you're looking at, when pricing the oven remember that you will most likely need to change out one or more of the top fingers to get the bake you want on YOUR pizzas and as an after purchase modification each finger will cost you on average about \$100.00 each so be sure to take that into consideration in the cost of the oven.

Tom Lehmann/The Dough Doctor

[Re: Which oven makes a better pizza.. Deck oven or the conveyor belt oven](#)

3969

Marvin;

I have a couple of questions to ask.

What is the temperature of the water that you put the ADY into?

When you say "wait 5-minutes" I'm assuming the mixer is running as I don't see any other dough mixing taking place.

What is the finished/mixed dough temperature?

You make your dough balls, what do you put them in?

Do you cover the container your dough balls are in right away or do you leave them open for a period of time, if so, how long?

After the dough has been in the fridge for 24-hours do you allow it to warm to 55 to 60F/12.7 to 15.5C before opening the dough balls into skins?

What method do you use to open the dough balls into skins?

Now for baking:

We need to know more about how you are baking your pizzas.

What is your baking platform (pan, screen, disk, or on the deck/stone)?

What is your baking temperature?

How long do you pre-heat your oven?

If you are using a stone or steel plate in your oven how thick is it and where is it positioned in your oven?

I know, lots of questions, but we really need to know more about how you're making your pizzas to fully answer your questions.

Tom Lehmann/The Dough Doctor

[Re: AMERICAN STYLE PIZZA - doubts](#)

3970

Aside from rearranging the toppings on your pizza the larger bubbles can also result in unwanted or excessive char on the crust.

Tom Lehmann/The Dough Doctor

[Re: Why is crust bubbling a bad thing?](#)

3971

Allow me to add my two cents worth.

Caputo flour and low deck/baking temperature don't usually play together very well unless you're adding sugar or malt to your dough formula which I don't think you're doing as you are baking at high temps. Second, the amount of "old dough" in a restaurant is typically limited to not more than 15% of the total dough weight. I don't know how this works with your dough weight. The idea at the restaurant level is to utilize any unused dough while NOT impacting the new dough in any way. To use more than 15% of the total dough weight will result in the old dough impacting the new dough in some way which will be determined by the dough formulation, age of the old dough and dough management procedure being used with the new dough. Old dough which is incorporated into new dough at a pizzeria will either be dough that was brought out of the cooler but was not used (think 4-hours RF) or at the end of the 3-day CF shelf life, again, it may have up to about 4-hours RF. As you

can see, there can be a lot of variation in the old dough, hence the need to control it, plus you can't afford to be changing the flavor of the crust. For home use I always tell people to just experiment to find a fermentation scheme that works well for you and then divide the dough into whatever size pieces you want to add to your new dough and freeze. They will keep in good condition for up to 2-weeks. To use just remove a piece of dough from the freezer, slack it out in the fridge overnight and place it at room temperature until it begins to show signs of proofing/life, it can then be added to your new dough anytime within the following 3-hours, or if you place it back into the fridge it will keep until the following day then when you use it just allow it to warm to about 60F before adding it to the new dough.

Tom Lehmann/The Dough Doctor

[Re: Not sure if my dough is over fermented](#)

3972

I just use canola oil, wipe it on in a thin layer on one side and bake it at 425F for about 30-minutes, remove from the oven and repeat on the other side. Repeat this a couple of times and you're good to go. DO NOT SOAK YOUR SEASONED STEEL IN WATER... EVER! The seasoning will begin to peel of. As you continue to use the steel it will continue to darken, this is what you want it to do as it will bake better as it darkens.

Tom Lehmann/The Dough Doctor

[Re: Seasoning steel](#)

3973

If I remember correctly the KK donuts are very light in weight, I'm thinking around 1.25 or 1.5-ounces. Since you have access to KK just weigh one of the donuts after removing most of the glaze. Fried donuts weigh the same after frying as they did when they went into the fryer. As for the texture/softness, they used to use potato flour in their dough formula to help keep them soft but with the advent of all the new enzymatic softeners available today it wouldn't surprise me at all if they had one in their formula.

What put KK on the map as for donuts is the fact that they were consumed fresh and hot and people were infatuated with watching their automated production line making the donuts....day old KK donuts???? Yeast raised donuts are toooooo goooooood when eaten fresh and hot! :)

Tom Lehmann/The Dough Doctor

[Re: Krispy Kreme Donut Recipe](#)

3974

You have to remember that in Chicago the old "traditional" thin crust pizzas are baked in reel type ovens which would be akin to baking on a 1/4-inch thick composite (Transite) deck in the middle of a home oven (no strong bottom heat at all). When baked in a traditional deck oven the baking times are considerably shorter due to the heat being applied to the deck as the pizzas are being baked.

Tom Lehmann/The Dough Doctor

[Re: South Side Thin Crust..](#)

3975

The Chicago style thin crust dough formula that we used to use was as follows:

Flour: (Ceresota) 100%

Salt: 2%

CY: 1%

Sugar: 1%
Water: 48% (variable) (65F)

Procedure:

Put water in mixing bowl, add salt and sugar.

Add flour.

Add CY (crumbled)

Mix at low speed for about 15-minutes or until the dough forms a uniform dough ball in the bowl.

Allow the dough to bulk ferment for 6-hours.

Cut a piece of dough from the bulk dough (about 9-ounces for a 12-inch crust).

Sheet the dough out to approximately 1/8-inch in thickness. This dough must be sheeted.

Trim or fit the dough to wood pizza peel.

Dress to the order.

Bake in a deck oven at 450 to 475F until the edges of the pizza develop a medium dark brown color.

Use a party cut for this pizza.

Note: This pizza will ONLY be crisp around the four edges (do you remember that as a kid? That's why the edges were the first to go.) the rest of the slices will be more like wet pasta but good none the less. We used to fold the center slices in half to eat them as they were too limp to pick up just about any other way. And remember to use RAW sausage with lots of fennel.

[Re: South Side Thin Crust..](#)

3976

Q.J.

A good test for you to try would be to increase the total dough absorption of the dough formula which I provided. If you increase it to something like 65% I think you will find that the dough may exhibit more oven spring.

Also keep in mind that as I've stated before, that formula can be used after 24-hours CF but it is not in its sweet spot until after 48 to 72-hours CF.

The problem that we have found with any dough formula is that when you increase the dough absorption sufficiently to maximize oven spring and create an open crumb structure the dough becomes too soft to be held for 3 or more days in the cooler in dough boxes as the dough balls will flow together as the dough continues to soften due to fermentation. Like any dough formula, it is subject to modification to give the desired characteristics and work with the dough management procedure being used and to a certain extent even the oven.

Tom Lehmann/The Dough Doctor

[Re: Need basic dough recipe for deck oven](#)

3977

If all things were equal and both doughs were managed the same I would guess that the use of the sour dough starter helped to acidify the dough for possibly slightly better yeast action (yeast likes an acid environment) it may have also provided more extensibility to the dough as an effect of the acid working to "mellow" the gluten and then there is the slightly higher dough absorption which all work to provide a softer dough that would exhibit more oven spring during the first few critical seconds of baking.

Tom Lehmann/The Dough Doctor

[Re: Need basic dough recipe for deck oven](#)

3978

I have to agree with Parallei, the two dough formulas are worlds apart different. Mine was not formulated to compete head on with a sour dough formula. Instead, it is a bullet proof dough formula for making a variety of different types of pizzas in both deck and air impingement ovens while providing a very good, usable dough out to 3-days with the option of going to as much as 5-days with a slight lowering of the finished dough temperature and good dough management practices....you said you wanted a good basic recipe and you got a good, basic "formula that ranks right up there with Dave Ostrander's (Big Dave) "Old Faithful" dough formula which he successfully used for many years in his restaurant with deck ovens. Keep in mind that different dough formulas serve different purposes.

Tom Lehmann/The Dough Doctor

[Re: Need basic dough recipe for deck oven](#)

3979

Caramelization is only a part of the flavor equation.

It is a very complicated thing...fermentation, acids, protease attack on the flour proteins, etc. all serve to degrade the proteins which are further degraded to a greater or lesser extent by the baking process.

Tom Lehmann/The Dough Doctor

[Re: Is it my imagination, or?](#)

3980

JPB;

No, you are not imagining things. Bread/crust flavor is developed through denaturing of proteins during the baking process and the longer and slower the bake the more proteins are denatured. Fast baking at high temperatures only denatures proteins on more of the outer portion of the crust, not all the way through. This is a well known and documented fact. When I worked in commercial bread production back in the early 60's we made two different breads from the same dough formula, one was just a run of the mill, open top, white pan bread with a baking time of 17-minutes at 440F while the other one was identified as an old fashion loaf, the only difference was that the old fashion loaf (sold at a premium price) was baked at 430F for 23-minutes (5-minutes longer), yes there indeed was a difference in overall flavor between the two loaves.

Tom Lehmann/The Dough Doctor

[Re: Is it my imagination, or?](#)

3981

I used to teach donut production at one time as well as serving as technical adviser to Mr. Donut back in the early 70's. A big part of the Krispy Kreme donut is that it is made by a different process than most donuts are (except for high speed commercially made donuts). They make their donuts using a pressure extruder which imparts the unique tight crumb structure and is also responsible for the tender eating characteristics. For making a KK wanna be at home a good procedure is as follows:

Mix until the dough forms a smooth ball in the mixer. DO NO OVER MIX.

Target finished dough temperature: 75 to 80F.

Immediately after mixing form the dough into a rectangular loaf shape.

Lightly flour the surface of the dough and drape with a piece of plastic to prevent drying.

Allow the dough to ferment for 45 to 60-minutes.

Roll the dough out to approximately 1/2-inch in thickness and cut using a hand

donut cutter.

Place cut (snapped) donuts onto a frying screen or a flour dusted canvas towel and allow to proof at 80 to 85F for about 45-minutes (you will need to experiment as you will probably be doing this at room temperature).

Transfer the proofed donuts to a donut fryer (345 to 350F) KK donuts only, regular donuts are fried at 360 to 365F.

Fry donuts on one side until lightly browned then flip and fry the other side until lightly browned, flip once more and remove from fryer.

Place fried donuts on a drip screen and allow to cool for just a couple of minutes (NOT MORE THAN THAT), then ice the donuts using a powdered sugar-water icing to which 1% vegetable oil is added and 2% glucose (corn syrup) has been added.

The icing is made using hot water and should be kept warm during use. The best way to ice/glaze the donuts is by dropping the donuts into the glaze and then turning them over, carefully remove from the glaze so as not to tear the donut apart, place the glazed donut onto a wood doll rod (3/8-inch diameter) suspended over a sheet pan to catch the dripping glaze. Allow the donuts to remain on the rod until dry to the touch (about 15-minutes).

NOTE: If the glaze is too thick it will be so heavy so as to actually pull the donuts off of the wood doll rod or it will be too thick on the donut. This being the case thin the icing ONLY with a simple syrup made by boiling two parts sugar and one part water until it comes clear, use hot to thin the glaze. The glaze will thicken as it cools so DO NOT keep adding simple syrup to thin it out, instead, warm the glaze and it will return back to the desired consistency....if you keep thinning the glaze it will never dry properly making for a wet, sticky donut.

I hope this helps.

Tom Lehmann/The Dough Doctor

[Re: Krispy Kreme Donut Recipe](#)

3982

When I was in China, Korea, Taiwan, and the Philippines I found the following to be helpful:

- 1) Use the highest protein flour you can get.
- 2) Keep your yeast level slightly on the low side for the type of pizza you're making.
- 3) Adjust the salt level to 2.5% go to 3% only if you dare to.
- 4) Keep the finished/mixed dough temperature in the 70 to 75F range.
- 5) When balling the dough ball it tight.
- 6) Keep the dough away from drafts.
- 7) Immediately after mixing scale and ball the dough then place into plastic dough boxes, lightly oil the top of the dough balls and cover the dough box(es).

Assuming that this dough will NOT go into the cooler/fridge it should keep for about 3-hours, possibly a little more. Once the dough becomes too gassy to use you can re-ball it, place it back into the dough box, lightly oil the tops of the dough balls and wait for the dough to loosen up sufficiently for use in making more pizzas. Another approach that has proven successful is to turn all of your dough into par-baked crusts/shells as soon as the dough can be worked. By doing this you can use a pretty straight forward, standard pizza dough formulation without any of the above adjustments. The par-baked crusts can be stored at room temperature for up to 3-days.

Tom Lehmann/The Dough Doctor

[Re: How to Keep the dough ready to use \(room temperature\) as long as we can?](#)

3983

The dough balls are still looking good, but I don't like to see the flour on them as it

can result in problems with crust texture later on, instead, this is why I recommend oiling the top of the dough balls after placing into the box. besides, the oil will help the dough balls separate easier when you start removing them from the box.

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

3984

Remove a dough ball from the box, open it to the desired size, dress it to the order and bake. Repeat for each order.

For dough balls that are at the end of the three hour use limit you can open them to full size and place onto screens (not pans) for refrigerated storage for use later in the day. Or if you want, just open the dough balls to about 3/4 of their full diameter and place onto the screens for refrigerated storage, then complete opening the dough to full diameter to fill an order.

Tom Lehmann/The Dough Doctor

[Re: Frozen dough ball management](#)

3985

As an ex-Chicagoan please allow me to weigh in on this conversation. We left Chicago in 1975. Up to that time there were few "outsiders" making pizzas in Chicago/Chicago area, beginning in about 1976 or 1978 there was an influx of "new" pizzerias offering different types of thin crust pizzas which were different from those which we were raised on (Ed and Joe's in Tinley Park, or Ken and Dick's and Beggar's in Oak Forest). Beggar's has now evolved into a regional chain on the south side/south suburbs. Add to that the fact that was an influx of new people into Chicago suburbs who for the most part (my personal opinion) didn't have a clue as to what Chicago style pizzas were all about.....What?! Wait 30-minutes or more for a pizza??!!! Ya gotta be kidding! As new pizzerias opened they found ways to make their pizzas in much less time but many of the unique qualities of the original Chicago pizza were lost. I still have family living there so I have a chance to try some of the old established pizzerias in business for for 20-years (you have to make that 50-years minimum to be "original" in my books, or your pizzas have to measure up to those standards to quality for me. Point is, yes, pizza has changes, just like it has everywhere and there are always those old traditionalists who seek out the old classics for the memories associated with them not necessarily because they're the best pizza ever. This is true in New York City as much as it is in Chicago and other cities I'm sure. A "new norm" is slowly being established. This is why I respect Tony G. in his efforts to preserve at least one type/style of pizza, maybe we need to do something along the same lines to preserve the original DNA of other unique types of pizza such as New York, New Haven, Chicago, St. Louis, to name but a few before they are lost to evolution. Hummmm...How about a Jurassic Pizza Park School? We can always dream.

Tom Lehmann/The Dough Doctor

[Re: South Side Thin Crust..](#)

3986

Here's the procedure for using frozen dough balls.

1) Remove from freezer, lightly oil the dough balls and place into dough boxes in the fridge/cooler.

2) On the following morning round the dough pieces into balls, place into dough boxes again, lightly oil just the top of the dough balls and cover the boxes, allow to remain at room temperature for 1-hour.

3) Un-lid the dough boxes and cross-stack in the cooler for 90-minutes, then down-stack the boxes and lid the top box.

4) Allow the dough balls to cold ferment for a minimum of 18-hours in the cooler before using.

5) To use the dough just remove the number of dough boxes that you think you will need to use during the next 3-hours after you begin opening the dough balls into skins.

6) When you remove the dough boxes from the cooler be sure to allow the dough balls to warm in the covered box until the dough balls reach 50F. This will take about 90-minutes, once you begin opening the dough balls (when they reach 50F) the dough balls in the box will remain good to use for the next 3-hours. Any dough balls not used within this period of time should be opened and placed on screens and stored in a wire tree rack in the cooler. Leave the rack uncovered for about 30-minutes then cover by slipping a bag over the rack. There pre-opened skins will remain good to use throughout the day. At the end of the day any unused dough balls should be converted to another product, like dessert pizza, bread sticks, or garlic knots. Simple Dessert Pizza: Open dough skin, brush with melted butter, sprinkle with a cinnamon-sugar mixture, add a few chopped pecans (optional) or some streusel (available from your food distributor) and bake as you do your regular pizzas. When cool, wrap and set aside at room temperature for use on the following day (remember, we're using left over dough). On the following day, remove from wrapper, cut into slices, reheat in the oven to serve, drizzle with a simple powdered sugar-water icing (store it in a plastic squeeze type condiment bottle) and serve plain or with a scoop of ice cream, and maybe a little topping syrup over the ice cream. Great way to make a huge profit from your dough that you were going to toss out.

Any dough in the boxes remaining in the cooler which were not removed during the day will keep until the following day.

Tom Lehmann/The Dough Doctor

[Re: Frozen dough ball management](#)

3987

Peter;

You are wise much beyond your years. Trying to control a chain made of franchised stores is akin to herding scared cats. :)

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

3988

Peter;

This is the old "milk ploy" consumers believe that milk is good/healthy so bakers use it at 2% to 2.5% so it shows up a little higher in the ingredient listing. At this level it has essentially no function except to make a consumer feel better about buying their product. The use of EVOO can be replaced in a dough using a lower cost olive oil, but then in most applications independent operators are not required to post ingredient labeling or calorie counts for their pizzas so I think it might be something of a moot issue unless you are one of the big box chains fighting for every piece of the market you can get. Then again, if advertising is important one can always advertise that "We use nothing but the finest grade, imported, extra virgin olive oil on all of our pizzas" Until you get into declared ingredient statements that can be a perfectly true statement regarding a pizza to which you added the olive oil post bake even though another oil might have been used in the dough.

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

3989

If you are going to use full or half sheets (which ever fits into your oven) you will need to use sheet pans. The problem is that normal sheet pans have a STRONG TENDENCY to warp/boat making baking in a deck oven all but impossible. To get around this there is a type of pan referred to as a souffle pan. This is a steel construction pan with sharp, creased corners which dramatically helps with the pan warping problem. These are the type of pans that a smaller bakery might use to make a souffle sheet for use in making jelly rolls. If you cannot find any in your area contact Lloyd Pans <lloydpan.com> or Paul Tiffany <ptiffany@lloydpan.com>. Note: Lloyd Pans also have a rectangular shaped flat screen that is perforated which might work very well in your application.

Tom Lehmann/The Dough Doctor

[Re: Parbake or Not](#)

3990

Shahab;

EVOO in my opinion is a waste of money when added TO the dough, instead, if you want to use olive oil IN the dough use pomace oil or any lower grade olive oil or even a blended oil works fine, then if you want the olive oil flavor add a sprinkling of EVOO on top of the pizza as soon as it comes out of the oven. The heat of the pizza will "pop" the aroma of the EVOO and your customers will love it.

There is no relation ship between the type of yeast used and the optimum cold fermentation period. The optimum CF period is instead dictated by the amount of yeast used, strength of the flour, amount of salt used, amount of sugar used, the finished dough temperature and if the dough is allowed to remain at room temperature for more that a total of 20-minutes after mixing.

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

3991

Here is my basic pizza dough formula that I have regularly used for over 35-years now. It is suitable for making both thin crusts and thick/deep-dish style pizzas by just increasing the dough weight appropriately. When managed correctly it will keep for up to four days in the cooler but is at its best between 36 and 48-hours.

Flour: Strong bread type flour (12 to 12.8% protein content)

Salt: 1.75%

Sugar: 2%

Oil: 2%

IDY: 0.375%

Water: 62%

Use delayed oil addition mixing method for best dough consistency.

Tom Lehmann/The Dough Doctor

[Re: Need basic dough recipe for deck oven](#)

3992

Ralanyo;

If you want to bake your pizzas on a par-baked shell/crust remember that the crust is already fully baked but the toppings still need to be baked so in this case the pizza needs to be baked from the top down not the bottom up as you would when

using a raw dough skin for making your pizza. Since you have independent temperature controls for the top and bottom heat set the bottom temperature at 450F and place the pizza on a screen then set the top temperature at 600F and bench mark from there. Depending upon the formulation and amount of bake on your par-baked shells/crusts you may need to make further adjustments to the top and/or bottom temperature to achieve the bake you are looking for.

Tom Lehmann/The Dough Doctor

[Re: Parbake or Not](#)

3993

Depending upon the type of dough and pizza you're making it can be as fast as 2.5 to 3-minutes on raw dough. Why may I ask are you trying to bake your pizzas so fast?

Tom Lehmann/The Dough Doctor

[Re: Parbake or Not](#)

3994

The dough balls as shown above look fine, maybe even a little under fermented so things are good at this point, let's see what they look like at the next stage of fermentation.

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

3995

Are you trying to bake your pizzas on the deck? Can't do that with your par-baked crusts but you might have a better chance of success using a pizza screen under your pizzas. This will hold the pizzas up off of the deck allowing the top of the pizza to get done without charring the bottom of the crust. If you can get your oven up to 800F and still want to baked on the deck you have a pretty decent chance to go with a raw dough pizza rather than a par-baked crust pizza. So, yes, you can go with a raw dough pizza if you want to. You will need to have a wood prep-peel and a metal blade oven peel for peeling the pizzas in and out of the oven and an oven rake/broom for cleaning the oven deck of charred debris. There will be a difference between the two types of pizza, those made using a par-baked crust are usually super crispy and retain their crispiness very well while those made using a raw dough skin are crispy at first after baking but with time become significantly softer and less crispy, but you can make so many different types of pizzas using a raw dough skin, and you will find that your crusts will probably have a better flavor and texture (if you do your part) than a par-baked crust.

Tom Lehmann/The Dough Doctor

[Re: Parbake or Not](#)

3996

The best way to freeze your dough is to get it into the freezer as soon as possible after mixing, failing at that your next best bet is to portion it, and then roughly shape it into a circle about 1" thick, place it onto an oiled aluminum foil pie plate and freeze it uncovered for about 2-hours, then wrap in stretch wrap and it should keep reasonably well for a week or so.

Tom Lehmann/The Dough Doctor

[Re: freezing dough](#)

3997

The purpose of "punching" the dough/sponge is four-fold, 1) It prevents a crust

from forming on the surface of the dough. 2) Since the outer portion of the dough/sponge is cooler than the inside fermentation is progressing more slowly on the outer portion of the dough/sponge mass so there is more yeast nutrient left in this portion, when the dough/sponge is punched this nutrient rich portion is brought into the center of the mass where it helps to feed the yeast. 3) The center of the dough mass is always warmer than the outer portions, when the dough is punched this cooler outer portion is mixed into the warmer center portion resulting in greater temperature uniformity throughout the dough mass which helps to regulate the rate of fermentation. 4) The punching action stretches the dough as does the rising of the dough which contributes to gluten development. The size or quantity of gas bubbles have nothing to do with it, but if you talk to some people they might add a fifth reason for punching the dough/sponge, and that is to help keep it in the fermentation container.

Tom Lehmann/The Dough Doctor

[Re: Degassing during slow bulk fermentation](#)

3998

The bag label indicates that you are using a form of IDY (instant dry yeast) so your yeast level should be OK as you have shown it in your dough formulation. My suspicion is that the yeast is running out of nutrient so adding 2% sugar or some diastatic malt would be high on my list of things to look at.

Can you provide any pics of the dough after 24-hours bulk fermentation and again 24-hours after balling? The reason I ask this is because if the dough is being over fermented it will become bucky and lack extensibility in which case steps will need to be taken to reduce dough fermentation. By seeing what the dough looks like after the two fermentation periods I may be able to make a determination if this is the case or not.

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

3999

Peter;

Pictures of your dough after 24-hours bulk fermentation and 24-hours after balling would help but lacking that for now I'm guessing that your problem is due to insufficient yeast or the yeast may have depleted all of its nutrient supply.

Test this by making a dough with 2% added sugar or a little diastatic malt to see if the yeast is more active and softens/mellows the gluten making for a more extensible dough, if that doesn't work try increasing the yeast to 0.5% (10-grams). I'm assuming your yeast is CY (compressed yeast?).

Tom Lehmann/The Dough Doctor

[Re: How to improve my dough.](#)

4000