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Send address changes to:

**Zymurgy, 1327 Spruce Street
Boulder, CO 80302**

Printed in the USA.

Published by the American Homebrewers Association, a division of the Brewers Association. The purpose of the Brewers Association is to promote and protect small and independent American brewers, their craft beers, and the community of brewing enthusiasts. The Brewers Association is a not-for-profit trade Association under Section 501(c) (6) of the Internal Revenue Code. Offices are located at 1327 Spruce Street, Boulder, CO 80302 USA. Membership is open to everyone. **Zymurgy** (ISSN 0196-5921, USPS 018-212) is the bi-monthly journal of the American Homebrewers Association and is published six times per year. Periodicals Postage Paid at Boulder, CO and additional mailing offices. Canada Post Agreement Number 41197537. Annual memberships are \$49 U.S. and \$63 international and include a subscription to **Zymurgy**.

Changing your address? Let us know in writing or e-mail your address changes to info@brewersassociation.org.

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Are We There Yet?

Well, here it is: the final issue of *Zymurgy* for 2020. Are you tired? I sure am. I shall shed nary a tear when 2020 reaches its end. I hope it goes quietly in the night.

This year has not been kind to humankind, nor, for that matter, have we been particularly kind to ourselves. A viral pandemic has forced us into physically distanced bubbles. Wildfires have forced our friends and family members from their homes. In too many cases, we find ourselves in social and political echo chambers where considering perspectives different from our own can be seen as a sign of weakness.

And we mustn't forget about the murder hornets.

Not all has been grim. I write this on the heels of having taken part in judging the 2020 Great American Beer Festival (GABF) commercial competition. Had this been a normal year, more than 300 judges from around the world would have converged on Denver for three days to evaluate close to 10,000 entries in a large event room with a (recirculated) air of conviviality. This was, of course, not a normal year.

Instead, just 115 judges—all from the United States—evaluated nearly 9,000 entries over the course of three weeks in a 20,000-square-foot ($1,800 \text{ m}^2$) warehouse with single-pass ventilation, one-way traffic patterns, and enough hand sanitizer to fill a modest dinghy. Tables were widely spaced and configured in a way that kept judges at least six feet (two meters) apart from one another. Such distances meant getting in a bit of a stretch to reach the dump buckets, but any exercise is welcome exercise in a day of beer judging.

Face masks and plastic face shields were obligatory. Masks came off during active tasting, but face shields remained in place at all times. The personal microclimates that developed within those shields trapped volatile beer aromas just as effectively as they harbored specters of the morning's breakfast

burrito, buoyed aloft from the sated depths on clouds of hops-infused carbon dioxide.

Despite the unusual circumstances, the air of conviviality remained. It was a treat to reconnect in person with colleagues I hadn't seen in analog form since March. It was delightful to meet new beer experts whom I won't recognize in the future because half of their faces were covered. (Seriously, when all this is over, we'll still need to wear masks for a while just to help with identification.) Evaluating beer and writing comments on paper offered a welcome change of pace from too many days spent before screens and a keyboard.

But, for beer lovers, autumn doesn't just mean GABF. It also means Oktoberfest. COVID-19 forced the cancellation of Munich's main event this year, as well as that of numerous smaller fall festivals around the United States. Seeking some normalcy, my wife and I organized a socially distanced fest for family members in the backyard biergarten.

Having run out of time to brew and lager a proper festbier, I whipped up a quick, three-week kellerbier that couldn't have been easier. The grist was 50/50 Pilsner and light Munich malts, enough to hit an original gravity of about 1.048 (11.9°P). I bittered it with 25 IBU of Mt. Hood, added another 10 IBU of Hallertauer Mittelfrüh at 10 minutes for flavor and aroma, and fermented with Weihenstephan 34/70.

Served cask style at 60°F (16°C) with only 1.2 volumes (2.4 g/L) of carbon dioxide, it went down easily—so easily that we kicked the cask in just a couple of hours and now I have to make it again. You should consider making it, too. I promise you'll like it. Even if you don't have great temperature control, Weihenstephan 34/70 can turn out pretty clean beer at close to room temperature.

Something else you should consider making is sauerkraut (see You Can Ferment That! in the Jan/Feb 2020 issue of *Zymurgy*). I prepared enough kraut to completely fill a slow cooker, and it took virtually no time at all. If you've not yet made sauerkraut, go buy yourself some cabbage and get on it. You can have delectably crunchy homemade sauerkraut ready in just a few days, and it's light years ahead of anything you can buy in the store.

I also roasted a handful of *Schweinshaxen*, those crispy Bavarian pork knuckles that

taste particularly refreshing after a couple of liters of kellerbier, but you'll have to figure those out on your own.

Beer judging and Oktoberfest offered welcome distractions from many of the challenges that 2020 has brought, just as they have brought a light interlude to an editor's column that began rather drearily. But I'm afraid I must abruptly revert to the somber tone with which I began, as no amount of writer's block (and there has been a great deal) has gifted me an ability to eloquently transition to my next topic.

We are up against existential challenges from which we cannot and must not look away. As a country, we are reckoning with systemic racism and disproportionate violence against people of color, but unlike in epidemics of a viral nature, separating ourselves from one another in this social sickness only worsens the infection. Cultivating an ability to listen to and learn from one another illuminates the only viable path to a cure.

Recently, all staff at the Brewers Association (parent organization of the AHA) took part in a workshop prepared by the Racial Equity Institute. The Institute's trainers offered a candid assessment of how structural racism permeates our nation's educational, economic, healthcare, welfare, and justice systems. Craft beer and homebrewing are not immune from such systemic disparity. AHA staff are currently reevaluating the products and services we offer through a lens of implicit bias and asking how we can do better. Because we know we can do better. We must do better.

Institutionalized racism is woven into the fabric and history of our country, and ameliorating it means going beyond simply striving to be compassionate, respectful, welcoming, and inclusive. To truly address racism and discrimination of all kinds requires that every single one of us actively work to be anti-racist and anti-discriminatory.

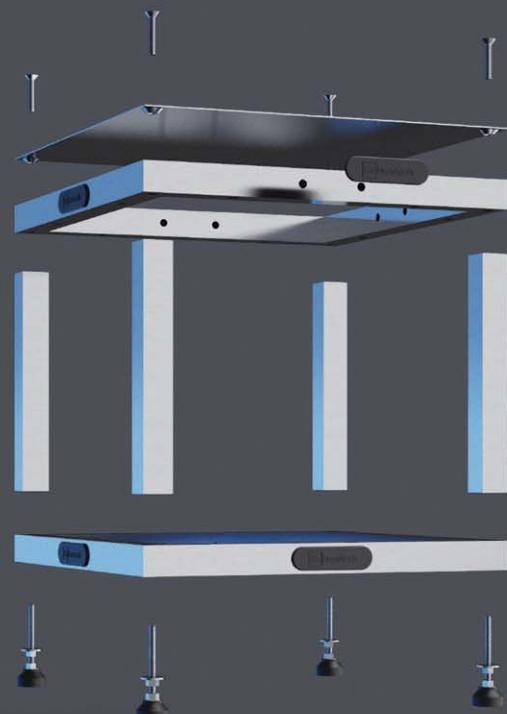
The AHA is imperfect. We are all imperfect. But we should nonetheless aim for perfection because lives and livelihoods depend on our doing so.

No, we're not there yet. But we're committed to arriving.

Dave Carpenter is editor-in-chief of *Zymurgy*.

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FIVE YEARS OF SOCAL CERVECEROS

In 2015, there were no Latino-focused homebrew clubs in the United States. Five years later, the SoCal Cerveceros are 200 strong and getting bigger. A culture of inclusion has been key to their success.

By Ray Ricky Rivera



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Time does not heal all wounds when it comes to meadmaking. So what makes a mead worthy of aging? With little solid research available to supply advice, home meadmakers must rely on anecdotal evidence. Here, we explore some of those anecdotes.



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By Andy Tipler



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In these times of upheaval and social change, it's nice to know we can cling to a few things that don't change much. According to the discerning palates of Zymurgy readers, the best beers in America remain firmly entrenched.

By Amahl Turczyn



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ZYMURGY'S 2020 GIFT GUIDE

From malts and hops to stainless growlers and conicals, there's something in this year's gift guide for every homebrewer and beer lover. New this year: our sponsors have lined up some sick deals just for you (or that special homebrewer on your list).

By Zymurgy's sponsors

-The-
**TASTE
of WINTER**



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Vol 43 • No. 6
November/December 2020

zymurgy®

(zī'mərjē) n: the art and science
of fermentation, as in brewing.



ON THE WEB
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homebrew-recipes](https://HomebrewersAssociation.org/homebrew-recipes)

NOW ON Tap

New Product

FILL-O-METER

There are rites of passage virtually every homebrewer must face. From mopping the ceiling on a Sunday morning to renting a carpet cleaner in the middle of the night, certain activities have always been part of the process. But drying out a flooded basement? That can now be a thing of the past.

From the homebrewers down under who brought you BrewZilla, DigiBoil, and Fermentasaurus comes a nifty device for measuring precise water volumes. With the Fill-O-Meter from KegLand, you need only dial in the amount of water you want to collect and let the internal circuitry do the rest. Now you can start filling the kettle and confidently walk away to grab a beer, taking comfort in the knowledge that the Fill-O-Meter will stop the flow of water at just the right time. With an illuminated display and a splash-resistant housing, the Fill-O-Meter is built to stand up to the rigors of a brew day.

The Fill-O-Meter retails for \$99.99. To find a KegLand retailer near you, visit kegland.com.au.



Wanted

YOUR BEST HOMEBREW GADGETS

Every year we ask *Zymurgy* readers to submit their favorite homemade brewing gear. From simple, creative uses for everyday items to custom-made Inspector Gadget-style rigs, we love it all. Head over to HomebrewersAssociation.org/gadgets-submission now to upload images and a description of your best DIY gadget (or gadgets). The **deadline to submit is Monday, November 9**, so get on it!

The screenshot shows the homepage of the HomebrewersAssociation.org website. At the top, there's a search bar with a magnifying glass icon and a dropdown menu labeled "FILTER RECIPES ▾". Below the search bar, there's a section titled "Search Recip" with the subtext "1,000+ medal-winning, craft beer clones, cide". A yellow arrow points from the top right towards this section. The main content area features a "STYLE" filter button, a "Beer Thingy" button, and a "Another Beer Thingy" button. There's also a "Beer Placeholder Item" and a "A Most Beerific Item" button. A "HOMEBREW SURLY" button is visible. Below these are "Featured Recipe Collections" with three items: "9 Pumpkin Beer Recipes You Can Brew at Home", "13 Stout Recipes from Craft Breweries", and "6 New England IPA Recipes from Craft Breweries". Further down, there's a "FEATURED COLLECTION" section with two glasses of beer. To the left of this section is a small text box about American pale ale (IPA) being one of the most popular beer styles in America. At the bottom, there's a "SEE MORE" button and sections for "Recent Recipes" featuring "Carvalho Sour", "Golden Goblet Grain Ale", and "THC-infused Caramel Amber Ale".

OFF AND ON (-LINE) WITH THE AHA

Did you know that more than 1,000 tried-and-true homebrew recipes are available at [HomebrewersAssociation.org](#)? From National Homebrew Competition (NHC) winners to the many recipes that grace the pages of Zymurgy, we've got you covered.

If it's been a while since you checked out our online recipe repository, go give it a look. We're rolling out a new design this autumn that will make it much easier to navigate, filter, and search for your next favorite recipe. The improved experience will debut soon after this issue arrives in your hands or on your favorite mobile device.

Speaking of mobile devices, we recently discontinued support for the Zymurgy apps for Android and iOS. Technology has come a long way since these apps were introduced several years ago, and newer

software no longer supports some of the requirements of these older apps. The increasing cost of maintenance struck us as poor use of member dues.

Rather than continue propping up outdated technology, we have made the entire Zymurgy archive available for download as PDFs, a feature AHA members have been requesting for some time. Simply log in to your AHA account using the web browser of your choice and open the digital edition of the issue you want to grab. You'll find a PDF icon in the upper right-hand corner of the screen. Click and it's yours.

Readers who already have the Zymurgy app installed on their phones and tablets can continue to use it, but we're no longer able to provide tech support for any issues that may arise.

Brewers Thumbprint Challenge

BY SHAWN CRAWFORD

If you'd asked any of us a year ago, "How do you keep a beer club active and engaged during a global pandemic?" we'd have likely found it an odd question not worth much thought. Fast forward a year and our club's answer would be, "Offer members a challenge suitable for the times—one that can be conducted safely in small groups and also accommodate folks who prefer to participate with no direct contact with others." Thus was born the Brewers Thumbprint Challenge.

Members of the Worthogs Homebrew Club of New Mexico were offered the opportunity to divide into groups of two or three and be given a predetermined set of ingredients with which to brew an American pale ale. The concept was that teams would be constrained by the set of raw materials provided and the directive to brew a beer conforming to style guidelines while also having the freedom to control such aspects of the brewing process as water profile, mash and fermentation temperatures, timing and quantities of hops additions, yeast pitch rate, and equipment. Each team's "thumbprint" would be evident in the finished beer.

Members were informed they had to use all of the ingredients provided—grains, yeast, and hops—with no additions or substitutions allowed. The blended grains were pre-milled to control for an additional recipe variable. Each team could brew together if they chose, and donning masks and social distancing were encouraged. Alternatively, team members could communicate with each other remotely to collaborate on recipe development and process and designate one brewer to execute the team's plan.

The hops we chose presented two interesting twists. Loral and Pekko were varieties no team members had brewed with previously, so no one knew exactly what to expect from them. Alpha acids were 10 and 17 percent, respectively, meaning teams would need to be creative in how they used their 4 ounces (113 g) of hops while staying true to the 30 to 50 IBUs suggested →





by BJCP guidelines. Unsurprisingly, brewers opted for combinations of late kettle additions, whirlpool, and dry hopping to achieve the requisite bitterness.

The final leg of the journey was for a small group of us to come together to sample and compare the thumbprint beers and provide feedback to brewers. Teams were required to keep track of and submit their data prior to sampling. During the COVID-19 pandemic, we've used videoconferencing to participate in meetings while not physically gathering in the same space. For purposes of reviewing the beers in question, we extended this option and had several members join by video to hear the discussion and analysis of the project beers.

The experiment presupposed that we would be tasting eight distinct beers. This turned out to be true, but some of us were surprised at just how different they were from one another. It was interesting to muse about what had led to the differences so evident across the beers. Those present for the sampling were asked to identify their preferred beers, which confirmed, again perhaps not surprisingly, that individual preferences and differing thresholds for flavor elements are always at play when it comes to enjoying beer.

Altogether, eight teams participated, a good cross section of our club, and we were pleased with the level of enthusiasm this project generated. We agreed that the Brewers Thumbprint Challenge was a resounding success worth repeating in the future, whether as a diversion from a pandemic or just for fun.



Learn to Homebrew Day

November 7 is Learn to Homebrew Day 2020. As it's still not a good idea to congregate in groups, we're again asking AHA members to take a pledge to teach the beer-curious about the wonderful world of homebrewing. Use Zoom, Google Meet, socially distanced carrier pigeon, or whatever other method you prefer to explore the wide world of beermaking with friends, family, and anyone else who will listen.

Visit HomebrewersAssociation.org/lthd to take the Learn to Homebrew pledge and download materials to help you bring new initiates into the fold.



Homebrew Con 2021 Speaker Proposals



We're hopeful that the march of medical science, combined with continued social distancing and good behavior on the part of every American citizen, will allow homebrew enthusiasts to gather in person next June for Homebrew Con 2021 at the Town and Country in San Diego.

Homebrew Con features upwards of 50 educational sessions covering topics as diverse as brewing history, beer styles, off flavors, and going pro. If it's homebrew, it's there.

The call for proposals for Homebrew Con 2021 will go out to AHA members in early November, soon after you receive this issue of Zymurgy. If you're passionate about a topic that you'd like to share with your fellow homebrewers, head over to HomebrewCon.org to submit your proposal to present.



Photos courtesy of Shown Crawford [Brewers Thumbprint Challenge]; Ed Bronson [Homebrew Con]

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Rethinking NEIPA

(Some More)



Dear Zymurgy,

As my grandfather said at the start of his frequent letters to the editor, "I take pen in hand," to comment on the excellent article "Rethinking NEIPA" in the Jul/Aug 2020 issue of *Zymurgy*. As usual for this wonderful publication, I found the article to be a thought-provoking and interesting read.

I found Dr. Bockisch's argument to move NEIPA—"New England Ale" in her parlance—to Category 18, Pale American Ale, compelling. The drift of the style certainly gives weight to the idea that a living document such as the BJCP Beer Style Guidelines should reevaluate the style's placement on how it is brewed today rather than on now-distant genealogical origins.

The NEIPA in all of its forms is the continuation of the pride of American brewers. Even though I don't enjoy drinking this style myself, NEIPA is the latest link in the chain of our national beer identity. It manifests and showcases the fruits of a national project: hops.

Since the repeal of Prohibition, the greatest development in the story of American beer has been hops. From Cascade's arrival on scene in early American pale ales and IPAs to the recent explosion of hop cultivars driven by aroma and taste, American craft beer has been defined by our hops. Even those who don't drink beer have contributed to the project: federal tax dollars

have supported the fantastic work of the USDA's hop breeding program since 1931.

For at least 40 years, American beer has been driven forward by innovation in the hop world and has changed beer worldwide as a result. Our impact, from the bitterness arms race, to the haze craze, to the fuss about *neomexicanus*, has been built on the back of the humble hop. We should celebrate NEIPA as the latest, and best, showcase of our national pride, even those of us who rarely drink it.

Sincerely,
Joshua L. Stewart
Silver Spring, Md.



Dear Zymurgy,

I wanted to comment on Dr. Christiana Bockisch's article "Rethinking NEIPA" from the Jul/Aug 2020 issue. I agree completely with her about reclassifying the New England IPA in the BJCP guidelines as New England Ale under category 18, Pale American Beer. It seems reasonable to judge these entries with American blonde and pale ales.

Not all hop-forward styles are IPAs (i.e., Pilsner, pale ale), and there are many reasons why NEA isn't IPA. A fundamental component of the IPA is bitterness, and NEA doesn't have the level of bitterness to justify calling it IPA.

I urge the BJCP to reclassify this style according to what it really is.

Bernard Lebel
Maltose Falcons
Reseda, Calif.

Dear Zymurgy,

I enjoyed Christiana Bockisch's article "Rethinking NEIPA." I agree that New England IPAs deserve their own style category. However, I think "New England Ales" should even be considered a subcategory of a larger group of ales that share one major characteristic: late hop additions (LHA).

A great example of a LHA beer that is not a New England Ale is Deschutes Fresh Squeezed IPA, which has more in common with New England Ales than Pliny the Elder, Junior, or Mother-in-Law. Riffing off Dr. Bockisch, I advocate that this style should be called a "Late Hop Addition Beer." This style is defined by minimal bittering hops added at the beginning of the boil, generous late kettle hops added near the end of the boil and during the whirlpool, and hopping during the late stages of fermentation (dry hopping).

In my opinion, New England Ale is one subcategory of this truly innovative beer style. Juicy ales, in which the juicy flavor is extracted primarily from hops, could be another subcategory. I'm sure others, with far more qualified and refined beer palates, could define such a style better than I.

Keep on brewing and be safe,
Joe Aistrup
Auburn Brewing Club (ABC)
Auburn, Ala.

BURNING QUESTIONS

Dear Zymurgy,

I was just reading Amahl Turczyn's article on fermented hot sauce (You Can Ferment That!, Sept/Oct 2020) and had a couple of

questions. (1) Can I use roasted or smoked peppers and still retain the lactic acid bacteria? (2) If not, can yeast be added to start the fermentation?

Thank you,
Ken Sell
Arvada, Colo.

Amahl Turczyn responds: Hi Ken, roasting the peppers beforehand shouldn't be a problem. Smoking them shouldn't affect fermentation much either, as long as you use the correct ratio of salt to water in your brine and keep them submerged. Obviously you wouldn't get any crisp texture, but that doesn't sound like what you're after.

I would not add any yeast. You want lactic acid bacteria to be the dominant microbe to lower the pH as soon as possible. Adding yeast, especially to roasted peppers that may have a higher sugar content, you create alcoholic hot sauce! (Actually that doesn't sound like such a bad thing...)

You might be onto something. If you decide to experiment, please share your results!

PRAISE FOR GARY

Dear Zymurgy,

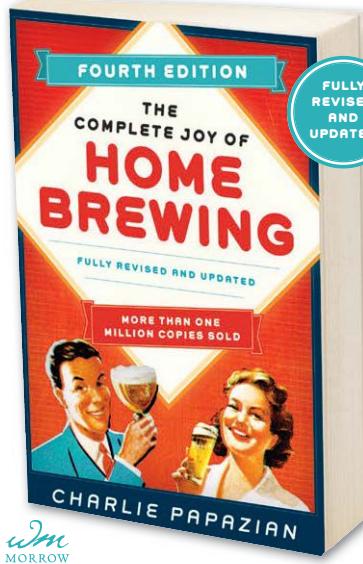
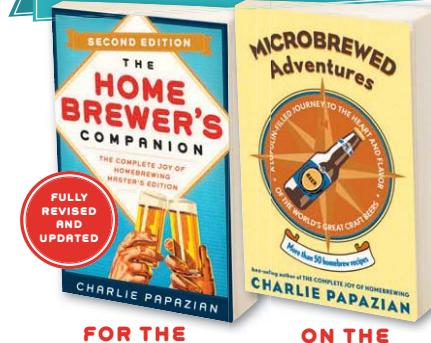
I was heartened to see that the Sept/Oct 2020 issue had a tribute to Gary Glass.

It was a punch to the gut when I heard the news that Gary and so many other wonderful AHA/BA staffers had lost their jobs as a result of the pandemic. Gary and I were in touch frequently, and he always made me feel like I was the AHA's only member, or the most important one at least. He always had time, advice, encouragement, and patience.

Gary's not just a fine homebrewer; he's a fine human being—decent and kind—and

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I wish him all the best as he moves forward with his life and career. I'm grateful that he and I will continue our friendship.

If we learn just one thing from this terrible pandemic, let it be that we cannot take anything for granted, including the American Homebrewers Association. I encourage all my fellow AHA members to consider renewing your membership right now, for as many years as possible. Convince other homebrewers to join. Also, consider joining the Brewers Association if you are financially able to do so.

The AHA and BA have supported us. It's time for us to reciprocate.

Sincerely,
Gray Maxwell
Washington, D.C.

FURRY FRIENDS

I swear, every time I get excited to tuck into the latest issue, I completely forget that I'll be treated to a page full of good, good brewer's assistants. Keep up the great work, the great articles, and keep them doggos coming too!

Brock Boland
Seattle, Wash.

This is Louie, the neighbor's very friendly Labradoodle, who assisted me with brewing an Oktoberfest.

Cheers,
Eric Boucher
El Dorado Hills, Calif.



Louie



Jesse

This is Jesse, our 13-year-old boy helping us with our first brew in the brand-new Grainfather. He's been with us from the beginning of our brewing adventure, from extract kits to all-grain and beyond!

Kevin and Victoria Seely
Mulberry Grove, Ill.



Ben

During this crazy time of COVID-19, I have been brewing more beer than usual. Ben, our black Lab/Border Collie rescue dog, has been helping me out in the brewhouse.

Brew on!
Dan Calzaretta
Walla Walla, Wash.

I love the monthly brew hound feature. Here's Woodrow (pup) and Oliver (cat) helping with a festbier. Woodrow likes helping out on brew day, while Oliver oversees the lagering process.

Cheers!
Charlie Scudder
Arlington, Texas

Fletch never misses a brew day. He oversees all operations at FletchyDog Brewing and is the goofest boy!

Greg Anderson
Pittsburgh, Pa.



Fletch

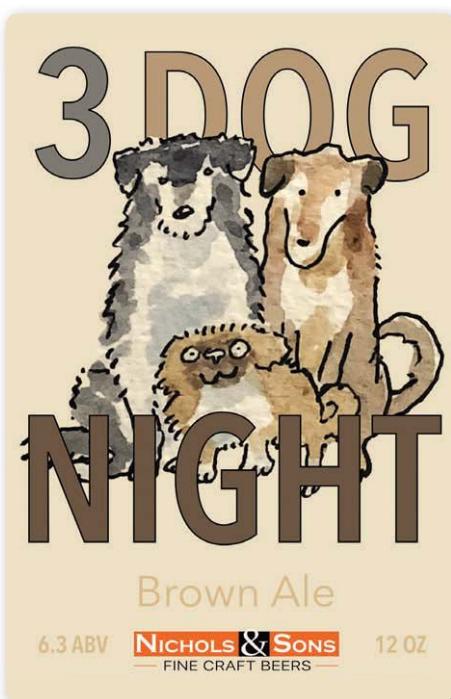


Oliver



Woodrow

HOMEBREW LABEL SUBMISSIONS



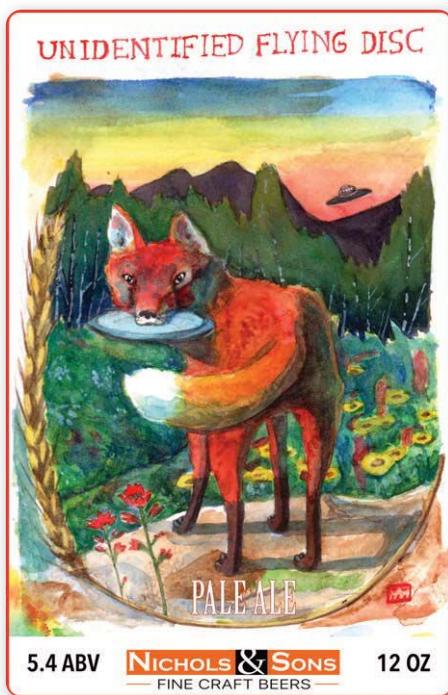
We recruited my son to develop watercolor labels for some of our homebrewed beers. The first one, Unidentified Flying Disc, is for a pale ale we brew using wild hops foraged near the South Platte river in Colorado. It commemorates a night game of disc golf in the Colorado mountains in which a mysterious levitating disc turned out to be a curious fox.

The second, Three Dog Night, is a tribute to three of the best dogs anyone could ever know: Rocky, Coco, and Tofu Joe. It's a brown ale brewed with a bit of hoppiness and a lot of love.

All of our labels can be found on our website, nicholsbrewing.com.

Mark Nichols
Denver, Colo.

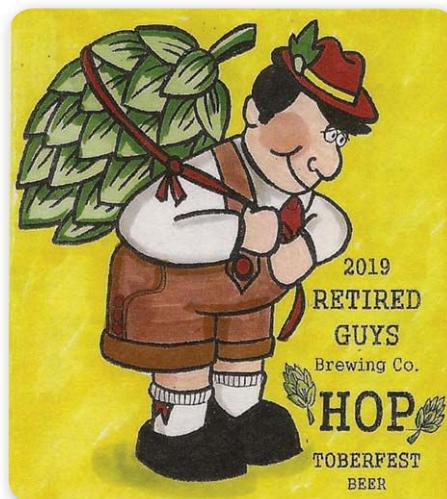
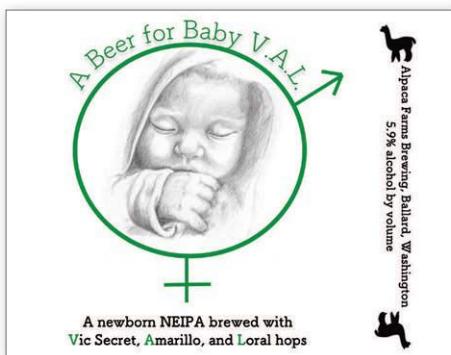
*Homebrewer for 30 years,
AHA member for 2 years.*



My friends are having a baby, and since the baby was conceived on Valentine's Day, they had nicknamed their yet-to-be-born child "Baby Val." I brewed this New England-style IPA for their baby shower, drawing inspiration from the name to choose Vic Secret, Amarillo, and Loral hops for the recipe. The fused symbol for male and female is a nod to their choice to wait until the birth to find out the gender, and the brewery name refers to my homebrewery.

Tom Newman
North Seattle Homebrewers
Seattle, Wash.

*Homebrewer for 9 years,
AHA member 1 year.*



My daughter Layne designed the Oktoberfest 2019 label, and my wife Jan designed Hop-toberfest 2019. These two beers were unveiled last October at our second annual Oktoberfest party.

Prost!
Steve Langford
Glen Ellyn, Ill.

*Homebrewer for 20 years,
AHA member 1 year.*





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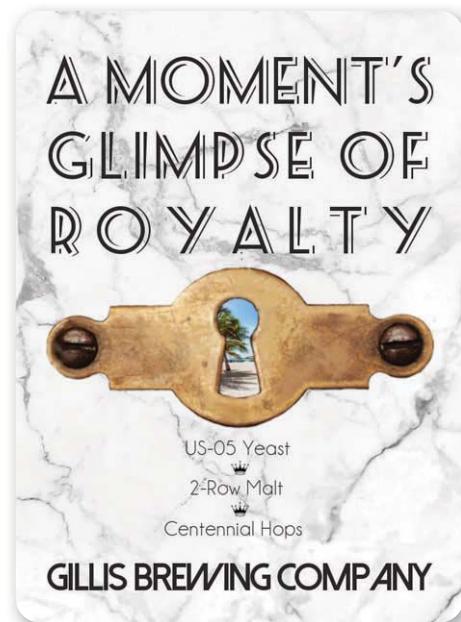
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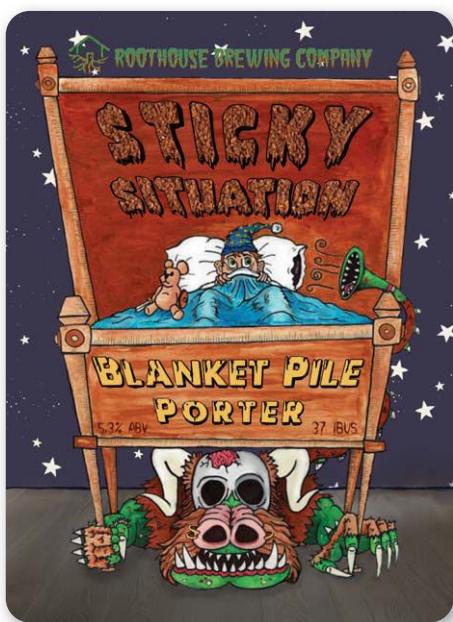
HOMEBREW LABEL SUBMISSIONS



My first unique recipe was a SMaSH pale ale with Centennial hops and US-05 yeast. Although it was simple and I made many mistakes, I knew I was starting to really get a hang of the process. Each taste of A Moment's Glimpse of Royalty was a reflection of my improvements as a brewer and a glimpse of brews to come.

Then, my buddy and I brewed a batch of coffee porter. While we were squeezing the bag, the rack slipped and some of our dark wort spilled over our floor, leading to a ... sticky situation. We dosed it with a local roaster's cold-brew coffee at bottling, and later that summer, we drank a case of them around a campfire, telling ghost stories and toasting his farm's success.

Austin Schiff
Cincinnati, Ohio



With the sun shining on my glass of rye IPA, I pondered the name and design of my next batch, a nice pale ale. I had a few ideas, but nothing seemed to resonate. Sitting outside on a beautiful spring day in Seattle, I watched a squirrel scurry about my backyard before he found what he was looking for: the magical X that marked the spot for some treasure buried beneath the surface.

He dug for a few moments before pulling something out, most likely a peanut. I chuckled to myself as I remembered the adage that "even a blind squirrel finds a nut every so often." Being legally blind myself, the idea of a blind squirrel design took root. I put a few things together and came up with Blind Squirrel Pale Ale. It's a tasty brew that I'm sure my backyard friend would approve of!

Anthony Salazar
Seattle, Wash.

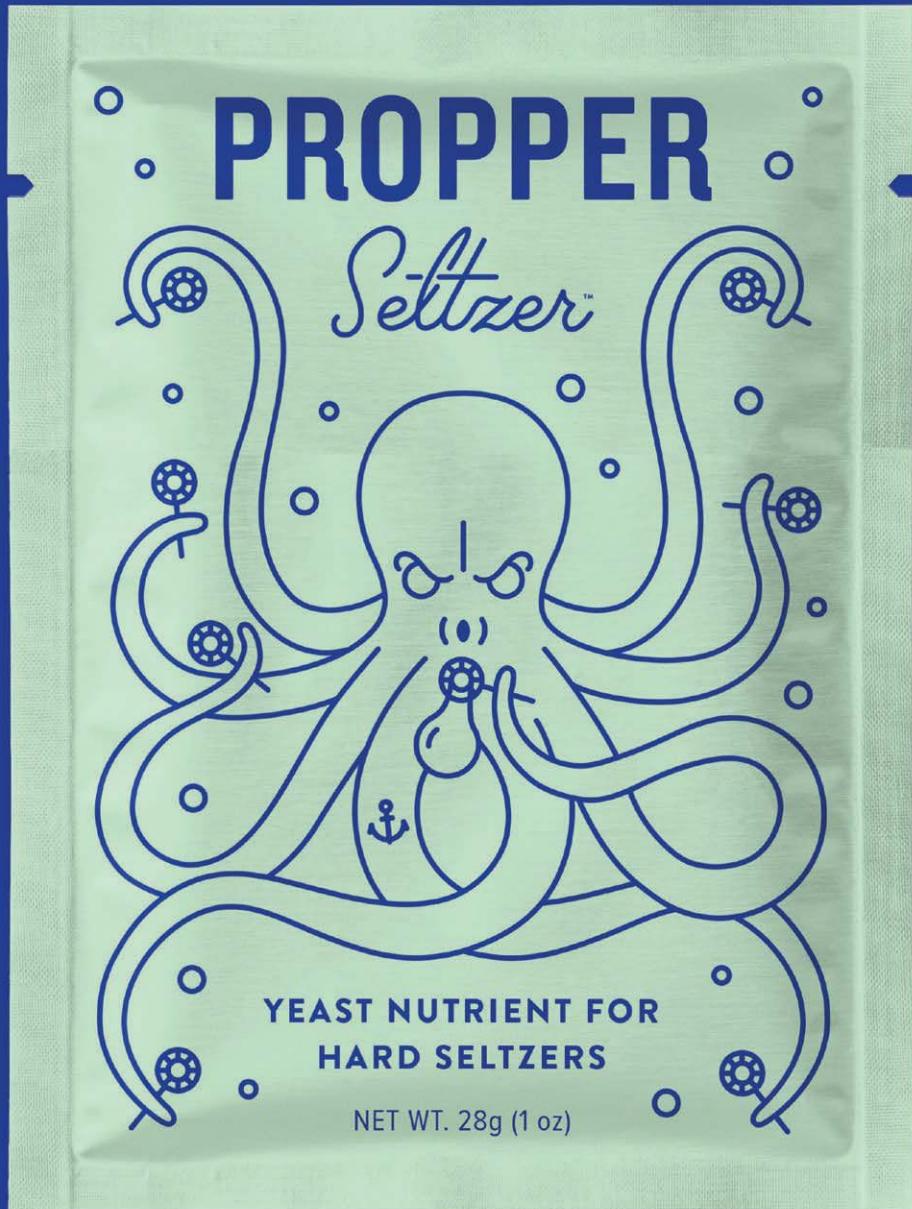


My Beagle/Boston Terrier mix is the best brew dog ever, which makes her the center point of the homebrewery. So, naturally, Piper the bad brew dog is all over my beers.

Cheers!

Mike Cappiello
Suncoast Barley Mashers
St. Petersburg, Fla.

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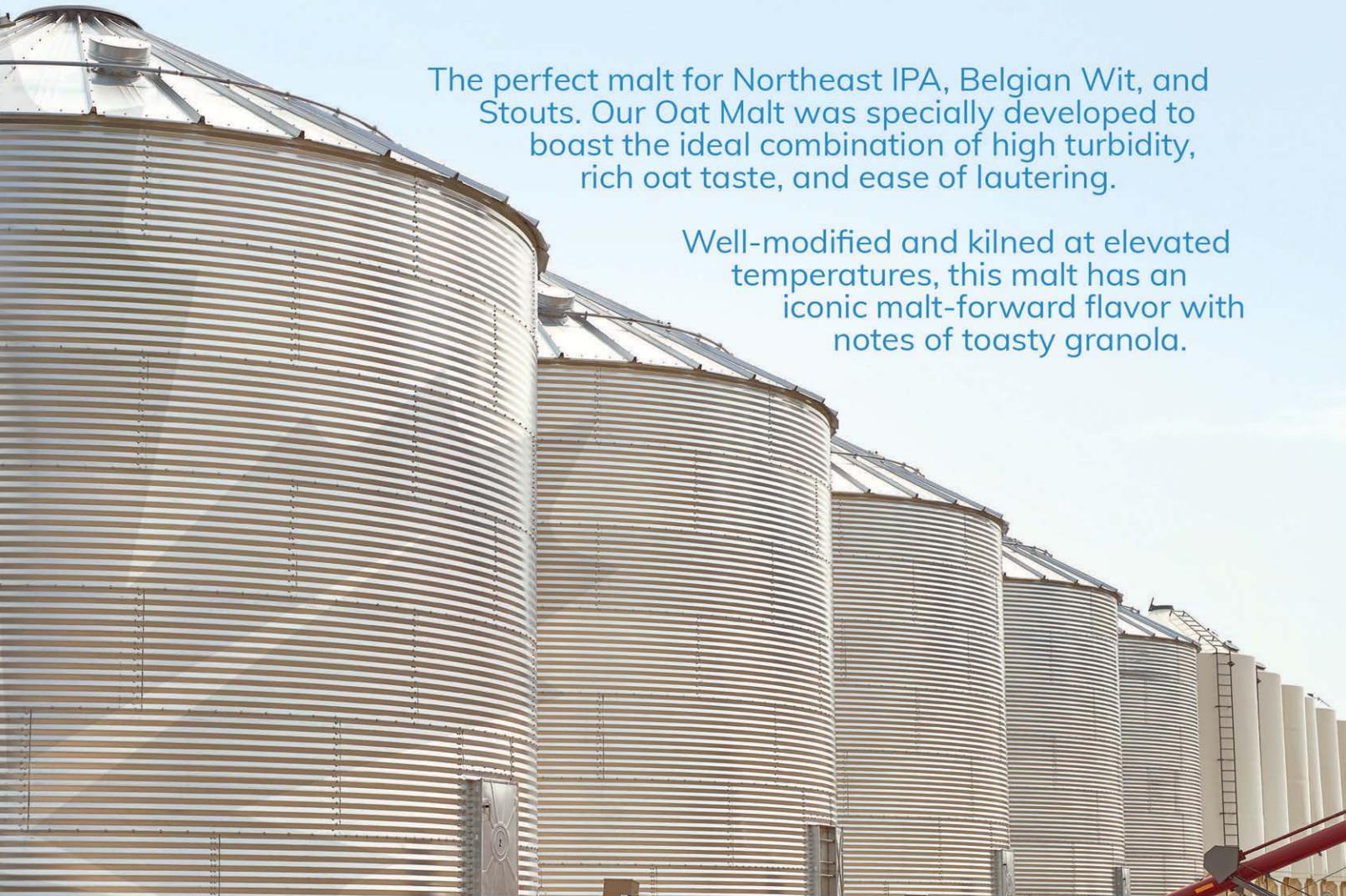
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Kefir

By Amahl Turczyn



Some form of fermented milk is part of many ancient cultures. Kefir is a thin, fermented yogurt originating from the North Caucasus region of Russia and several Eastern European countries such as Bulgaria. Similar beverages are *chaas* in Hindi, *moru* in Tamil, and *mohi* in Nepali. Nordic countries, especially Sweden, have their *filmjölk*, while *laban* (or *leben*) has its origins in Arab and Hindu food cultures and has a very similar taste and consistency.

Labne takes the process a step further and is essentially *laban* that's been strained of much of the whey, which separates from the milk solids, or curds, during the brief fermentation. That strained cheese is then lightly salted and

has a tangy, creamy flavor; many companies sell it as "Greek-style yogurt."

The United States doesn't really have its own analogue. What Americans refer to as "cultured buttermilk" is actually quite hard to find in a probiotically active state unless you make your own. That's because most store-bought "cultured buttermilk" is pasteurized, so you can't use it as a starter. You can also curdle milk with an acid such as lemon juice, but that isn't active-culture buttermilk either—it's just soured milk (although the acid will get the baking soda or baking powder in your favorite pancake recipe nice and fizzy).

For real buttermilk, kefir, or *filmjölk*, you need a starter culture. With the right

starter, all these probiotic milk drinks are within the grasp of the home fermenter. While they are all basically similar, what differentiates one from another really comes down to the bacteria and yeast strains in the cultures.

CULTURING FROM SCRATCH

Google "homemade kefir," for example, and you'll turn up somebody trying to get you to purchase what are called milk kefir grains. These are similar to the SCOBYS (symbiotic cultures of bacteria and yeast) used for making kombucha. In fact, you can also find "water kefir grains" to make a beverage similar to kombucha called *tibicos* that commonly includes *Lactobacillus*, *Streptococcus*,

Ferment This!



Kefir from grains (left) and buttermilk from dry culture (right).

Pediococcus, and Leuconostoc bacteria, as well as *Saccharomyces*, *Candida*, and *Kloeckera* yeasts. *Lactobacillus brevis* produces the dextran polysaccharide that forms into these rubbery little grains that can be stored and reused over and over again.

Similarly, milk kefir grains are knobby little chunks that you can keep on your countertop in a bit of milk. They resemble small cauliflower florets and grow a bit each time you use them. They're tough and can stand a lot of abuse. Veteran kefir makers have their own grains and break off chunks as they grow so friends and family can make their own kefir. You can also buy them online. Using (and reusing) grains is one culturing method, but not the only one.

You can also buy a powdered culture from a cheesemaking supply company or some of the larger homebrew shops. This is kind of like buying yeast for brewing: the best cultures are perishable and kept refrigerated, and mixed bacteria and yeast come prepackaged in a unique blend that's specific to what you want to make.

For example, the New England Cheesemaking Supply Company sells packet cultures for sour cream, buttermilk, chèvre, thermophilic direct set cheeses, and mesophilic direct set cheeses. The difference between these two types of bacteria is a bit like the difference between ale and lager yeast—thermophilic bacteria favor high temperatures between 45°C and 122°C (113°F to 252°F), and mesophilic bacteria prefer more moderate temperatures between 20°C and 45°C (68°F to 113°F). Since we're focused on the buttermilk

family of fermented milks here, it's worth noting that the contents of this packet culture are listed as lactose, *Lactococcus lactis* subsp. *lactis*, *L. lactis* subsp. *cremoris*, *L. lactis* subsp. *lactis* biovar. *diacetylactis*, and *Leuconostoc mesenteroides* subsp. *cremoris*.

Also notable is that these packets are designed for different volumes of milk, some able to culture up to 2 gallons (7.6 L). The buttermilk packs only do 1 to 2 quarts (1–2 L), but there's good news, which brings us to our third kefir culturing method.

RE-CULTURING FROM KEFIR

As with your precious sourdough culture, you can maintain a buttermilk culture by keeping it cold and feeding it periodically, dividing out a portion with which to inoculate your next culture as needed. That means once you make a batch of buttermilk or kefir, as long as you are working under your best sanitary conditions, theoretically you can use this batch to seed others indefinitely. Keep the pure culture packs in the fridge and use them for backup starters if something goes wrong, but if you like keeping buttermilk on hand and drink it regularly, you can keep reusing the original batch. You would use maybe a cup of your old batch for a new 2-quart batch and then replace that amount with fresh, pasteurized milk.

This also means that if you can find any of the fermented milk variants discussed earlier, as long as they aren't pasteurized, you can buy a bottle at the store and use a portion to start your own fresh-culture ferment. But if you can just buy it at the store, why make your own? Because once you

Kefir

Recipe courtesy Amahl Turczyn.

Batch volume: 2 US qt. (2 L)

INGREDIENTS

- | | |
|--------|--|
| 2 qt. | [2 L] fresh, pasteurized whole milk |
| 1 cup | (250 mL) store-bought plain, active-culture kefir as a starter |
| — OR — | |
| 3–5 | kefir grains |
| — OR — | |
| 1 pack | dry kefir starter culture, rehydrated |

FERMENTATION NOTES

If using store-bought kefir, make sure the bottle is fresh and unopened. Pour 1 cup (250 mL) kefir into a sanitized glass Mason jar, and then add about 2 qt. (2 L) freshly opened, pasteurized whole milk. If using kefir grains, add the grains to 2 qt. (2 L) milk. If using a dry culture, add the milk first and sprinkle the powder on the surface to rehydrate, and then stir in with a sanitized plastic spoon to blend.

Whatever inoculation method you use, leave a couple of inches of headspace in the jar, twist on the lid, and cap loosely to allow gasses to escape. Keep jar in a warm place, about 70°F (21°C), out of direct sunlight for 24 hours. Check for consistency and smell. The milk should thicken, separate a bit, and develop a tart, yogurt-like aroma. Taste for desired tartness level and refrigerate, keeping jar lid snug but not tightly sealed. Use within 2 weeks, reserving a cup as a starter for your next batch. Or, strain through several layers of cheesecloth to make kefir cheese. If using kefir grains, strain them out and keep them in a jar of milk in the fridge until you are ready to ferment your next batch.

inoculate your first batch with store-bought kefir, you won't need to buy it again as long as you keep the culture going.

Whole milk is much cheaper than kefir, and if you like having some on hand, there's no reason you can't ferment your own with that original, active strain. Just make sure you purchase plain, unsweetened, unflavored kefir with live, active cultures. These may include *Bifidobacterium breve*, *B. lactis*, and *B. longum*; *Lactobacillus acidophilus*, *L. casei*, *L. cremoris*, *L. lactis*, *L.*



Straining grains from kefir.



Kefir grains.

plantarum, *L. reuteri*, and *L. rhamnosus*; and *Saccharomyces diacetylactis* and *S. florentinus*. You may recognize some of these from the powdered buttermilk culture strains listed above.

Of the three culturing methods, this last one is my favorite. That's because it's quick and reliable, and you know what you're going to get. I've purchased kefir grains that produced wonderful, thick, tangy kefir, and I've purchased grains that produced thin, fizzy kefir that just tasted like cheesy, spoiled milk. Pure cultures from a packet are a little better, but you still don't get to taste exactly what you're making before you make it. With a store-bought kefir, you can sample it before you commit milk to the cause. And if you find a kefir you really like, you can make as much of it as you want.

PROCESS

Before we get into the process, a word about pasteurization. This is an important

step mainly to avoid pathogenic bacteria such as *Listeria*, *Escherichia coli* (*E. coli*), and *Salmonella*. Raw milk is great if you can get it straight from the cow, but it's easily infected and therefore illegal to sell in the United States, mainly because of the risk of pathogenic infection. Severe cases can be lethal.

So, please make sure the milk you use for these fermentations has been pasteurized, always use a freshly opened carton or bottle with a valid sell-by date before inoculation, and be sure to use a sanitized fermentation vessel. And, as always, if your nose or eyes tell you your culture has been sitting in the fridge too long—a rotten smell or pink streaks, for example—do the safe thing: throw it out, and start over. Much better than severe illness!

That said, inoculation is as simple as adding the starter culture of your choice to fresh milk and keeping it in a warm spot (70–75°F or 21–24°C) for 24 hours. Keep the lid on, but make sure it's loose to allow gas to escape. The milk will thicken and start to separate slightly as it ferments. When you notice these visual clues, take a sample and taste it. Once it has reached the desired level of tartness, loosely cover, refrigerate, and use within two weeks. The kefir will continue to ferment, becoming tarter and more separated if left in the fridge—just give it a brisk shake before pouring it.

You may also choose to drape several layers of cheesecloth over a stainless-steel sieve or colander nestled in a large bowl, and pour the fermented, separated kefir onto the cloth. Cover and place back in

“
You can go the Hindi route and use kefir as you would lassi—it makes an amazing smoothie when pureed with fresh, ripe mango.

the fridge. The next day, you should have a bowl of clear whey below and thick, creamy kefir cheese (labne) in the cloth. Give it a shake or two of salt, scrape or shake the cheese into a separate container, and stir until it's no longer lumpy. It's a delicious and healthy alternative to sour cream or Greek-style yogurt. And you can drink the whey as well or use it for baking.

Kefir is low in lactose, which may make it a more suitable dairy product than milk for those with lactose intolerance. It tends to have a wider range of nutrients than yogurt, but again, it all depends on the strain. Kefir has a tangy flavor that pairs well with fruit like strawberries and raspberries, or you can go the Hindi route and use it as you would lassi—it makes an amazing smoothie when pureed with fresh, ripe mango. Some people also drink it with a sweetener such as honey or maple syrup. And, as mentioned above, the acidity makes kefir a great choice for baking, as it activates leaveners like baking soda and baking powder.

Amahl Turczyn continues to brew and write at his home in Lafayette, Colo.



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Hard Seltzer for Homebrewers

By Chris Colby

Making hard seltzer is well within the ability of any accomplished homebrewer on any “regular” homebrewing setup. Hard seltzer brewing begins with making a flavorless and (nearly) colorless base beverage by fermenting a sugar wash, which is a mixture of sugar and water.

The most difficult aspect of brewing a hard seltzer is setting the conditions to allow the yeast to conduct an ordered fermentation. The better your fermentation is run, the less intervention will be required to clean the base beverage. The rest is just mixing flavors, sugars, and acids to the appropriate level. →



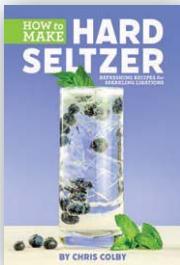
MAKING HARD SELTZER

The basic idea behind brewing a hard seltzer is simple: you mix a sugar wash, ferment it, then flavor and carbonate it. A sugar wash is simply the name for an unfermented mixture of simple sugar and water. The term is the equivalent of wort in brewing or must in winemaking. All your brewing equipment must be clean before you start. Your fermenter—in fact, any surface that the sugar wash will touch after chilling—should be sanitized. Visually inspect everything, especially surfaces that will be in contact with the chilled sugar wash. If you see even the smallest amount of soil, clean it again.

In many cases, especially when using liquid yeast, you will want to make a yeast starter two or three days ahead of time in order for your pitching rate to be adequate. If you are using dried yeast, you can simply add the proper amount of yeast when pitching. If your hard seltzer recipe does not specify a pitching rate, assume the pitching rate is either the normal ale pitching rate—1.0 million cells per milliliter per degree Plato—or up to 50% higher. For a 5.0 gal. (19 L) batch of 4.0%–5.0% ABV hard seltzer, this amounts to roughly 150–270 billion cells.

If you are using brewer's yeast, a starter made with roughly equal amounts of the lightest malt extract you can find and sugar is a good option. For a 5.0 gal. (19 L) batch, the volume of the starter should be 2.0–3.0 qt. (1.9–2.8 L). Make the starter solution so it has a specific gravity of around 1.020, which, for the volume range given, should take 2.0–3.0 oz. (57–85 g) each of dried malt extract and sucrose (table sugar). Add just a gram or two ("a pinch") of complete yeast nutrients. (Keep in mind that if you use malt extract, which is made from barley, to raise your yeast starter, it may result in trace amounts of gluten being present in your hard seltzer.)

If you are using wine yeast, your starter could be made from very light, white grape juice and sucrose. As with the malt extract starter, aim for around 1.020 SG and include a pinch of yeast nutrients. You will only need 2.0–2.5 qt. (1.9–2.4 L) of grape juice starter for a 5 gal. (19 L) batch fermented with wine yeast.



Editor's Note: This excerpt is taken from How to Make Hard Seltzer: Refreshing Recipes for Sparkling Libations by Chris Colby, available now from Brewers Publications®. It has been substantially condensed for length.



Distiller's yeast is yet another option. The starter volume and specific gravity will be very similar to that for brewer's or wine yeast. Make the starter from sucrose (or glucose) and let it ferment somewhere warm. Some distiller's yeast is packaged with its own yeast nutrients built in. Some of these nutrients will be used up when the starter ferments, so you may want to add a pinch of yeast nutrients to the main batch to make up for this. Do not overdo it on yeast nutrients though—more is not better.

MAKING THE SUGAR WASH

Making the sugar wash is extremely straightforward. As with any brew day, it is best to assemble all your equipment before you start. Make sure that it is cleaned and, if needed, sanitized. It will be helpful if you write out a checklist of the major steps. Then, as you brew, you can check them off the list.

The fermented sugar wash is meant to be neutral—a flavorless canvas for which to add flavor and perhaps color. As such, the water you use must meet all the usual requirements for brewing. And you should really assess the taste of

the water alone before using it. If your tap water has any detectable off-flavor or aroma, you either need to carbon filter it until it tastes clean or find another source of water.

Your kettle should be able to hold the entire volume you plan to boil and about 20% extra. Begin heating your water. Add small amounts of sugar as the water heats, stirring frequently so none sinks to the bottom and scorches. Do not pour in all of the sugar called for at once. Break it into smaller aliquots and add them gradually. The sugar can be dextrose (glucose), sucrose, or any other simple sugar including, for example, candi sugar, agave syrup, rice syrup solids, or Brewers Crystals.

Of these, dextrose or sucrose will give the most neutral base. For 5.0 gal. (19 L) of sugar wash, you will need 3.3–4.3 lb. (1.5–2.0 kg) of sucrose or 4.2–5.2 lb. (1.9–2.4 kg) of glucose (monohydrate), also called corn sugar. The specific gravity should be 1.031 to 1.038 to yield a finished base around 4.0%–5.0% ABV. The actual ABV will depend both on the starting gravity after the boil and the final gravity of the solution after fermentation.



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How to Make Hard Seltzer
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A short boil, around 15 minutes, is all you need. If you are confident in your ability to maintain a steady temperature with your kettle, you can hold the wash at 170°F (77°C) for 15 minutes to pasteurize it. You are not extracting bitterness from hops—even if you add hops, you do not want any perceptible hop bitterness in a hard seltzer. You are not coagulating proteins, as would be required in a brewery boil. All you really need to do is sanitize the wash and perhaps bubble out any volatile compounds.

You should add a small amount of yeast nutrients at this point. You can do so any time within the first 10 minutes of the boil. For 5.0 gal. (19 L) of sugar wash, you will need of total of about 2 tsp. diammonium phosphate (DAP) and 1 tsp. complete yeast nutrients. Your recipe may specify breaking this amount into aliquots and adding part of it later, but the first dose should be added in the boil.

AERATION, OXYGENATION, AND PH ADJUSTMENT

After the boil, the sugar wash should be chilled quickly, transferred to the fermenter, and aerated. A small oxygen tank connected via tubing to a HEPA filter that is, in turn, connected to a sintered aeration stone can be used for this. Most homebrew stores sell kits with everything you need except the oxygen tank. Those can be found at hardware stores with the welding equipment. You can also aerate with your stone connected to an aquarium pump.

There is an optional step at this point in the process after chilling: pH adjustment. Sugar, whether glucose or sucrose, is neither acidic nor basic and does not contribute to the pH of the solution it is in. Thus, a mixture of pure sugar and pure water will simply be the pH of the water. If you used pure water, the pH will be 7. The pH of tap water might be different depending on what is dissolved in it.

A sugar and water solution does not act as a pH buffer either. As such, a relatively small amount of acid added to a sugar wash will change its pH substantially. So, although the yeast might initially be slightly stressed by a high pH, the lactic acid produced during fermentation will quickly drop the pH into a more comfortable range.

Still, some commercial producers adjust the pH of their wash and homebrewers can, too. To adjust the pH, use food-grade phosphoric acid or lactic acid. Take the pH of your sugar wash and, if it is out of the range you are shooting for, add a drop of acid. Stir the solution, wait 30 seconds or so, and take the pH again. Add acid drop by drop until you hit your desired range.



Lime-Flavored Hard Seltzer

This basic seltzer is refreshing and has only 90 Calories per serving.

Batch volume: 5 US gal. (19 L)

FERMENTABLES

3.5 lb. (1.6 kg) sucrose

YEAST

113 billion cells (1 qt. or 1 L yeast starter)

ADDITIONAL ITEMS

phosphoric acid as needed for pH adjustment

0.21 oz. (6 g) yeast nutrient

0.95 fl. oz. (28 mL) lime flavoring citric acid (to taste)

3.7 oz. (110 g) sucrose (for back sweetening)

0.13 oz. (3.7 g) potassium sorbate

6 oz. (170 g) corn sugar (for bottle carbonation)

PROCEDURES

Fill your kettle with 4 gal. (15 L) of water. Add the sugar and stir until dissolved. Add water to top up to 5 gal. (19 L). Check the density with a hydrometer or refractometer; it should read 1.032 SG or 8°Bx. Check the pH and adjust to an appropriate pH for your yeast, if desired. (This is around pH 5 for beer yeasts or pH 4 for wine yeasts.)

Bring the sugar solution to a boil and boil gently for 5 minutes (this should not boil off a significant volume of water). Cool the sugar solution, aerate the mixture, and transfer to your fermenter. Pitch the yeast and add the yeast nutrients. Ferment in the middle of the temperature range specified for your yeast strain. For most neutral ale strains, 65–68°F (18–20°C) will work. Wine strains can ferment at much higher temperatures, up to 80°F (27°C). As the fermentation nears its conclusion, you may want to swirl the fermenter gently for a few times each day or allow the temperature to rise slightly. Do not exceed the yeast strain's recommended working temperature range.

After fermentation, you may want to either fine with activated carbon or some other fining agent. With proper yeast nutrition, fermenting a low-gravity solution such as this should not put much stress on the yeast, so you may not have any off-aromas or flavors to address. Once your base is brewed and cleaned up, proceed to adding the remaining ingredients as described in the main text for the seltzer ingredients and procedures.

Transfer to a bucket. Add the flavoring, acid (if needed), and sucrose for back sweetening. After those are dissolved, add the potassium sorbate to prevent fermentation of the sweetening sugar. Rack to a keg and carbonate to 2.8 volumes of CO₂. You may also carbonate the beverage to normal beer levels so you do not need to rebalance your draught system.

If bottling, do not add the sugar for back sweetening or the potassium sorbate. Use heavy bottles, such as those in which hefeweizens are packaged.



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PITCHING THE YEAST

Once the sugar wash is prepared—boiled, cooled, aerated, and (optionally) pH adjusted—it is time to pitch the yeast. Dried yeast can be sprinkled on top of the liquid, allowed to sit for about 5 minutes, then stirred into solution. Alternatively, the yeast can be rehydrated first in hot water, then cooled, and pitched.

If you made a yeast starter, carefully pour off as much of the supernatant (the clear liquid) as is possible, swirl the yeast, and dump it in the sugar wash. Pouring off the supernatant gets rid of any color it may be carrying, especially if it was made with some wort or grape juice. Pour the yeast starter supernatant into a glass and give it a taste to check for signs of contamination. If the yeast starter is cloudy, the yeast is still in suspension and you will have to pitch the whole starter.

Once the yeast has been pitched, affix the airlock and move the fermenter somewhere where the temperature can be controlled. The optimal fermentation temperature will depend on the strain of yeast being used. Ideally, you want to conduct a fermentation that is as “clean” as possible. If you are using a neutral brewer’s yeast, ferment in the mid-to-low range of the strain’s recommended temperature range. Wine yeasts and distiller’s yeasts are less finicky, but the temperature should be maintained such that the fermentation is orderly and not allowed to rise higher than a comparable wine fermentation would.

FERMENTATION

If you have pitched an adequate amount of healthy yeast, evidence of active fermentation should start by the next day. It may start sooner with some types of yeasts. Fermentation should peak during the first or second day of fermentation. With most yeast strains, it will be the first.

This is a good time to add a second dose of yeast nutrients, if your recipe calls for it. The idea behind staggering yeast nutrient additions is that the yeast will have taken in the initial dose and be ready—or almost so—for fresh nutrients. To add the second dose, place the yeast nutrient mixture in a small pan and add just enough water to make a fairly thick slurry. Gradually heat the mix. You can either simmer the mixture for about a minute or hold the mixture above 170°F (77°C) for a couple minutes and it will be sanitized. Let the mixture cool, swirl it around in the pan, and dump it into the fermenter. Your recipe will likely specify when to add yeast nutrients and in what amounts.

“

Making hard seltzer is well within the ability of any accomplished homebrewer.

In the day or two after visible fermentation peaks, you will have to decide whether to add a third dose of yeast nutrients. If the yeast cells have depleted both of the previous additions, or nearly so, they may benefit from a third dose. On the other hand, if they have received all the nutrients they need to complete the fermentation, adding more nutrients will not help the yeast but they will be available to contaminating microorganisms. As a homebrewer, this decision will always involve some guesswork.

In most cases, your hard seltzer fermentation should complete in 6–8 days. The amount of time required depends primarily on the amount of yeast pitched, the temperature of the fermentation, the yeast strain, the extent of aeration, and yeast nutrition. With starting gravities less than 1.040 SG, the yeast should work quickly if it is healthy and abundant. Allow the fermentation to slow to a stop and let the fermented wash sit, undisturbed, for at least a few days afterwards. This will give the yeast time to flocculate and take up some yeast by-products, such as diacetyl.

FINING AND ODOR REMOVAL

Two fining agents that can be very helpful when brewing a hard seltzer are activated carbon and polyvinylpolypyrrolidone (PVPP). Activated carbon is often mixed in a thick (10% w/v) slurry and used at a dosage of 50–2,000 mg/L. For 5.0 gal. (19 L) of hard seltzer, that would be 0.034–7.1 oz. (0.95–200 g). At the lower end of this range, activated carbon removes odors; at the higher end, it removes colors. Activated carbon falls out of solution and settles in less than an hour. Take care when mixing the slurry and dosing the beer. Activated carbon can be messy.

PVPP is dissolved in hot water and added at concentrations of 100–800 mg/L. For 5.0 gal. (19 L) of hard seltzer, this would be 0.067 to 0.53 ounces (1.9–15

g). Most types of PVPP will settle out in about six hours. Working together, you can fine with both activated carbon and PVPP in one day and then rack the clarified wash to a secondary fermenter that evening or the next day, leaving the fining agents behind as best you can in the primary fermenter. You may lose a tiny amount of liquid doing this.

For a homebrewed hard seltzer, one approach to fining would be to first assess the base beverage. It is pretty close to neutral and colorless? Does it have a

few off-odors and a little unwanted color? Or is it problematic, showing strong off-odors or flavors and far too much color? For a “pretty close” beverage, fine with activated carbon at 0.034 oz. (0.95 g) per 5.0 gal. (19 L) followed by 0.067 oz. (1.9 g) of PVPP. For a problematic batch, fine with 7.1 oz. (200 g) of activated carbon per 5.0 gal. (19 L) and 0.53 oz. (15 g) of PVPP. For intermediate batches, use a rate between these based on whether you think it is closer to either of the two ends of the spectrum. You cannot mistakenly over-fine, so if you err on the side of using more finings, the only downside is the cost of the finings used. Also, if you fine the base beverage once and it improves but still shows problems, you can fine again.

If your base beverage is good except for a small amount of unwanted odor, you have an option besides fining, which is bubbling CO₂ through the solution to scrub the volatile compounds responsible for the odor. To do this, you should first degas your base beverage, as it will be saturated with CO₂ immediately after fermentation. If you bubble CO₂ through a solution already saturated with CO₂, it will foam extensively.

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After degassing, slowly bubble CO₂ through the solution for a couple minutes and then taste test it again to see if this cleared up the problem. If not, you may want to try carbon fining and perhaps another round of bubbling. Obviously, avoiding problems in your fermentation is going to be a lot easier than cleaning them up afterward.

FLAVOR ADDITIONS AND CARBONATION

Once the wash is fermented and cleaned up, if needed, the next steps are flavor additions, back sweetening, stabilization, and carbonation. In a home brewery, it may be more convenient to leave carbonation as the last step. The big decision you need to make is whether you will force carbonate the batch or bottle condition it.

Hard seltzers are generally flavored with one or two different flavors and these should be stirred into solution at this point. Once the flavoring is stirred in, add any acid that is called for. Do not mix these two together and then add them—add one and then the other. The order does not matter.

The next addition is the sugar for back sweetening. Back sweetening is only an option if you stabilize and force carbonate

the beverage. You cannot back sweeten and bottle condition.

You may want to dilute the sugar in water and simmer it briefly to sanitize it. On the other hand, the alcohol and the low pH of the fermented solution make it unlikely that a sugar addition will contaminate the beverage. Once sugar is added, any yeast remaining in solution can begin fermenting it, which is why potassium sorbate stabilizer is necessary. For 5.0 gal. (19 L) of homebrewed hard seltzer, only 2.5 tsp. of potassium sorbate is needed. The addition of potassium sorbate keeps the yeast from “reawakening” (it will not stop an active fermentation, however, at this dosage).

Keep in mind that, if tasting a sample at this stage, the beverage is not carbonated and this will affect the final flavor. Carbonation will “brighten up” the flavor and make it seem crisper. If you have back sweetened and added potassium sorbate to stabilize the solution, you must force carbonate the hard seltzer. Any of the methods that work with homebrewed beer will work, including letting the keg sit under the appropriate CO₂ pressure for a while, or cranking up the pressure and shaking the keg. For 2.8 volumes of

CO₂ at 40°F (4.4°C, i.e., usual refrigerator temperature), your gauge pressure should be 15–16 psi.

If you do not back sweeten you can bottle condition your hard seltzer. The mechanics are exactly the same as bottle conditioning homebrew: add sugar to the beverage and let the yeast ferment that sugar in the bottle. The carbon dioxide produced during fermentation will be trapped and carbonate the beverage. The amount of priming sugar to add depends both on your target level of carbonation and the degree to which it is already carbonated. Beware of adding too much priming sugar and overcarbonating the beverage—glass bottles can explode.

Chris Colby has been a homebrewer since the early '90s, when he studied molecular evolutionary genetics at Boston University. After receiving his PhD in 1997, he briefly worked in educational publishing before becoming a beer writer and editor. He is the author of Methods of Modern Homebrewing (2017), Home Brew Recipe Bible (2016), and How to Make Hard Seltzer: Refreshing Recipes for Sparkling Libations (2020). He lives in Bastrop, Texas, with his wife and many cats.



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FIVE YEARS IN THE MAKING

By Ray Ricky Rivera

IN 2015, TWO HOMEBREWERS MET OVER A FACEBOOK POST AND BEGAN TO DISCUSS STARTING A HOMEBREW CLUB. AT THAT TIME, NOT A SINGLE LATINO-FOCUSED HOMEBREW CLUB WAS TO BE FOUND IN LOS ANGELES COUNTY. IN FACT, NO SUCH CLUB EXISTED IN ALL OF SOUTHERN CALIFORNIA. FURTHER RESEARCH SUGGESTED NO SUCH CLUBS ANYWHERE IN THE UNITED STATES.





GROWTH, DIVERSITY, AND CERVECERAS

We SoCal Cerveceros often find ourselves at the forefront of conversations about diversity and inclusion in the beer world. Some may look to us as a de facto authority on the subject, given our group's size and composition. We're happy to wave that flag and represent a demographic that often goes underrepresented, but we weren't always so diverse. We had to actively pursue diversity and work from the inside out to create an inclusive club that reaches beyond ethnicity and gender.

Membership growth in the early days was painstakingly slow. The first year we grew by just two, from seven dudes to nine! We knew it was going to take some work to find new recruits and that it would be an even greater task to recruit women. Homebrewer demographics mirrored those of the larger beer industry, and we felt it. We believed in creating and fostering an environment where women felt welcomed, respected, and accepted as brewers and beer connoisseurs alike, but we had to work hard to figure out how to achieve that.

I vividly remember one meeting with about ten attendees, all men. Two women showed up looking confused and asked if they were in the right place. They were. They took one look around, walked out, and never came back. I couldn't blame them. What women would want to hang out with a group of random dudes they'd never met and drink homebrew? It was a tough sell.

After two years of meetings, Zaneta Santana, our first woman, joined SCC. She brought along her brew crew, a trio

who called themselves the South Central Brewing Company. It was apparent that Zaneta felt comfortable in our group, in part because she arrived with familiar faces. We took note of this and soon started offering a membership option for couples. This really helped our numbers, as many couples attended meetings together.

Before we knew it, the SoCal Cerveceros had an influx of women, which made for diverse meetings where new recruits weren't intimidated by an overwhelming presence of men. We could finally convey our idea of a non-homogeneous group that was open to all. It's really great to witness women who initially attend with their partners as curious visitors becoming bona fide brewers themselves. We have a great conversion rate, and today, we're proud to say women make up at least 35 percent of our membership.

ENTER THE SOCAL CERVECERAS

The Cerveceras are the ones who deserve a great deal of credit for taking our club from a Latino-based group to a multicultural, multiethnic bunch of women and men. The Cerveceras formed organically as a natural progression of friends hanging out and brewing together. These brewers took it upon themselves to organize brew days and bottle shares and recruit other women to join the SoCal Cerveceros. It's been amazing to see this new group take shape and take off.

Many of the Cerveceras are award-winning brewers, Certified Cicerones, and podcast hosts. Several hold positions in commercial breweries. Cervecera Araceli

On a cool Friday night that April, seven of us gathered for our inaugural garage meeting in the Southern California suburb of Hacienda Heights. With that casual meetup, the country's first, and now largest, Latino homebrew club was born. Five years later, the SoCal Cerveceros (SCC) boast a membership of more than 200.

Our club has grown to include a multifaceted network of members, from one-gallon first timers to multiple-award winners, seasoned commercial head brewers, startup brewery owners, gypsy brewers, and homebrew supply shop owners. As cofounder and president of the SoCal Cerveceros homebrew club, I've been privileged to have a front-row seat to this amazing experience, one filled with rewarding human interactions and connections.

I've been there since the club's inception and have participated in every moment worth celebrating. I've witnessed strangers become fast friends over discussions about yeast cultures. I've seen brewers create partnerships and launch businesses together. I've heard stories of people feeling like they've found a new family, a proverbial place to call home. Many times, I've heard, "I'm glad there's a club with so many brown faces." Some have told me this group has helped them get through hard times. But the greatest thing I've heard over the years is "Thank you for inviting me to join the club."



Brew This!



MEXICAN MUNK

Belgian-style tripel

Recipe courtesy Ray Ricky Rivera.

Batch volume: 5 US gal. [18.9 L]
Original gravity: 1.078 [18.9°P]
Final gravity: 1.007 [1.8°P]

Bitterness: 27 IBU
Color: 5 SRM
Alcohol: 9.4% by volume

MALTS

10.5 lb. [4.8 kg] Belgian Pilsner malt
 8 oz. [227 g] wheat malt
 8 oz. [227 g] aromatic malt
 1.5 lb. [680 g] clear Belgian candi sugar

HOPS

1 oz. [28 g] Styrian Goldings @ 60 min
 1 oz. [28 g] Styrian Goldings @ 30 min

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 15 min

YEAST

270 billion cells WLP500 Monastery Ale Yeast

BREWING NOTES

Mash 90 minutes at 148°F [64°C] followed by a 170°F [77°C] mash out. Boil 90 minutes, adding hops and Whirlfloc as indicated. Chill wort to 70°F [21°C] and pitch yeast. Ferment at 72°F [22°C] for about a week. Once fully fermented, transfer to secondary and cold crash for several days. Keg and force carbonate to 2–2.5 vol. [4–5 g/L] CO₂. I sometimes carbonate Belgian styles to as high as 3 vol. [6 g/L]. If you bottle condition instead of keg, use sturdy Belgian or Champagne bottles that can handle high pressure!

Cardenas and her husband own Monrovia Homebrew Supply and Pacific Plate Brewing Company. She has been a huge asset to our club, its growth, and our efforts to foster an environment where everyone can feel comfortable learning.

The Cerveceras create fun ways to both promote SCC and showcase women in the club. They recently collaborated with the Pink Boots Society, Inland Empire Brew Witches, and Feathered Serpent Brewing Company on a commercially released beer called Keep Ya' Hops Up. This was a great way for many of the Cerveceras to experience firsthand what it's like to scale up a homebrew recipe and brew on a commercial system.

COLDXELA AND GIVING BACK

Homebrewers have an innate desire to share what they've crafted, and this desire becomes amplified when you start a homebrew club. So, it was only natural SCC would want to create an event where we could share with our friends. In 2016, we held our inaugural backyard tasting fundraiser. We were only a club of nine brewers at the time, and we poured seven different beers. About 100 guests attended, and we raised a few hundred bucks between two charities. We learned a valuable lesson that night, though: never run out of beer!

The following year, we held our second tasting and stepped up production. This time, we created booths with pop-up canopies and doubled the number of brewers who poured. We raised money for another local nonprofit and again learned a valuable lesson: when holding

an evening event outdoors, make sure your space has lighting.

Our events didn't have official names and weren't big-ticket productions, but they were clearly unique. We wanted to continue creating, so in 2018, we partnered with the Gumball Foundation, a

local nonprofit that teaches kids how to start, run, and finance micro-ventures. Together, we launched the largest Latino homebrew festival in the country, Coldxela. Pronounced "cold chela," the name literally means "cold beer," as the word *xela* is Spanish slang for beer.



Brew
This!



MANGOSE

Kettle-soured gose with fruit

Recipe courtesy Tyler Sadler and Laurie Ann Gutierrez.

The French sea salt from San Francisco Salt Co. comes highly recommended for this recipe, but any good-quality sea salt will work.

Batch volume: 5 US gal. [18.9 L]
Original gravity: 1.048 [11.9°P]
Final gravity: 1.011 [2.8°P]

Bitterness: 8 IBU
Color: 5 SRM
Alcohol: 4.8% by volume

MALTS

5 lb. [2.27 kg] Pilsner malt
2.5 lb. [1.13 kg] white wheat malt
2.5 lb. [1.13 kg] red wheat malt

HOPS

0.75 oz. [21 g] Saaz @ 30 min

ADDITIONAL ITEMS

0.25 oz. [7 g] crushed coriander seed @ 10 min
0.5 oz. [14 g] sea salt @ 10 min

4 lb. [1.81 kg] frozen mango chunks, thawed,
5 days in secondary
lactic acid optional, as needed for pH adjustment

YEASTS & BACTERIA

1 carton Goodbelly Mango JuiceDrink

2 packs Fermentis SafAle US-05

BREWING NOTES

Mash at 148°F [64°C] for 75 minutes and sparge as usual to collect the full pre-boil volume. Bring wort to a boil, or at least to 180°F [82°C], just to sterilize. Chill wort to 110°F [43°C]. Check pH and gravity, and add lactic acid, if needed, to reduce pH to 4.5 for safety.

Decant the Goodbelly juice and pitch the Lactobacillus sediment into the wort. Keep this wort around 90–100°F [32–38°C] for two days for souring to take place. After two days, measure pH and gravity. The gravity should not have changed much, but the pH should have fallen into the low 3s (ours fell to about 3.3). The soured wort should have a clean sour, grassy smell. If it smells like vomit, it's been infected with something else and you may need to dump it.

Bring the soured wort to boil and add hops and spices at indicated times. Chill to 70°F [21°C], move to fermenter, and pitch US-05.

As fermentation wraps up, thaw and refreeze the mango two or three times to help break down the fruit cell walls. When fermentation is complete, add the thawed mango and let it sit in the fermenter for five days.

Cold crash for two days and ensure fruit has settled at the bottom of the fermenter before packaging.

Coldxela saw immediate success and was well received by craft beer fans, homebrewers, and the wider local Latino community. Coldxela featured 20 SCC brewers, a live music stage, and food vendors. We knew we had a clever name, plenty of homebrew, and a fun program of music. What we didn't anticipate was all the media coverage and the overwhelming positive response across social media.

Our online presale sold out shortly after it went live. Two hours before the doors opened, we had a line of hopeful ticket buyers that ran down the block. Our little festival quickly reached its capacity of 400 guests. It was a great experience for all involved, and we raised \$7,000 for the Gumball Foundation. Yet again, we learned a valuable lesson: always provide more porta-potties than you think you need!

Coldxela proved what we already knew: people of color in Los Angeles love craft beer! So, in 2019, we went big and scaled Coldxela to more than three times as large as the previous year. With 52 homebrewers pouring their best suds, the festival drew a sold-out attendance of 1,500 guests. The support was overwhelmingly positive and was really a beautiful sight to see.

Coldxela has become a valuable platform for us to promote homebrewing while also supporting important charitable work. It lets us showcase the talents of our members, support small and independent businesses, and give exposure to the great talent we book. In two short years, this one festival has transformed our little club into the force behind a highly anticipated annual destination.

Unfortunately, planning for Coldxela 2020 got underway just as the COVID-19 pandemic started to affect the United States. Attendance this year was projected to draw more than 3,000 attendees, with an estimated brewer count of more than 65. We have definitely found a way to quench our desire to share our craft, and we can't wait to get back to that in 2021!



CALIFORNIA HOMEBREW CLUB OF THE YEAR AND HOMEBREW TO PRO BREW

SCC has taken on a life of its own, and any praise and accolades we receive are credits to the dedicated homebrewers who make SCC what it is. In 2018, we were pleasantly surprised when Anchor Brewing Company named us California Homebrew Club of the Year. It's an accolade we were grateful to receive and one we remain proud of, a reminder that we're on the right path as a homebrew club.

Plus, we're a bunch of beer nerds! To be singled out by a respected brewery like Anchor was huge for us. The fun part was holding an internal club beer competition and selecting three homebrews to send to Anchor for a chance to be brewed commercially. The winner was a hibiscus saison called Ruby Sun Saison.

When you experience a SoCal Cerveceros meeting or event, you can see and feel its entrepreneurial spirit. Many homebrewers dream of one day opening a brewery or holding a position in the beer industry, and members of SCC are really doing it. Through our club affiliation, members have landed positions throughout the beer industry. We've become something of a springboard for helping make the jump from homebrew hobbyist to industry professional.

Last year, SCC members launched two new commercial breweries and a contract brewing company, with a third brewery having opened this past spring. Many of our members now employ each other, creating opportunities where there weren't any. Some of our members run successful craft beer lifestyle brands and e-commerce stores that sell homebrew-themed merchandise. And several more operations are currently in planning!



**“
WHEN YOU
EXPERIENCE
A SOCAL
CERVECEROS
MEETING OR
EVENT, YOU CAN
SEE AND FEEL ITS
ENTREPRENEURIAL
SPIRIT.**

At our core we are a true homebrew club. Our mission is to become better brewers and deepen our understanding of zymology. We continue to grow with that goal in place. The camaraderie and support you see in SCC is everything a brewer wants in a club. It really does feel like a family.

In this, our fifth year, we were supposed to celebrate in grand fashion, with all the bells, whistles, and delicious suds you might expect. However, 2020 had other plans. Still, I raise a glass of homebrew to say cheers! Happy fifth anniversary, SoCal Cerveceros!

Ray Ricky Rivera is cofounder and current president of the SoCal Cerveceros homebrew club. He hosts the weekly online radio show Beers Bands Business and writes a homebrew column for Boulder Weekly. His recently launched gypsy brewing company, Norwalk Brew House, has begun releasing delicious collaborations. Follow @norwalkbrewhouse on Instagram.

AGING MEAD

By Andrew Luberto



Jeff Herbert moving one of many barrels at Superstition Meadery in Prescott, Ariz.



When I first proposed an article on aging mead, I assumed that there was existing research to provide ample reference in writing it. There's not. In fact, there's very limited research on meadmaking at all. As Peter Bakulic, president of Mazer Cup International, pointed out to me, "We don't have any scholarly papers or research done specifically on mead, so anything that someone may say about what happens to mead as it ages is pretty much conjecture."

As such, my attempt to capture the ins and outs of aging mead has required a fair amount of speculation based on interviews with experi-

enced home meadmakers, established commercial meaderies, and yeast specialists. However, absent legitimate research, anecdotal evidence from experienced meadmakers and professionals is the best we can do, something I hope will eventually change. As Jeff Herbert, cofounder and co-owner of Superstition Meadery, points out, "I really wish there was more research, but I guess that's our job."

When I first started making mead, there was a common sentiment that all meads must be aged for extended periods of time to be consumable. It's not uncommon to hear the notion that if you age a mediocre mead, it will magically transform into a world-class beverage over time. It's not clear where this belief originates, but it may be rooted in some questionable meadmaking techniques prior to the widespread use of nutrient additions.

Most commercial and homemade meads won't improve much from long-term storage. However, like certain wines and beers, some meads can develop interesting characteristics from ongoing processes that happen after fermentation during long-term storage. No one-size-fits-all approach applies, given the multitude of factors of extended aging and →





Jeff and Jen Herbert of Superstition Meadery sampling one of their barrels.



Bob Slanzi's barrels with breathable silicon bungs.

the ever-increasing array of different meads. A few things, though, are worth considering when making a mead intended for long-term aging or deciding whether an existing mead may improve with time.

AGING PREP WORK

Healthy fermentation, microbial management, and limited oxygen ingress after fermentation are all necessary prerequisites for even having a shot at making a mead that might improve with age.

When bottling, the right cork is imperative. As American Mead Makers Association (AMMA) board member and 2019 Ken Schramm Recognition Award recipient Bob Slanzi points out, "Spending 25 cents more on a good cork may be the difference between a good mead and a great mead." Slanzi uses 15-year synthetic corks for meads he plans to age.

Proper sulfur dioxide (SO_2) levels are particularly important for stability and preventing excessive oxidation. Adding potassium metabisulfite, either as a powder or as a Campden tablet, is common among home meadmakers. That said, high levels of sulfur dioxide can create an unpleasant chemical or burnt-match flavor that lends a sharp unpleasantness while simultaneously masking some of the subtler positive aspects of your mead. Minimizing these levels while still maintaining their effectiveness is important.

An aeration-oxidation test kit, available from winemaking supply companies, is an affordable option for determining free SO_2 concentrations. It's also worth investing in a pH meter so you can determine molec-

ular SO_2 levels. The higher the pH, the less effectively SO_2 can prevent oxidation and microbial spoilage, so it's important to know just how much molecular sulfur dioxide is in your mead, not just the amount of free SO_2 .

Several winemaking charts are available online for calculating molecular SO_2 levels once you know the free sulfur dioxide concentration. However, it has not yet even been determined whether sulfur dioxide levels appropriate for red and white wines are also appropriate for mead in general, much less optimal levels of SO_2 for different types of mead. For example, braggots may have different SO_2 requirements than do traditional meads.

Because pH changes with time due to such factors as temperature, it's important to consistently monitor free SO_2 and pH during bulk aging while also creating as stable an environment as you can (with limited temperature swings, for example).

Many meadmakers use sulfite and sorbate to stabilize their meads. Sigrid Gertsen-Schibbye of Lallemand's Oenology division points out that if using sorbate, sulfite must be used in conjunction. Bacteria can metabolize sorbate without the sulfite addition and create unwanted off flavors. Those looking to avoid adding sulfites to their mead have several options, including aging *sur lie* or using certain non-*Saccharomyces* or inactive yeast-based products. Lallemand's Pure Lees and Glutastar are two such examples.

Conducting a healthy fermentation with as little yeast stress as possible is also important for long term-aging. Adding

the right amounts of nutrients at the right times to avoid yeast stress or a stuck fermentation is an early step for achieving this. Sergio Moutela, founder and head meadmaker at Melovino Meadery created a website (meadmaderight.com), with a very useful nutrient calculator.

Create the proper balance of population with the correct amounts of nutrients suitable for the sugar concentration of your mead. Overloading your yeast with excessive inorganic nutrients at the start of fermentation will only lead to a stressed, starved, and sluggish yeast population later.

The types of nutrients you use also matter. Inorganic nutrients such as diammonium phosphate might kick off a vigorous start, but, like a runner sprinting at the start of a marathon, it might not be the best strategy for the desired result. Residual nutrient levels after fermentation is complete could also affect stability.

Unwanted microorganisms compete for the same nutrient sources as the microorganisms you pitch. Encouraging a healthy population of yeast crowds out these unwanted guests and keeps them from causing too much damage.

Yeast vitality and viability are critical for a healthy fermentation. Even though most



home meadmakers do not measure viability and vitality in a home lab, it's nonetheless important to understand the role of the activity level and number of living cells in your yeast pitch to inform other process decisions. Online yeast viability calculators, while less accurate than an actual cell count, offer an inexpensive alternative.

FROGS DON'T BECOME PRINCES

Age is not a magic panacea for mediocre or poorly crafted mead, but it is one tool in your meadmaking arsenal for adjusting or developing flavors in interesting ways. With careful attention to process, aging can add layers of complexity and balance in certain meads.

As Jeff Herbert asserts, "You need a vision, intention, and execution," when making a great mead. Be measured in your approach and take good notes, and develop an understanding of your process that goes beyond just following directions or others' recipes.

"The more you start looking at the big picture and less at the numbers, the more you start to see the reason in what you're doing and why you're doing it," says Gertsen-Schibbye.

Consider how assertive or delicate the flavor is to begin with when determining aging potential, as some of these aspects will diminish with time. Likewise, honey varietal and character should be considered when planning a mead for aging.

Tom Repas, 2018 AMMA Mead Maker of the Year and Master Beekeeper, likes to age meads made with buckwheat honey, believing that its bold, distinctive flavor improves with time. Repas barrel ages Polish meads made with buckwheat honey for years. "People can't even recognize it as buckwheat anymore," he says.

Michael Fairbrother, founder and CEO of Moonlight Meadery, prefers lighter-flavored traditional honeys for aging in barrels. He feels that the higher mineral content in darker honey takes away from its flavor, which, in drier meads may lend a harsh character. However, as Repas notes, "Honey



This year's Utopian will have been barrel aged for 10 years.

variety and taste is [sic] going to be self dependent; it's more about the process."

That said, preserving a delicate bouquet may be more challenging and require using biological tools to preserve those subtle, volatile aromatics.

Sweetness is, likewise, an additional consideration. Jeff Herbert of Superstition believes residual sweetness brings out fruit-like characteristics as a balance to oak. That said, Superstition probably ages more off-dry bourbon-barrel mead, Lagrimas De Oro, than any of their other products, so feel free to experiment.

Fusel alcohols make up the largest group of volatile compounds produced by yeast in mead. A host of higher alcohols is present in most meads, both perceptible and not. While aging isn't a fix for meads with high concentrations of harsh alcohols, aging can transform these higher alcohols into aldehydes with various flavor characteristics that may add a pleasant complexity. Meads with a higher ethanol percentage have the added benefit of stability because alcohol is toxic to the microorganisms that create unwanted spoilage.

Esters are ubiquitous in mead and greatly contribute to its overall flavor. Most ester formation happens during fermentation, but the overall ester character changes

through continuous evolution and interactions that occur between various compounds. As time passes, pleasant organoleptic changes may develop from the mead you started with.

Knowing when your mead should be consumed or bottled is also key to successful aging, and periodically sampling throughout the process is recommended. As Gertsen-Schibbye points out, "There is always something changing; it's a continuous dynamic." No formula can predict when a mead will hit its peak or when things will start to go awry—as Jeff Herbert notes, "It's ready when it's ready."

Tom Repas stresses the importance of monitoring your aging mead to be aware of how it changes so you can address issues before they become problems.

Michael Fairbrother says, "You [sic] got to have a lot of patience and have a vision of where it's going to go. You have to know when it's on the right path and just leave it alone."

However, if you do miss your mark, don't dump that mead just yet. Fairbrother suggests using overly oaked meads for blending, and this principle could apply to many other aged meads as well.

Aging can tone down aggressive flavors and bring them into balance, a process that is especially true with methylegins, or spiced meads—with age, the intensity of spices diminishes. New Jersey meadery Melovino produces an outstanding blackberry and black pepper mead named Murder of Crows, which Moutela intentionally over-spices. Those spices gradually dissipate to yield the desired effect. Superstition Meadery, likewise, over-oaks meads intended for bottle aging for extended periods.

Those interviewed offered mixed opinions as to whether spiced meads are worthy of extended aging at all. Repas suggests that fresh, green herb flavors probably will not improve with time, while warming spices like cloves, cinnamon, and even hot chiles might have some potential. Flavor will evolve simply through changes in balance as certain previously masked elements gain prominence and other compounds dissipate.

Brew
This!



Black and Blue

Melomel (fruit mead)

Recipe courtesy AMMA Home Governing Committee member Kevin Meintsma.

This big red-fruit mead is intended for long term aging. It is best aged with some oak, is very drinkable at 3 months, and improves as it gets older. My considerations for long-term aging include the following:

1. **Alcohol:** If the ABV is 9–10% or more, it's a candidate.
2. **Tannin:** More tannin means longer aging potential.
3. **Acid:** If there's plenty of acid (in this case total acidity rather than low pH), it may age well.

There are many other factors, but these are the big three for me. I've done roughly 20 barrel-aged projects for beer, cider, and mead—all have been wonderful, and I'm continuing the practice with no intention of stopping.

Batch volume: 8 US gal. (30.0 L)

Original gravity: 1.160 [36.2°P]

Final gravity: 1.020–1.040 [5.1–10°P]

Alcohol: 16.5–18.6% by volume

HONEY

28.5 lb. (12.93 kg) orange blossom honey

OTHER FERMENTABLES

10 lb.	(4.54 kg) black currants
6 lb.	(2.72 kg) raspberries
4 lb.	(1.81 kg) sweet cherries with pits
4 lb.	(1.81 kg) blueberries
8 lb.	(3.63 kg) blackberry, raspberry & blueberry blend
0.5 gal.	(1.9 L) Montmorency tart cherry juice

ADDITIONAL ITEMS

10.5 g	pectic enzyme (pectinase)
4 g	Booster Rouge at start of fermentation
6.4 g	Opti Red at start of fermentation
6 g	FT Blanc Soft at start of fermentation

YEAST & NUTRIENTS

35 g	VRB Yeast
44 g	Go-Ferm in 880 mL of 110°F (43°C) water
11 g	Fermaid K, divided into two 5.5 g additions
11 g	Fermaid O, divided into two 5.5 g additions

WATER

1.85 gal. (7.0 L) reverse osmosis or distilled water

MEADMAKING NOTES

The day before you plan to start fermentation, add water to the fermenter and thoroughly mix in the fruit and pectic enzyme. Chill overnight. The following morning, allow the mixture to come to room temperature. You can add a small dose of potassium metabisulfite if you feel the need, but I have found it's unnecessary with refrigeration.

That evening, mix the must well, ensuring that the honey is well blended with the water and fruit. The must temperature should be 70–80°F (21–27°C). For this mead, I suggest "free range" conditions for the fruit: a bag will make this very difficult to manage. Punching down the fruit cap will be quite problematic, and a bag may slow the incorporation of the fruit due to the heavy fruit load. **TAKE A GRAVITY READING.** Reaching the planned starting gravity is important to the character of this mead.

Mix the GoFerm in a 2 L Erlenmeyer flask with 880 mL of 110°F (43°C) water. Cool to 95°F (35°C) and gradually add yeast mixing well. Attemper the yeast by adding 20 mL of must at 5-minute intervals until the yeast is within 10°F (6°C) of the must temperature. Do not let the yeast mixture stand longer than 15 minutes without must additions.

Add the re-hydrated yeast to the must and mix well. As part of the mixing process, use an oxygen wand to stir the must while adding oxygen for 90 seconds.

Add the fermentation tannins. I prefer mixing them in 90–100°F (32–38°C) water first, but they can be added directly when fermentation has not yet started. Cover and add an airlock. Ferment at 62°F (17°C); temperature control is strongly recommended.

The following morning (Day 1, roughly 12 hours later), punch down the fruit cap, using a stainless-steel spoon or a stirring rod on a drill to get the fruit mixed well into the must. AFTER punching the cap down, add the first Fermaid K dose (mixed in warm water first). Add oxygen with the wand for 90 seconds.

In the evening, punch down the cap again. No other additions are needed at this time.

Throughout the rest of this process, taste the must each time you open the fermenter. This will help you educate your palate so you know when something is headed in the wrong direction. If you have a refractometer, take readings each time as well, correcting for alcohol presence so you can monitor fermentation progress.

DAY 2

- * Morning: Punch down the cap. Add the second dose of Fermaid K.
- * Evening: Punch down the cap.

DAY 3

- * Morning: Punch down the cap. Add the first dose of Fermaid O.
- * Afternoon: Punch down the cap.

DAY 4, 5, 6

- * Morning: Punch down the cap.
- * Afternoon: Punch down the cap

DAY 7

- * Morning: Punch down the cap. Add the final dose of Fermaid O.
- * Evening: Punch down the cap.

DAY 8/9

- * Morning: Punch down the cap.
- * Evening: Punch down the cap.

DAY 10

- * Rack under the fruit into a stainless or glass fermenter. Put aside with an airlock.

Line a plastic bucket with a fine mesh bag and pour the fruit slurry into the bag. Squeeze out as much of the liquid as you can. Compost the fruit and lees or feed to the pigs. Reserve the liquid and put it in an appropriately sized glass or clear PET fermenter. Keep this separate to minimize and monitor oxidation. Allow both volumes to finish fermentation, and then if the small volume is still good, it can be used to top up after racking the main volume off the fine lees. Top up along the way as needed.

DAY 30 AND LATER: After 3–5 days of identical gravity readings, the fermentation is probably finished, most likely in the 1.020–1.040 range. Rack off the fine lees to a stainless or glass fermenter. Stabilize with potassium metabisulfite and potassium sorbate. Add 10" of medium toast American oak.

DAY 35/40/45 ETC.: Taste. Is the oak a little above where you want it? No? Let it go until it is. Is it a little more oak that you would like? Great: remove the oak, and rack again to another fermenter. Add a little (1/10 tsp.) potassium metabisulfite to the new container before racking (if you can test SO₂ levels, that would be ideal).

DAY ??: Is back sweetening needed? If yes, sneak up on it with small amounts of orange blossom honey as long as the mead has been properly stabilized. It can take an hour or two to fully integrate additional honey, so be cautious. When the flavor is where you want it, add your choice of fining material. I find dual fine to be reliable and fast.

DAY ??+7: Mead should now be fully cleared. Rack to your final vessel, and bottle, keg, filter, etc. Lay this one down and sample every 3 to 6 months. I like to make 6 to 8 12-ounce sample bottles for testing.

Enjoy!



Kevin Meintsma's aging mead.

Melomels, or fruit meads, deserve particular recognition for extended cellaring. With the addition of fruit comes the addition of polyphenols and an opportunity to reap the benefits of aging. While the fruit character may lose its fresh or bright attributes, it can transform in interesting and beneficial ways. The effects of polyphenols and tannins in melomels and methylegins is a topic worth further research.

"A given wine contains several hundred different kinds of volatile molecules, and those molecules have many different kinds of odors. In fact they run the gamut of our olfactory world. That's why wine can be so evocative and yet so hard to describe; at its best, it offers a kind of sensory microcosm. And that little world of molecules is a dynamic one," says Harold McGee in *On Food and Cooking*.

BULK AND BOTTLE AGING

When aging your mead, you can choose to age individual bottles or you can bulk age an entire batch in a single vessel. Barrel aging is easily accessible for many home meadmakers and presents a unique opportunity for aging mead. Barrel aging creates a symbiotic environment that promotes simultaneous aerobic and anaerobic processes that change the mead over time.

Moonlight Meadery's release of its acclaimed Utopian this year will have been barrel aged for 10 years, and many more barrels are being aged for future releases, each of which presents a unique and delightful product.

Arizona's Superstition Meadery has one of the country's largest commercial meadery barrel-aging programs. Herbert talks about the process of aging, particularly in barrels, as a way to introduce balance and complexity. He considers barrels an ingredient unto themselves and spoke at length with me about terroir, grain size, cooperage methods, and previous contents as elements affecting flavor.

Photo courtesy of Kevin Meintsma

Autumn Sipper

Spiced cyser

Recipe courtesy Andrew Luberto.

The original gravity of this recipe may vary slightly according to your ingredients, but it should come in around 1.155 (35.2°P). The honey and sugar alone should hit around 1.120 (28.1°P), while a cider at approximately 1.035 (8.8) will supply the rest.

The cinnamon and vanilla will dissipate with aging, so feel free to adjust the quantities slightly above what you want for the final product. You could always readjust if bulk ageing, adding another bean or more oil into the aging vessel.

This mead ages well. Once it starts taking on some brandy-like oxidation, it gains a baked-apple quality that makes it a great fireside sipper. I make this every year, and blending different vintages is a worthwhile endeavor.

Batch volume: 4 US gal. (15.1 L)

Original gravity: 1.155 (35.2°P)

Final gravity: 1.040–1.050 (10–12.4°P)

Alcohol: 14–15% by volume

HONEY & JUICE

12 lb. (5.44 kg) orange blossom honey (or your preferred varietal)

3 gal. (11.4 L) fresh cider, mixed or single varietal

ADDITIONAL ITEMS

25.4 g Fermaid O, divided into four equal additions

44 g Go-Ferm Protect

2 lb. (907 g) dark muscovado sugar

2 Madagascar vanilla beans

SuperKleer K.C.

cinnamon oil to taste

YEAST

35 g Lalvin K1V-1116

MEADMAKING NOTES

Mix honey, muscovado, and cider and chill to 62°F (17°C). Rehydrate yeast using Go-Ferm Protect, attenuate yeast, and pitch into must. Oxygenate must and ferment at 62°F (17°C).

Degas twice a day for one week. Add nutrients according to the following schedule:

- First addition after lag phase (oxygenate as well)
- 1.138 (31.8°P)
- 1.120 (28.1°P)
- 1.103 (24.4°P) (one-third sugar break)

Allow to ferment to a specific gravity of 1.050 (12.4°P) and begin to taste. When the mead strikes the desired balance, cold crash to 30°F (−1°C). When ready, rack to secondary, leaving as little head space as possible. Sulfate and sorbate as needed (see main text).

Chop Madagascar vanilla beans into small pieces and add to carboy. Add SuperKleer K.C. to clarify, following manufacturer's directions. When mead has cleared, add cinnamon oil to taste.

Bottle or age in a barrel—I recommend a calvados barrel—and enjoy by the fire on a breezy autumn night.

However, Herbert suggests having a clear picture of what will benefit from aging, particularly in barrels, as not everything improves with age. He recommends drinking fresh mead that include bold ingredients such as coffee, hops, and even cacao nibs. Much of this is trial and error as meadmakers continue to push the boundaries of a beverage that dates back millennia—as Herbert points out, “We’re creating a product that no one has ever had before.”

Bob Slanzi believes that oak gives his meads a more rounded flavor. Slanzi uses different types of oak cubes, such as a blend of American and French, to create a mix of flavors. “It all depends on what flavor profile I’m looking for,” he says. “If I want something with vanilla, I might use a mix that favors more American oak.”

When aging in a barrel, Slanzi recommends breathable silicone bungs that don’t need as much monitoring as liquid-filled airlocks. Moutela agrees, saying, “Getting dry airlocks is the best investment anyone can make, especially as a home meadmaker.”

But Fairbrother stresses caution: “The longer the time frame, the harder the challenge,” he says. Bob Slanzi concurs, noting that “a lot of award winning

meads are between three and five months old. There is no guarantee that something is going to get better. Anything you put in a bottle and age is a gamble.”

Proper storage is important. Store corked bottles horizontally to keep the corks from drying out. Furthermore, storing corked meads under the correct humidity prevents drying out as well. Slanzi even sprays the outside of his barrels with water due to the dryness of his house.

Heat accelerates oxidation, and temperature fluctuations can negatively affect your mead in a number of ways. It can’t be overstated that the care of aging will have a tremendous impact on how your mead will evolve. “You can manage your mead in a way that will take some of that gamble out (of aging)” says Gertsen-Schibbye.

You’ll need to top up your barrel from time to time as liquid slowly evaporates. Home meadmakers can use a bottle filler on the end of a fill tube full of liquid and absent of air is an easy way to top up subsurface to limit oxygen introduction.

When it comes to barrels, size does matter: the smaller the barrel, the greater the surface contact between liquid and barrel and, consequently, the greater the rate of oxidation. So, the aging time for a 5-gallon

barrel will be different than that of a 55-gallon barrel for the same aging characteristics. However, there are no hard and fast rules.

For example, Superstition’s Portuguese Blindfold was purposely aged in a barrel only three-quarters full. The end result was something akin to port, which worked well for that mead, which Herbert said was the sweetest he had ever made. However, he cautions that he wouldn’t try that on a dry mead.

Most meads do not benefit from long-term aging. However, with the right preparation and management, you can design and make a mead that takes advantage of the evolving sensory microcosm in every bottle. As home meadmakers, it’s easy for us to stash away a couple of bottles or use small barrels for experimentation. Have fun and experiment using some of the considerations above, and remember that having a vision of your end product with the experience to back it up are perhaps the most important factors in creating a great aged mead.

Andrew Luberto sits on the home governing committee of the American Mead Makers Association and is a frequent Zymurgy contributor.



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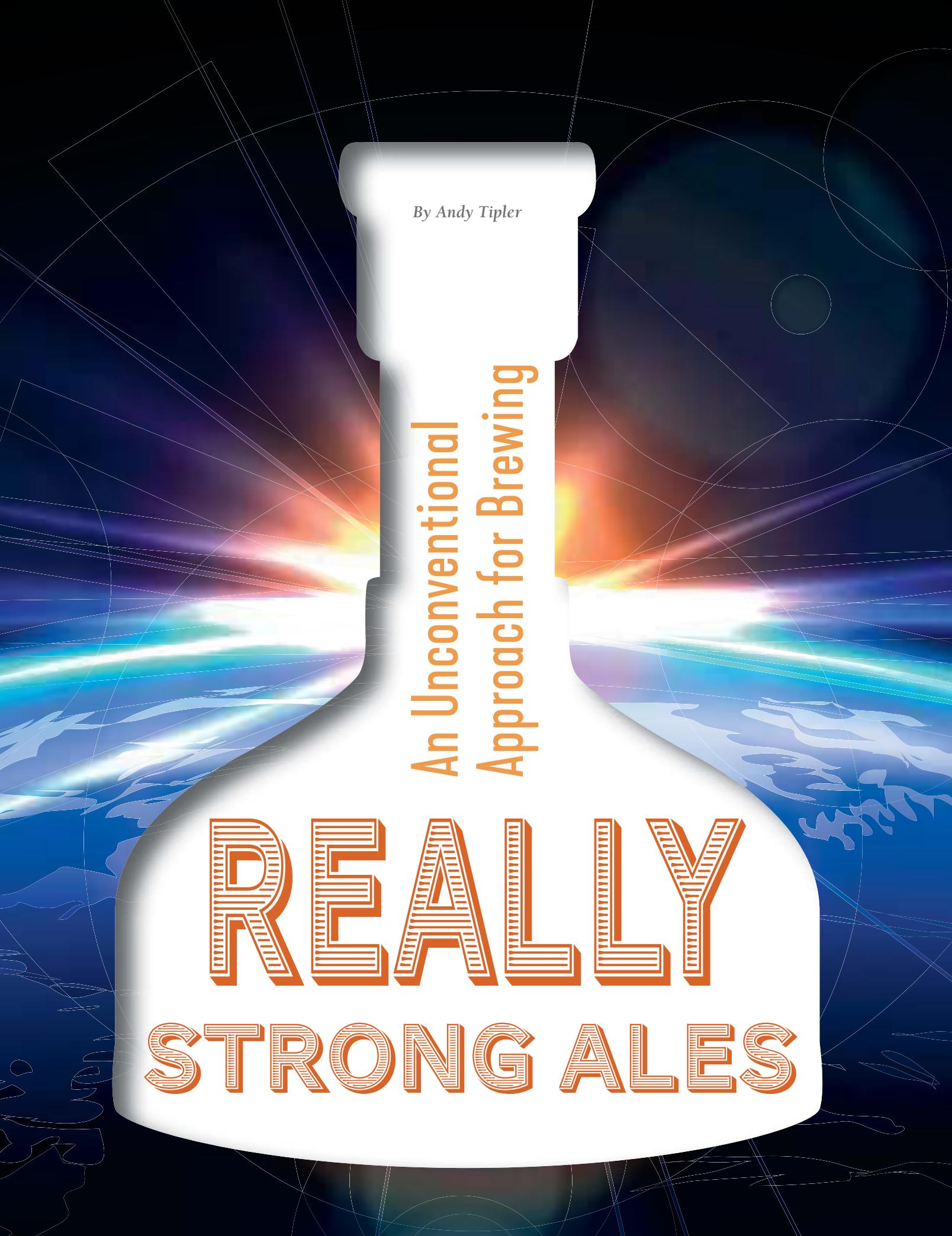
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By Andy Tipler

An Unconventional Approach for Brewing

REALLY STRONG ALES

Brewing a great strong ale is a rite of passage for many homebrewers. So many factors affect quality that brewing such a beer can be daunting, but when you make a good one, the sun comes out, all is right in the world, and you will be heaped with praise and glory by your peers. I should also point out that there are several other good reasons for brewing such strong ales.

- Full-flavored strong beers often do well in competition.
- Strong ales can keep for a long time and may improve with age.
- A batch of beer lasts longer because you drink less volume at once (plus, your spouse thinks you are drinking less and the carpet between your chair and the cellar doesn't wear out so fast).
- All your friends will love you even more.

I tried to think of some reasons not to brew strong ales but I quickly gave up.

I am going to describe a novel approach to making these strong ales. My view of a strong ale is something with an alcohol content of more than 10% ABV, preferably over 13%, and hopefully over 20%. So, what we are talking about here is a true beer drinker's beer, not one of those wimpy double NEIPAs that seem to be so popular these days.

Much conventional wisdom exists on how to make these beers: massive starter, strong and frequent aeration, nutrient additions, and use of Champagne yeast to finish things off. We are going to throw most of that knowledge out of the window and consider other approaches to making a good strong ale. I have been doing some of these things for many years and have had reasonable success in competition as a result—and no one has yet died.

Just about every step in the brewing process should be studied and can be

improved upon for making strong beers. What follows is my take on each of these steps.

The easiest way to make the best things in life is to take someone else's idea, copy it, and try making it better. In this case, the definitive gold standard for really strong beer is Samuel Adams Utopias.¹ Many descriptions of this beer can be found online, so I'll not spend time on it here except to say that if you haven't yet tried it, you should—it's a watershed moment in the life of any beer connoisseur. However, the price and rarity of Utopias place it beyond the reach of most beer drinkers, hence homebrewers' strong interest in brewing their own homages.

What better place to start, then, than with a recipe for a beer similar to Utopias? I use the word *similar* loosely, as I understand that Samuel Adams uses proprietary ingredients and techniques and the final product appears to be blended with 25-year old beers. Some batches of Utopias can be 29% ABV, but I will be satisfied if I can break 20% and still have a drinkable beer.

I am calling my beer "Dystopias." The recipe is for only 3 gallons (11.4 L), but this is not a beer to drink by the pint.

Furthermore, I will have saved more than \$3,000 compared to purchasing the same volume of actual Utopias, and the recipe can be scaled up to save even more money. →

INGREDIENTS

Wort made from malted barley contains a variety of sugars as shown in Table 1. A typical ale yeast will ferment most of these sugars, but not dextrins, and may only partially ferment maltotriose, if at all. This means that in most instances, 20 to 30 percent of wort sugars will not be fermented.

Normally this is not a problem, as residual sugars leave a touch of sweetness and lend body to the finished beer. However, to create a beer with 20% or more ABV, we will need an original gravity of around 1.200 (43.9°P). Leaving 30 percent of those sugars unfermented will produce a beer with too much residual sweetness and body. To that end, specialty grains are used sparingly and are similar to those declared in the published ingredients for Utopias.¹ I had to guess the quantities.

Enzymes

A relatively warm mash yields proportionally more of those higher sugars in the resultant wort than a cooler mash. To reduce these to more fermentable sugars, I add enzymes to both wort runnings prior to the boil. The boil denatures these enzymes to prevent rocket fuel from being produced later in the fermentation. The temperature of both runnings is adjusted to 122°F (50°C), and ½ tsp. (2.5 mL) of amylase powder and two crushed Beano tablets are added to each and left for three hours before boiling.

Malt Extract

Adding malt extract to grain-mashed wort is an easy way to increase the strength of a beer without requiring a large mash. Using malt extract in light beers can give a “homemade” character, but this is not a problem with stronger beers, especially with a partial-mash recipe.

Malt extract is normally added during the boil, but for this recipe, liquid malt extract (LME) is added late in fermentation. The idea is to not overwhelm yeast with a high sugar concentration at the start of fermentation, but there are concerns in doing this:

- How can one fully mix in the malt extract so that it does not simply sink to the bottom of the fermenter, never to be seen again?
- Will unboiled extract introduce unwanted microorganisms?
- Will the lack of hot and cold breaks cause haze?

I had a great exchange of emails with Dr. Nigel Davies, director of technical and sustainability at Muntons UK, regarding these questions. He was most concerned about the need for good mixing. If malt extract

does not mix, it will not dissolve and provide the sugars and amino acids needed for a good fermentation. I used a large magnetic stirrer to continuously stir the fermentation while active.³ While this gave other benefits, which I will discuss later, it was effective at fully mixing in LME directly from a can, although this was performed in three stages and took a few hours for each.

Dr. Davies was less concerned about sanitation or haze potential. His company's LME products are microbiologically sanitary, and some of Muntons' extract beer kits do not even require a boil. Haze can come from residual proteins and carbohydrates that would normally cluster and drop out of solution during the boil, especially after adding a carrageen-based clarifier such as Irish moss. I used liquid malt extract made from Maris Otter, which typically has a low protein content. I have used this technique in the past in strong ales where the long aging time helps clarify these beers.

Dr. Davies kindly provided a link to a website that helps troubleshoot some common brewing problems.⁴

Other Sugars

Getting the final gravity down to a reasonable level means we must limit the amount of malt, which only partially ferments, and use other more fermentable sugars to raise the alcohol concentration. I use simple sugars for this purpose, but I do not like using refined table sugar or corn sugar, which can make the beer taste like cider.

For this recipe, I used a combination of maple syrup (mainly sucrose), honey (mainly glucose and fructose), and panela sugar (mainly sucrose). Each of these sugars has its own characteristic flavor that contributes to the complexity of the finished beer.

For those unfamiliar with panela, it is the raw, unrefined juice extracted from sugar cane and contains molasses, minerals, and other good stuff normally removed by processing. Brown sugar is no substitute. Blocks

of (boiled down) panela can be bought from stores specializing in Latin American foods. It is similar to Asian jaggery.

Hops

I deviated from Utopias in my choice of hops. This is a beer with muted hop character, much of which will disappear during aging. I looked at the hops bank in my basement freezer and found that I did not have any noble hops at all! Rather than spend a lot of money on five bags of new hops, of which I would use only small amounts, I improvised with a combination of hops I have successfully used in barleywines. Almost any European hops should work, but New World hops are out of place here and will probably be reduced to cardboard flavors during the long aging time.

Yeasts

I used three yeasts, all of which I had used earlier to brew a 12% ABV barleywine (see accompanying recipe for Dystopias Lite). I collected dregs from the secondary fermenter after six months of aging and made a starter using a diluted can of Propper Starter concentrated wort. I didn't add any further yeasts during fermentation.

At this point, I would like to thank Eric Abbott (global technical adviser) and Tobias Fischborn (R&D manager) of Lallemand Brewing for their great help and advice. We exchanged many new ideas, and they sent me some great guidelines for making this type of beer.^{5,6} They also referred me to a paper they published in *Brewing Science* in which they compared the fermentation performance of many of their dried beer yeasts, which can be summarized thusly:

In higher gravity worts, metabolism of maltose and maltotriose decreases, resulting in lower attenuated beers. In general, all active dry yeast strains performed well with only minor changes in attenuation and metabolism of maltose and maltotriose up to 24–26°P.

TABLE 1: TYPICAL SUGAR PROFILE IN MALTED BARLEY WORT.²

Malt sugar	Type	Percent
Fructose	Monosaccharide	2
Glucose	Monosaccharide	10
Sucrose	Disaccharide	8
Maltose	Disaccharide	50
Maltotriose	Trisaccharide	18
Dextrins	Polysaccharide	12

In other words, adding more malt is a poor way of increasing alcohol once original gravity exceeds about 24–26°P (1.101–1.110 SG). It's better to add simple sugars, as I have done in this recipe.

Lallemand Windsor yeast is a vigorous fermenter and was added for flavor. It lends a great “English” taste to barleywines but has relatively low attenuation. Lallemand Nottingham yeast continues where Windsor leaves off. It can ferment maltotriose, which Windsor does not, and gives a fairly neutral flavor. These two yeasts work well together, especially for beers like barleywines.

These two dried yeasts typically ferment up to about 12% ABV, perhaps a little higher with creative sugar additions. But, to get to 20% or higher, a rather special yeast is needed. White Labs WLP099 is a diastatic “super-attenuating” yeast strain that can break down and ferment polysaccharides (dextrins). However, the process is slow and may take months or possibly years to complete. While this may be useful for fermenting every last drop of sugar, the main benefit of WLP099 for this beer is its extreme alcohol tolerance. I reached out to White Labs for further information on using this yeast and Erik Fowler (education and engagement manager), offered many hints and pointers. It looks like the approach of incrementally adding fermentables is the way to go.

Champagne yeasts are frequently mentioned in strong beer recipes, but to me, these are the worst possible yeasts to use in a strong beer. First, they prefer simple sugars and won't ferment maltose or maltotriose. Second, many have a competitive factor that destroys other yeasts that could ferment these higher sugars. If you must use Champagne (or other wine) yeasts, make sure that the other yeasts have done their job first and that you only add simple sugars to the fermenter.

TECHNIQUE

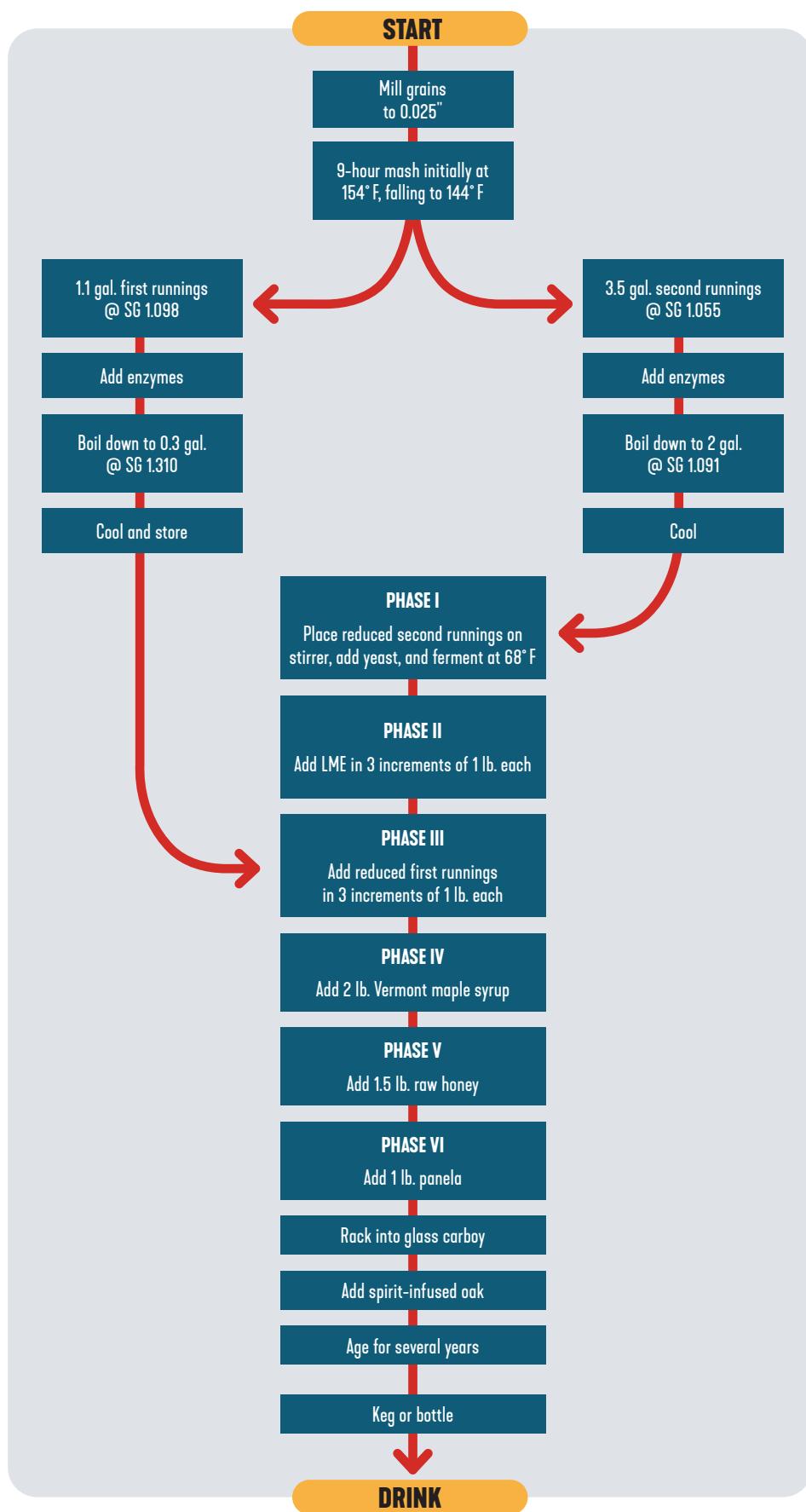
An overview of the brewing process used in this recipe is given in Figure 1.

Mashing

General wisdom indicates that mash efficiency decreases as beer strength increases. A typical extract efficiency for a strong beer might be about 65 percent, but that is not at all useful here. We want high mash efficiency to keep the amount of grain under control and reduce the volume of wort produced and, thus, boil-down effort.

The target here is to produce about 2.3 gallons (7.6 liters) of 1.125 (29.1°P) wort with a mash efficiency higher than 90 percent. Not only that, but we want to split

FIGURE 1: OVERVIEW OF BREWING PROCESS.



the wort into two fractions, boil them down separately, and add them to the fermenter at different times.

I used some unusual methods to maximize extract efficiency:

- A fine grain-mill setting of 0.025" (0.635 mm)
- A high mash temperature
- An overnight mash of about nine hours
- No stirring
- A slow fly sparge

The main concern in performing such a mash, one expressed by many experts, is that the resultant wort (and beer) can become over-astringent or grainy. I have used this technique for many strong beers, and I think I get away with it because these tend to be strong-flavored beers in which such off-flavors can actually be complementary. I would not use this technique with a light Pilsner or wheat ale.

I believe that a long, hot mash favors alpha amylase initially at 154°F (68°C), and as the mash cools to 144°F (62°C), beta amylase converts higher sugars to sugars that are more fermentable. This is sort of a reverse step mash. I cannot explain why not stirring works so well, but it does. My working theory is that a temperature gradient may allow both amylase enzymes to be active at the same time in different parts of the mash. The wort would slowly travel between the different areas by diffusion and convert.

Splitting the runnings is reminiscent of traditional parti-gyle mash techniques historically used to make multiple beers from a single mash. In this case, we recombine the runnings at different stages during the fermentation of a single beer. This reduces the sugar content at the start of the fermentation. I monitor the specific gravities of the runnings as they drain from the mash tun using a refractometer and a weighing scale to calculate the volume. This information is shown in Figure 2.

Boiling

The first runnings, which are more concentrated, are boiled down to about 0.3 gallons (1.1 liters) to give an SG of 1.310 (62.9°P), and, yes, you read that correctly. This wort is transferred to Mason jars, cooled, and stored in a refrigerator until needed.

The second runnings are boiled down with the hop additions to a volume of 2 gallons (7.6 liters) to give an SG of 1.091 (21.8°P), and a Whirlfloc tablet is added 20 minutes before the end of the boil. This wort is then cooled and transferred to a 5-gallon plastic fermentation bucket.

FIGURE 2: SPECIFIC GRAVITY VERSUS VOLUME OF WORT COLLECTED AND HOW THESE WERE SPLIT.

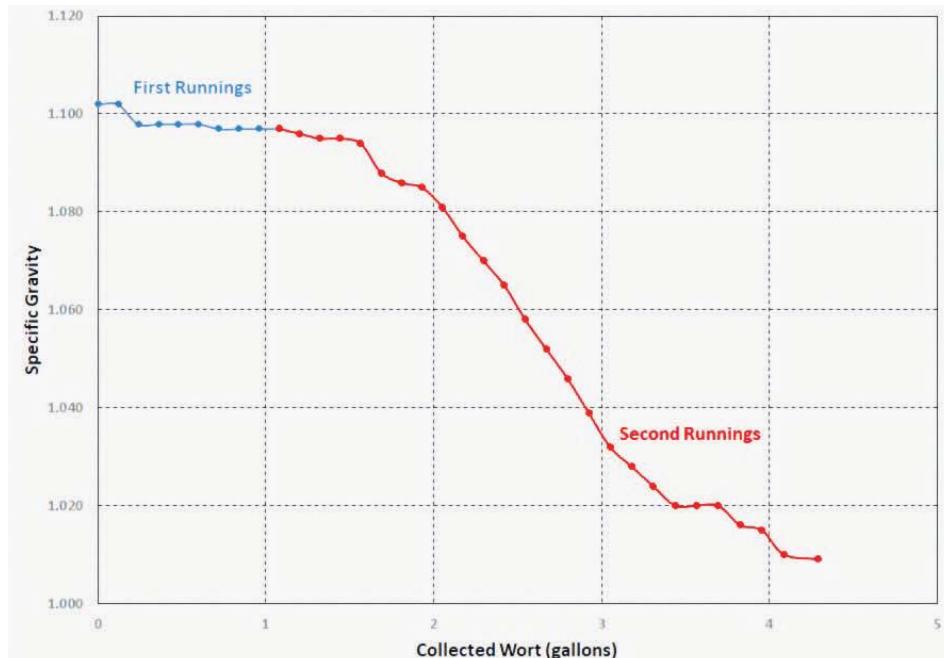


FIGURE 3: BUBBLE COUNTER OPTICAL SENSOR MOUNTED ON A STANDARD AIRLOCK.



FIGURE 4: TYPICAL WEB DISPLAY FROM THE BUBBLE COUNTER.

Fermentation Airlock Bubble Counter

Version 1.07

Info	Brew: Dystopias	Brewer: Andy	Location: Bment Freezer
Time	Now: 23:35 Jul 20	Start: 00:14 Jul 16	Elapsed: 4:23:21
Bubbles	Last Min.: 8	Last Hour: 488	Total: 39681
Temp. °C	Now: 20.4	Min.: 13.4	Max.: 21.9

Fermentation

Pitching yeast into a wort with a starting gravity of more than 1.200 (43.9°P) is just not going to work. The high sugar concentration will desiccate the yeast cells and effectively kill them off.

We have three types of sugars: monosaccharides (yeast goes for these first), disaccharides (yeast will consume these once the monosaccharides are gone), and trisaccharides (yeast may consume these if nothing else is available). The key is to feed the yeast when it is ready—not before and not after. So how do we make this happen? One good way of doing this is to monitor the fermentation rate. When the rate slows almost to a stop, it is feeding time!

An easy way to monitor fermentation rate is to watch the airlock. Counting bubbles is a favorite pastime of many homebrewers unless they can get another family member to do it for them. For this recipe, we need to continually monitor fermentation activity, so some sort of automated bubble counter would be useful, especially during the dark hours of the night. I had previously developed an internet-accessible airlock bubble counter for this purpose, so I used that here (see Figures 3 and 4). This device is cheap to make, and details on making one of these yourself can be found in the references.³

Once feeding time has arrived, we have to provide the sugars, which are either solids or thick, viscous liquids. In either case, there can be a real problem getting these sugars fully mixed into the fermenting liquid. Without some form of stirring, the sugar will just drop to the bottom of the fermenter and probably stay there and not get fermented.

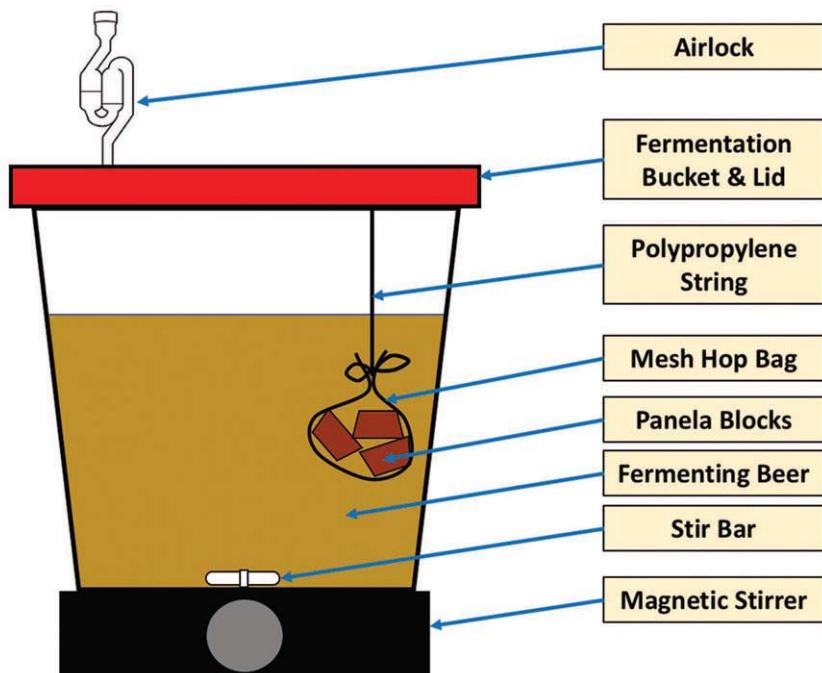
I use a large home-built magnetic stirrer to continually stir the fermentation (see Figure 5).³ Figure 6 shows how the stirrer can be used to dissolve and mix in solid sugars. Not only does this ensure that added sugars get fully mixed, but it also offers other benefits:

- It degasses the fermentation and prevents carbon dioxide build-up, which could otherwise poison the yeast.
- It simplifies adding and mixing powders such as nutrients.

FIGURE 5: A LARGE DIY MAGNETIC STIRRER TO MIX UP TO 6 GALLONS (22.7 LITERS).



FIGURE 6: USING A MAGNETIC STIRRER TO DISSOLVE AND MIX IN SOLID SUGARS LIKE PANELA.



- It keeps yeast cells suspended for optimal access to sugars and nutrients.
- It prevents yeast from collecting at the bottom of the fermenter, where it may die and cause autolysis-related off flavors.

As shown in Figure 1, the fermentation was conducted in six phases, and the bubble rate was monitored continually. Once it started to drop below about 45 bubbles per hour, the next phase was started by adding

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more sugar. I also monitored temperature, the weight of the fermenter and its contents, and specific gravity. I used the weight to calculate the volume of the beer as each addition was made, and the loss in weight (as carbon dioxide) was used to calculate the alcohol content. Because fermentation took place during an especially hot summer, I placed the stirrer and fermenter in a chest freezer with an external temperature controller set to 68°F (20°C). Figure 7 shows how the volume and apparent alcohol content increased as fermentation progressed.

Alcohol was generated quickly during Phase I. Interestingly, the additions in Phases 2 and 3 affected total volume more than alcohol content. The alcohol concentration increased significantly once simple sugars, which did not contain much water, were added.

AGING

A beer like this needs to be aged for many months, even years—with time, the beer will smooth and mellow, hop bitterness will diminish, and the beer can take on a vinous character. Adding spirit-soused toasted oak helps with aging by introducing complexity and absorbing some of the harsher compounds in the beer.

I took a leaf out of the Samuel Adams book and soaked 1 ounce (28 g) of self-toasted dark oak cubes in a blend of 1.5 oz. (45 mL) bourbon, 1.5 oz. (45 mL) port, and 1 oz. (30 mL) Cognac for two weeks and then dumped the whole lot into the carboy.

For convenience in adding and removing the oak, I drilled a small hole in each oak cube and threaded them all onto a length of unwaxed dental floss with some glass weights (chandelier pendants) tied to one end as shown in Figure 8. This oak necklace was easy to lower into the beer and to remove once sufficient oak character was attained (the other end of the dental floss needs to be tied to the outside of the neck of the carboy).

One downside to aging a small batch of beer is that if you regularly taste to check on progress, there's none left when it's finally ready. Story of my life. So, be patient, do not go near the beer for at least six months, and then taste it every three months afterwards. The main short-term action is to pull out the oak if things get too oaky.

Keep an eye on air getting into the beer during aging. Aging for long periods in an oak barrel will introduce significant amounts of oxygen into the beer, and Utopias has a distinctive port/sherry-like flavor to it. While this is pleasant to my

Brew
This!



DYSTOPIAS ALE

Really strong ale

Recipe courtesy Andy Tipler.

Batch volume: 3 U.S. gal. (11.4 L)

Original gravity: 1.199 (43.7°P)

Final gravity: 1.050 (12.4°P), ongoing

Color: 18 SRM

Bitterness: 37 IBU

Alcohol: 21.1% by volume

MALTS & SUGARS

3 lb. [1.36 kg] Maris Otter malt

3 lb. [1.36 kg] Pilsner malt

2 lb. [907 g] Vienna malt

4 oz. [113 g] English crystal malt, 60°L

1 oz. [28 g] Bavarian smoked malt

3.25 lb. [147 kg] Muntons Maris Otter LME

2 lb. [907 g] dark maple syrup

1.5 lb. [680 g] mesquite honey

1 lb. [454 g] panela

HOPS

0.3 oz. [9 g] Northern Brewer, 9% a.a. @ 60 min

0.3 oz. [9 g] Pilgrim, 9.1% a.a. @ 60 min

0.3 oz. [9 g] Sonnet Goldings, 2.6% a.a. @ 20 min

0.3 oz. [9 g] Styrian Goldings, 4.2% @ 20 min

0.3 oz. [9 g] Willamette, 5.5% a.a. @ 20 min

ADDITIONAL ITEMS

4 tablets Beano Flatulence Remediation Tablets (preboil)

1 tsp. [5 mL] Amylase Enzyme Powder (preboil)

1 tablet Whirlfloc @ 15 min

1 oz. [28 g] Dark Toasted Oak Cubes

1.5 oz. [45 mL] Bourbon

1.5 oz. [45 mL] Port

1 oz. [30 mL] Cognac

YEAST

Lallemand Nottingham

Lallemand Windsor

White Labs WLP099 Super High Gravity Ale Yeast

BREWING NOTES

This recipe is for dedicated brewers: the process is complex and time consuming, but the results make the effort worthwhile. The many details of this recipe are given in the main article.

The process starts with a hot overnight mash at 154°F [68°C] to maximize extraction efficiency. The wort is collected in two fractions, each of which is treated with enzymes to break down the higher sugars and then boiled down to increase its strength. The second (weaker) runnings are fermented using the dregs from a previous batch of English barleywine (see recipe for Dystopias Lite). The rate of fermentation is monitored using a bubble counter, and as fermentation starts to slow, more fermentables are added: liquid malt extract, first runnings, maple syrup, honey, and, finally, panela sugar, in that order.

This staggered fermentation takes about 5 weeks and should produce a green beer of about 19% ABV. The beer is then racked into a glass carboy and left to age. Signs of continued fermentation should still be evident, and it is expected that much of the sweetness still present in the beer will reduce over time. Dark toasted oak that has been soaked in a blend of port and spirits is added to the beer during the aging period. Aging may take up to 5 years. The beer is bottled and force carbonated with a low level of CO₂.

palate, I would not want it to be any stronger. A standard water-filled airlock will still allow some oxygen ingress into a glass carboy, and over a period of months or years, this will probably be enough to catch those port/sherry flavors. Of course, if you already have an oak barrel, go for it!

PACKAGING AND TASTING

Utopias is distributed, uncarbonated, in a fancy bottle. How you package this beer in bottles or kegs is up to you but I felt that just a touch of carbonation (*pétillant* as we mead- and cidersmakers call it) would give it a bit of crispness. However, do not expect bottle conditioning to work: you will have to force carbonate in a keg and bottle from that.

This article wouldn't be complete without at least some mention of how the finished beer tastes. However, because of the long fermentation and aging times, the beer on which this article is based isn't yet ready. It has been fermenting for six weeks and is only just approaching 20% ABV. Nonetheless, I made a serious assessment of its quality when I racked it to the secondary carboy.

Appearance: Mid brown, still cloudy, but showing early signs of settling.

Aroma: Sweet malt. Moderate earthy hops. Alcohol present but complementary. No nasty hot or chemical aromas. Perhaps a bit yeasty. Smells like a traditional English barleywine.

Taste: Too sweet. Strong, but smooth malt character. No cidery notes from the added sugars. Needs to attenuate more. Hop bitterness is assertive but balances the sweetness somewhat. Alcohol presence is muted but becomes noticeable in the finish. Medium finish dominated by sweet malt with an edge of hop bitterness. No evident off flavors such as diacetyl, acetaldehyde, hot fusels, solvent, soy sauce, cardboard, or smoke.

Mouthfeel: Luscious, slick mouthfeel. Chewy. Low astringency. Strong, but pleasant warming in the finish.

Overall: A good place to be with the flavor. Still far too sweet, but hopefully this will dry out over a few months as yeast continues to work. It's almost drinkable now. Adding oak will clean and smooth things out, and added spirits will add complexity. Hop bitterness will mellow, and the beer should take on a more vinous character, perhaps approaching

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DYSTOPIAS LITE

Barleywine

Recipe courtesy Andy Tipler.

Batch volume: 6 U.S. gal. [22.7 L]

Original gravity: 1.119 [27.9°P]

Final gravity: 1.030 [7.6°P]

Color: 15 SRM

Bitterness: 63 IBU

Alcohol: 12.1% by volume

MALTS & SUGARS

21.5 lb. [9.75 kg] Maris Otter malt

2 lb. [907 g] Vienna malt

1 lb. [454 g] English crystal malt, 60°L

4 oz. [113 g] Special B malt

4 oz. [113 g] torrified wheat

1 oz. [28 g] blackstrap molasses

3.25 lb. [1.47 kg] Muntons Maris Otter LME

HOPS

1.25 oz. [35 g] Northern Brewer, 9% a.a.
@ 60 min

1.25 oz. [35 g] Pilgrim, 9.1% a.a. @ 60min

0.5 oz. [14 g] Sonnet Goldings, 2.6% a.a.
@ 15 min

0.5 oz. [14 g] Styrian Goldings, 4.2% @ 15 min

0.5 oz. [14 g] Willamette, 5.5% a.a. @ 15 min

0.5 oz. [14 g] Sonnet Goldings, 2.6% a.a.,
flameout

0.5 oz. [14 g] Styrian Goldings, 4.2%, flameout

0.5 oz. [14 g] Willamette, 5.5% a.a., flameout

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 15 min

3 oz. [90 mL] Bourbon whiskey

1 oz. [28 g] dark toasted oak

YEAST

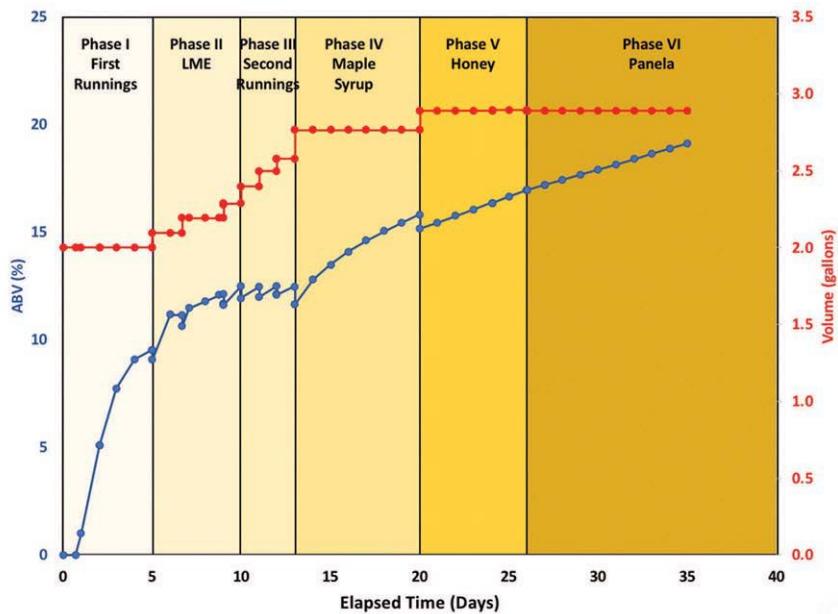
Lallemand Nottingham

Lallemand Windsor

White Labs WLP099

Super High Gravity Ale Yeast

FIGURE 7: SIX-STEP FERMENTATION PROGRESS.



BREWING NOTES

This recipe for an English-style barleywine may appear an afterthought to the accompanying Dystopias recipe. However, it's more of a precursor and acts as a good yeast starter for the bigger beer. This is a more hop-centric beer that does not lean as malty-vinous as Dystopias.

Despite the name, Dystopias Lite is not exactly light, coming in at about 12% ABV. The batch volume is 6 gallons so more grain is used than in the Dystopias recipe, which is only for 3 gallons. No enzymes or additional sugars are used in this brew.

The approach is similar: an overnight mash in 7 gallons (26.5 L) water starts at 150°F (66°C). Fly sparge with 5.5 gallons (20.8 L) water at 169°F (76°C). The first and second runnings are split into 3 gallons (11.4 L) and 7 gallons (26.5 L), respectively, and boiled down to 1 gallon (3.8 L) and 5 gallons (18.9 L), the latter of which is boiled with hops.

The fermentation sequence is [1] first runnings, [2] LME, and [3] second runnings, with the bubble counter used to monitor fermentation activity and regulate the additions.

As fermentation approaches final gravity, it will slow significantly. The beer is racked into a carboy, where very slow fermentation will continue for months. During this time, the bourbon-soused oak is added.

FIGURE 8: OAK-CUBE NECKLACE FOR AGING BEER.



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— Jennifer Glanville,
head brewer,
Samuel Adams

the sherry/port character of Utopias. This is not going to finish up anything like Utopias—it has much more body, and it likely will be a bit on the sweet side. I don't think it will get anywhere near the 29% ABV of the current Utopias. However, as a strong and drinkable beer, it's showing great promise.

FINAL THOUGHTS

A major problem with making really strong ales is how long things take. I can have an English bitter ready to drink in about a week, but these strong ales normally need months to ferment and years to age. The Dystopias beer I brewed is not yet ready, and the publishers have agreed to let me post some sort of update on how it finally turns out in a later edition of Zymurgy (like three years from now).

In retrospect, I would do a few things differently, mostly based on advice given:

- Use glucoamylase enzyme in the mash, which is probably a better choice than Beano.
- Add enzymes to the LME – this contributed significantly to the final gravity.
- Use a zinc-enriched yeast nutrient such as Servomyces at the start of fermentation.
- Supplement yeast dregs with some fresh yeast, and use Go-Ferm Protect Evolution for hydration.

- Some things, however, really worked well:
- The long hot mash gave great efficiency.
 - Continual stirring kept things moving along.
 - Incremental sugar additions worked well.
 - Monitoring fermentation with a bubble counter was a great way to determine feeding time.
 - Weighing the fermentation vessel gave a good indication of the rising alcohol content during fermentation.

I did reach out to the Boston Beer Company in a vain attempt to see if they would give me their recipe for Samuel Adams Utopias. I had a great email exchange with head brewer Jennifer Glanville, who was supportive of my project, gave me some good ideas, and thought my recipe was on the right track. She didn't, however, share any of her recipes. Jennifer felt it was much more important and difficult to get good beer flavor than a higher alcohol level, so I'm encouraged—my beer is tasting good even though it's only just reaching a measly 20%.

She also left me with this thought: "Strength and power equals amazing strong beer."

That says it all, doesn't it?

Finally, for readers who would like to use the techniques I have described to brew a more modest strong beer, I've included the recipe for Dystopias Lite barleywine, which could be used as a starter for the stronger beer. This beer won best-of-show in the 2018 Southern New England Regional Homebrew Competition (SNERHC).⁷

The approach is similar to that of the bigger Dystopias: an overnight mash starts at 150°F (66°C), and the runnings are split as before and added at different times during fermentation. However, unlike Dystopias, no enzymes or sugars are used in Dystopias Lite.

Remember, everything here is just one person's take on how these beers could be brewed. Hopefully, some of these ideas will work for you next time you have a bash at making this type of beer.

Good luck (you'll probably need it).

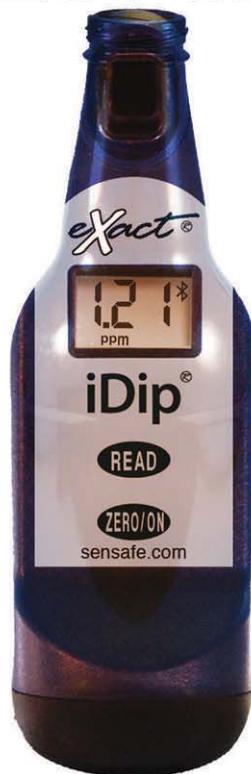
RESOURCES

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7. undergroundbrewers.org/snerhc-info

Andy Tipler grew up in England and moved to the United States 27 years ago for his job as a research chemist. He has been homebrewing (legally) for more than 50 years and is a certified beer, mead, and cider judge. Andy is active in competitions as a judge and as a contestant, and he enjoys talking and writing about brewing. He is a member of the Underground Brewers of Connecticut (the second oldest homebrew club in the USA). He would very much like to have an English pub next door.



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2020 ZYMURGY'S BEST BEERS IN AMERICA

By Amahl Turczyn

In these times of upheaval and social change, it's nice to know we can cling to a few things that don't change much. One is Zymurgy's list of the 20 Best Beers in America, as voted by you, the American Homebrewers Association members. There were a couple of surprises this year, but for the most part, the usual champions defended their titles, proving that according to the discerning palates of our readership, most of the top 20 best beers in America remained firmly entrenched. →



TOP-RANKED BEERS

(T indicates Tie)

1. Bell's Two Hearted Ale*
2. Russian River Pliny the Elder*
3. Sierra Nevada Pale Ale*
4. The Alchemist Heady Topper*
5. Bell's Hopslam*
6. Three Floyds Zombie Dust*
- T7. Boulevard Tank 7 Farmhouse Ale*
- T7. Founders Kentucky Breakfast Stout
9. Deschutes Fresh Squeezed IPA*
10. North Coast Old Rasputin*



* The independent craft brewer seal is your assurance that the beer you're holding was crafted by an independent brewery.



YOUR FAVORITE BEERS

For 2020, AHA members were allowed to vote for up to 10 of their favorite beer brands. The favorite beer list featured a couple of new entries, but most of the top 10 will look pretty familiar to Zymurgy readers, with the same three beers placing first, second and third as in 2019.

Bell's Two Hearted Ale took the gold, once again. One voter who nominated the beer nailed the reason—"Consistency, consistency, consistency"—while another elaborated, "Absolutely perfect! While IPA trends come and go, Two Hearted stands above all because of its balance and drinkability. It's a staple in my beer fridge."

Russian River's Pliny the Elder, seemingly never a stranger to the top three, took silver. "Classic IPA that has stood the test of time," a voter commented, with another going so far as to say, "Best beer I have ever tasted!"

Sierra Nevada Pale Ale, another consistent American classic, won bronze. Described by one voter as a "perfect pale ale," it was also recognized for consistency by another: "Day in and day out, best pale ale in America."

Further down the list, The Alchemist's Heady Topper rose from fifth place last year to 2020's number-four slot. "Solid in every way!" commented one fan.

Bell's Hopslam Ale Double IPA leapt from seventh to fifth. "Just the right combination of grains hops provides an excellent flavor profile. It goes down smooth!" was how one voter described the beer.

Three Floyds' Zombie Dust enjoyed a surge from twelfth to sixth. "Can't drink just one," were the words of praise from a voter.

Boulevard's Tank 7 was voted in at an appropriate seventh place, up from eighteenth in 2019. "Love this beer," was one bit of praise from a voter.

Founders Kentucky Breakfast Stout fell from fourth place last year to eighth, but it still holds the hearts of craft beer fans. Said one nominator, "This took bourbon barrel aging to a new level when it first came out and has been nothing but great since."

Deschutes Fresh Squeezed IPA squeezed into the number nine slot, up from fifteenth last year, and was described by a member as having "Wonderful flavor—very refreshing—not overpowering hop bitterness, great aroma."

North Coast Brewing Company's Old Rasputin Russian Imperial Stout rounded out the top ten, up from 23rd last year. "A classic style made into a cult beer that is way too drinkable," recognized a fan. →



TOP 20

Tree House Julius*

Founders All Day IPA

The Alchemist Focal Banger*

Cigar City Jai Alai*

Sierra Nevada Celebration Ale*

Toppling Goliath Pseudo Sue*

Allagash White*

Lawson's Sip of Sunshine*

Odell IPA*

Sierra Nevada Hazy Little Thing*





The top Accomplished Brewery in our readers poll was once again Bell's Brewery, Inc., in Galesburg, Mich.

ACCOMPLISHED BREWERIES

There was a bit more shuffling of pack leaders in your favorite breweries, but Bell's once again took pole position. Sierra Nevada rose from fourth to the number-two place, while Russian River remained in third. Founders fell from second to fourth, while Dogfish Head (now merged with Boston Beer Company) and Treehouse Brewing remained steady in fifth and sixth places, respectively.

Deschutes edged out The Alchemist to claim seventh place this year, with The Alchemist taking eighth. New Belgium jumps to the number nine spot from sixteenth last year, and tenth is a tie between craft titans Firestone Walker and Stone Brewing.

ACCOMPLISHED BREWERIES

(T indicates Tie)

1. **Bell's Brewery***
2. **Sierra Nevada Brewing Co.***
3. **Russian River Brewing Co.***
4. **Founders Brewing Co.**
5. **Dogfish Head Craft Brewery***
6. **Tree House Brewing Co.***
7. **Deschutes Brewery***
8. **The Alchemist Brewery***
9. **New Belgium Brewing Co.**

T10. Firestone Walker Brewing Co.*

T10. Stone Brewing*

TOP 20

- Toppling Goliath Brewing Co.***
- Boulevard Brewing Co.***
- Odell Brewing Co.***
- Allagash Brewing Co.***
- Oskar Blues Brewery***
- Three Floyds Brewing Company***
- New Glarus Brewing Company***
- Cigar City Brewing***
- Fat Head's Brewery***

* The independent craft brewer seal is your assurance that the beer you're holding was crafted by an independent brewery.



TASTE TEST

Many of this year's best beers enjoy coast-to-coast distribution and are found readily enough at your local craft retailer. Others are brewed for more local markets. AHA members who voted some of these beers into the best list may not have ever had the opportunity to try some of the others. For these folks, here are tasting notes for the top 10, plus a few of the other beers, including two newcomers that broke into the top 20 this year: Toppling Goliath's Pseudo Sue Pale Ale and Sierra Nevada's Hazy Little Thing. Hopefully these notes will give you an inkling of what you've been missing, give you the opportunity to add a few fine items to your burgeoning beer bucket list, and encourage you to seek out the best beers you haven't yet had the opportunity to sample.



TWO HEARTED ALE

Bell's Brewery Inc., Comstock, Mich.

Pours a clear orange-amber with thick, creamy off-white foam. Scent is candied orange peel, grapefruit rind, spicy pine, and resinous, zesty hop oil. Sweet caramel malt leads the palate, but a bready malt base balances the grapefruit, orange peel and pine. Bitterness and a restrained astringency follow, but this is not a tremendously bitter hop bomb. The pine resin builds gently and becomes more noticeable, seeming to layer on the palate with each sip. Bread crusts and toasty notes. High drinkability but with a medium body. What's not there is just as important...no perceivable flaws, off-flavors, oxidation, or vegetal hop notes. As several survey voters noted, one reason Two Hearted continues to wear the crown: it's consistently clean and harmonious, year after year.



PLINY THE ELDER

Russian River Brewing Co., Santa Rosa & Windsor, Calif.

This legendary double IPA begins with pine and grapefruit, with some tropical notes of lychee, and orange blossom honey. Opens to a juicy sweetness of the palate, with toasty malt, straw, and candied orange accenting the strong pine flavors, which seem to rush in and dry everything to an eventual bitterness. The 8% ABV serves to dry up most of the initial sweetness, but there is no forward alcohol taste, allowing for impressive drinkability in such a strong beer. Smooth landing after such a pronounced statement of bitterness mid palate. Hard to believe a beer of this strength and complexity is this light and easy to drink.



PALE ALE

Sierra Nevada Brewing Co., Chico, Calif. & Mills River, N.C.

Perhaps it's the bottle conditioning, or maybe it's the use of whole-cone hops, but this quintessential pale ale has been near the top of every homebrewer's favorite beer list for literally decades. Grapefruit and orange, with some restrained pine come courtesy of old-school Cascade hops. Lemon and melon notes emerge as the beer warms, then a hint of light caramel malt makes itself known on the palate. Fruity, slightly yeasty flavors rise right at the palate's finish, just enough to remind you this is an ale, and bitterness is present without dominating, though it lingers into the finish. A 5.6% ABV style-defining classic.



HEADY TOPPER

The Alchemist, Stowe, Vt.

Brewer John Kimmich suggests that this 75 IBU, 8% ABV double IPA is best sipped from the can to allow your senses to enjoy the maximum hop flavor experience. If you were to pour it, you'd find a hazy golden beer with phenomenal lacing. Peach, orange, lemon, pine resin, mango; it's an explosive release of hop aromatics, but oddly soft and even a bit sweet on the palate, as fruit and pine hop flavors follow the aromatics closely, but little of the expected bitterness is there to clamp at the finish. Even the alcohol is so well integrated, you'll barely notice it. Just a bit of citrus tang completes the fruit juice illusion. At once subtle and magnificent, Heady Topper leads the genre for fresh, juicy haze bombs.



HOPSLAM ALE

Bell's Brewery, Inc., Comstock, Mich.

The novel addition of honey to this American double IPA does little to add actual sweetness to the beer, but rather dries it out by boosting the alcohol to a slamming 10% abv. The Bell's brewers are very clever in this regard, as the volatile alcohol sensation actually enhances the perception of bitterness. Sweetness is strong up front, but that's mainly from light caramel malts. A good whiff of alcohol leads off the hop perfume, but at this strength, it's pretty much unavoidable. After the sweetness is overtaken by hop flavor and then bitterness, with a bit of a salty flavor to further enhance bitterness, the alcohol kicks in, and you are left with a lingering bitter astringency. Heady and extravagantly hoppy.



ZOMBIE DUST

Three Floyds Brewing Co., Munster, Ind.

Find this rare and much-coveted, lavishly hopped, hazy dark orange pale ale if you can. Hop aromatics and flavors display a complex bouquet of stone, citrus and tropical fruit, ranging from apricot and peach to grapefruit and curacao orange to mango, pineapple and some dank pine. There's also a white grape note. Hard to believe all this comes from Citra hops! Aromatics will of course vary in intensity according to bottling date—you'll want this one as fresh as you can get it. Flavor balance is fairly dry, with crackery malt and light caramel almost balancing the 60 IBUs of hop bitterness. That bitterness is sharp but not aggressive. Insanely drinkable, with no vegetal hop or astringency. Definitely a top ten contender.



TANK 7

Boulevard Brewing Company, Kansas City, Mo.

This bright, straw-colored ale starts out with impressively high carbonation from the bottle conditioning. Pour carefully to avoid the fluffy yeast, and you'll be rewarded with an impressive and lasting cloud of white foam. Aromatics are not subtle: citrus hops, lemon peel, mint, grass, pine, and clove. A nice surge of hop flavor underlies the Belgian yeast shenanigans. Alcohol heat makes an appearance towards the finish, adding to the tart, dry finish with 8% ABV, and complementing the clove and lemon that remain in the aftertaste. Big, hoppy, complicated Belgian-style golden ale that almost qualifies as a Belgian IPA.



ON THE WEB
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FOUNDERS Kentucky Breakfast Stout Clone



Wood-aged imperial stout with bourbon

Recipe courtesy Founders Brewing Company, Grand Rapids, Mich.

Thanks to Founders head brewer Jeremy Kosmicki for his guidance on the recipe—this is not an exact ounce-for-ounce replica, but the brewery was able to share ingredients and approximate proportions, so it should be pretty close.

Batch volume: 5 US gal. (18.9 L)

Original gravity: 1.093 (22.2° P)

Efficiency: 75%

Bitterness: 70 IBU

Color: 60 SRM

Alcohol: 12.3% by volume

MALTS

13.25 lb. (6.01 kg) pale malt

1.5 lb. (680 g) flaked oats

0.75 lb. (340 g) roast barley

0.75 lb. (340 g) Belgian chocolate malt

0.5 lb. (227 g) Belgian debittered black malt

0.5 lb. (227 g) 120°L crystal malt

HOPS

1 oz. (28 g) Nugget, 13% a.a. @ 60 min

1.25 oz. (35 g) Willamette, 5% a.a. @ 25 min

1.75 oz. (49 g) Willamette, 5% a.a. @ 10 min

ADDITIONAL ITEMS

2.5 oz. (71 g) Belgian bittersweet chocolate @ 15 min

1.5 oz. (42 g) unsweetened cocoa nibs @ 15 min

2 oz. (57 g) ground Sumatran coffee @ 0 min

0.25 oz. (7 g) toasted French oak chips, secondary

1 cup (237 mL) Kentucky bourbon, secondary

2 oz. (57 g) Kona coffee, secondary

YEAST

American or California Ale Yeast

BREWING NOTES

Mash at 155°F (68°C) for 60 minutes. Boil 90 minutes, adding hops, chocolate, and Sumatran coffee as specified. Ferment two weeks at 65°F (18°C). Soak oak chips in bourbon for two days. Soak ground Kona coffee in 1 cup (237 mL) boiled, cooled water and leave covered overnight in refrigerator. Strain out grounds and add cold-brewed coffee and bourbon, with wood chips, to sanitized secondary. Rack fermented stout onto this mixture and condition in secondary at 55–60°F (13–16°C) for 2 to 6 months before bottling or kegging.

PARTIAL-MASH VERSION

Substitute 7.75 lb. (3.52 kg) light malt extract syrup for 10 lb. (4.54 kg) of the pale malt. Mash the remaining 3.25 lb. (1.47 kg) pale malt and other grains at 155°F (68°C) for 60 minutes, sparge, and proceed as above, dissolving extract into hot wort before the boil.



KENTUCKY BREAKFAST STOUT

*Founders Brewing,
Grand Rapids, Mich.*

Take a perilously strong Imperial Stout, age it in a porous wooden vessel that previously held bourbon, and you've got yourself one whopper of a sipper. Vanilla and maple syrup, roast coffee beans, espresso and cream, and a kick of bourbon and oak, are the leading aromatics. Alcohol is evident, but let the beer breathe and warm a bit in the glass, and flavors come together smoothly on the palate. The 12.3% ABV provides an undeniable warmth and dryness, but the rich mouthfeel of the base stout isn't completely overwhelmed; there is some silkiness that remains without cloying sweetness. Fruity chocolate liqueur notes work well with the espresso and bourbon. Wood tannins also help to limit sweetness. Sip this black, boozy elixir slowly.



FRESH SQUEEZED IPA

*Deschutes Brewery,
Bend, Ore.*

A very hazy orange-red in the glass, Fresh Squeezed IPA positively drips with hop oils from two of the hottest and trendiest craft varieties: Citra and Mosaic. The hops are used late boil and post-fermentation, so there isn't huge bitterness here; it's 60 IBUs on paper, but the beer tastes quite malty and balanced. Alcohol is on the low end of the style at 6% abv. Mango, pineapple, and sweet orange peel mingle with medium caramel malt in the aroma. Biscuit malt and bready caramel linger through the finish. Fresh, clean, complex and worth seeking out for the luscious and exotic hop oils.



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- 80+ beer style descriptions
- Food pairing suggestions
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BEST BEERS
IN AMERICA



THE ALCHEMIST Focal Banger Clone

New England IPA

Recipe by Amahl Turczyn and Dave Carpenter, with advice from John Kimmich of The Alchemist.

"I believe that a good IPA has to have a certain level of mineral 'blockiness' to carry the hops and keep it from getting too tiresome on the palate," says Kimmich. "However, since the changes brought about by different water treatment are so subjective, I like to leave that up to the homebrewer to figure out. There are a lot of people out there who love the soft, chalky stuff that is all the rage now. They'll have to settle on that the same way I did—trial and error. The only really important part, in my opinion, is hitting the proper mash pH of 5.2–5.3."

Batch volume: 5.5 US gal. (20.8 L)

Original gravity: 1.064 (15.6°P)

Final gravity: 1.012 (3.2°P)

Bitterness: 80 IBU

Color: 5 SRM

Alcohol: 7% by volume

MALTS

9 lb. (4.08 kg) Pearl malt

4.81 lb. (2.18 kg) Pilsner malt

HOPS

6–7 mL CO₂ hop extract @ 60 min (50 IBU)

1 oz. (28 g) Mosaic, 12.25% a.a. @ 10 min (14 IBU)

1 oz. (28 g) Mosaic, 12.25% a.a. @ 5 min (8 IBU)

1 oz. (28 g) Mosaic, 12.25% a.a., whirlpool or hop stand 10 minutes (8 IBU)

4 oz. (113 g) Citra, 12% a.a., dry hop 3 days before packaging

YEAST

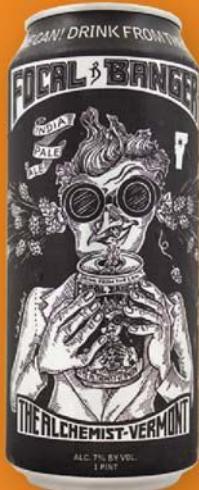
White Labs WLP095 Burlington Ale Yeast, Omega Yeast Labs DIPA, GigaYeast Vermont IPA, The Yeast Bay Vermont Ale, or Imperial Yeast Barbarian

BREWING NOTES

Mash at 150°F (66°C) for 75 minutes, collect wort, and boil 60 minutes. If you don't have the equipment to perform a whirlpool at the end of the boil, simply conduct a hop stand by steeping the final addition of Mosaic in the hot wort for 10 minutes before you begin chilling.

EXTRACT VERSION

Substitute 6.3 lb. (2.86 kg) Maris Otter liquid malt extract and 3.4 lb. (1.54 kg) Pilsner liquid malt extract for the Pearl malt and Pilsner malt, and proceed with boil. If boiling a concentrated wort, you may need to increase the 60-minute addition of hop extract to make up for utilization loss.



OLD RASPUTIN

North Coast Brewing Company, Fort Bragg, Calif.

This 9% ABV beer seems to absorb light, and it's got some of the darkest brown foam to grace an ale. Aromas are of roast grains, coffee, chocolate, caramel and toasted nuts, but dates and vinous port notes emerge as it warms. Sweet caramel malt and dried fruit are first on the hefty palate, with the same aged wine-like character developing—then hop flavor catches up and overtakes the malt and fruit tapestry. Alcohol warmth settles in, as do burnt grain bitterness and hop bitterness, which aren't always complementary, but work well together here. Dry cocoa and espresso powder at the close. Heady and intense imperial stout worthy of its legendary reputation.



CELEBRATION

Sierra Nevada Brewing Company, Chico, Calif.

Celebration Ale, like Sierra Nevada's Bigfoot Barleywine, is a seasonal offering that has attracted a huge number of fans in the beer community. Good caramel malt structure supports lots of pine forest hop flavors and aromas, and ends with a chewy, bittersweet kick. This beer is the epitome of fresh when it comes to big, pacific northwest American pale ales, but adds more malt depth, color and of course alcohol. It could be considered Mr. Bigfoot's little brother. As always, Sierra Nevada gets the bottle conditioning just perfect, and that, if you're willing to put up with a light trace of yeast on the bottom of the bottle, adds so much character and freshness to the beer. One of their finest offerings, and a sure bet if you are shopping for a winter ale. →





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ALLAGASH White Clone

Belgian-style witbier

Recipe courtesy Amahl Turczyn.

Batch volume: 5.5 US gal. (20.8 L)

Original gravity: 1.049 (12.3° P)

Final gravity: 1.010 (2.5° P)

Bitterness: 13 IBU

Color: 3 SRM

Alcohol: 5.2% by volume

MALT

4.5 lb. (2.04 kg) 2°L pale two-row malt

3 lb. (1.36 kg) wheat malt

1 lb. (454 g) flaked oats

1 lb. (454 g) flaked wheat

6 oz. (170 g) dextrin malt

HOPS

0.25 oz. (7 g) Nugget, 13% a.a. @ 60 min

0.5 oz. (14 g) Crystal, 3.5% a.a. @ 10 min

0.5 oz. (12 g) Saaz, 4% a.a., whirlpool 5 min



OTHER INGREDIENTS

7 g Indian coriander seed, freshly ground, whirlpool 5 min.

5 g Curaçao orange peel, freshly ground, whirlpool 5 min.

3 g Grains of Paradise, freshly ground, whirlpool 5 min.

WATER

1 g/gal. calcium chloride

1 g/gal calcium sulfate

YEAST

2 L starter White Labs WLP 400 Belgian Wit ale yeast

BREWING NOTES

Mash grains at 150°F [66°C] for 60 minutes. Mash out and sparge at 168°F [76°C]. Boil 90 minutes and whirlpool 5 minutes, adding hops and spices as indicated. Chill wort to 63°F [17°C] and ferment 7 days, allowing temperature to free rise to 73°F [23°C], and ferment to completion. Prime with 5 oz. [142 g] dextrose per 5 gal. [18.9 L] if bottling, or crash, keg, and force carbonate.

EXTRACT OPTION

Reduce pale malt to 1.25 lb. [567 g]. Substitute 5 lb. [2.72 kg] liquid wheat malt extract for remaining pale, wheat, and dextrin malts. Mash flaked grains in 155°F [68°C] water with 1.25 lb. [567 g] pale two-row malt for 45 minutes, drain, rinse grains, and dissolve extract using reverse osmosis or distilled water. Top off to desired boil volume and proceed as above.



PSEUDO SUE

*Toppling Goliath Brewing Co.,
Deborah, Iowa*

This is a chart topper on many favorite craft beer lists, earning a perfect score of 100 ("World Class") from Beer Advocate, so it's great the brewery is enjoying wider distribution. The 5.8% ABV Pseudo Sue comes in a tall pint can, is unfiltered with yeast sediment in the can, and is named for the largest T-Rex fossil ever found. Pale orange and cloudy, Sue displays the orange peel, mango, and grapefruit flavors typical of its single hop: Citra. Flavors are where Sue really roars. More pine, less tropical fruit, and an abrasive bitterness right at the back mean gigantic refreshment. Find this one—it's well worth digging for.



WHITE

*Allagash Brewing Co.,
Portland, Maine*

Fresh lemon, soft clove, and some wheaty grain aromas greet the nose from this pale, hazy yellow beer. But the best part of this 5.2% ABV is the palate. Lightly sweet, with a pillow mouthfeel, the taste is of coriander seed, lemon and orange peel, cereal and clove, with a very faint tartness wrapping things up. The unmalted wheat helps with the delicate white lacework left on the glass. Truly a world class example of the witbier style, and a legend in its own right.



SIP OF SUNSHINE

**Lawson's Finest Liquids,
Warren, Vt.** (brewed at Two
Roads Brewing, Stratford, Conn.)

Another Vermont-based NEIPA with a cult following, Sip of Sunshine's continued march up the Best Beers Top 20 proves this style is no flash in the pan. Mango, pineapple and sweet orange peel are prominent aromatics, followed by a sweet/sour palate of pine and grapefruit pulp. There is a distinct, resinous bitterness that lingers on the tongue, but the rich initial malt sweetness seems to keep it at bay with each sip; then the astringency comes rushing back. Orange hazy in the glass, this 8%-ABV hop rush deserves its mighty reputation and its rabid fan base. Greater New England availability means it's no longer restricted to lucky Vermont locals.



HAZY LITTLE THING

**Sierra Nevada Brewing Co.,
Chico, Calif.**

It takes a certain amount of skill to produce clear ale; but with the popularity of the North East IPA style, brewers have to know how to brew their IPAs so cloudy they look like orange juice. It isn't yeast haze—the opacity comes mainly from adjuncts in the grain bill such as oats, and hop oils in suspension, though that doesn't always translate to bitterness. In fact, here, a sweetness and rich oily body accompanies the fruitiness, making the whole thing come across as juicy. This one smells the part too, with sweet orange peel, passionfruit, and mango headlining. Dank and earthy in the middle, it concludes with the same sweetness, yet supports a dry aftertaste. Not your mother's IPA, but spot on for the style.

Thanks once again for your votes in 2020! Please be sure to get your votes in for next year's Best Beers in America. As stated, the same beers seem to be perennial favorites from year to year, and there aren't many in the top 50 we haven't already published as clone recipes. The recipe for Pliny the Elder appeared in the Jul/Aug 2014 issue, and Bell's Two Hearted Ale was published in the Jul/Aug 2011 issue. But we've nonetheless included a few from this year's top 20 list in case you haven't yet had a chance to try your hand at them. Or you can search the Zymurgy index at HomebrewersAssociation.org to find the specific issues for other recipes that have made the list.

Amael Turczyn continues to brew and write at his home in Lafayette, Colo.

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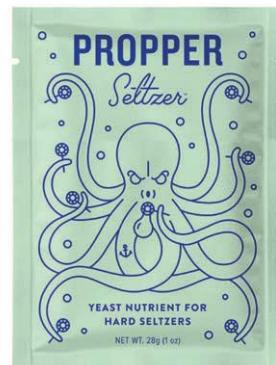
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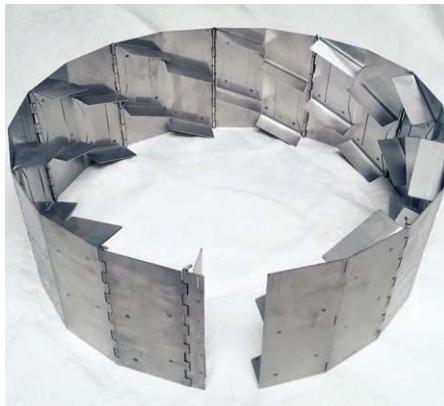
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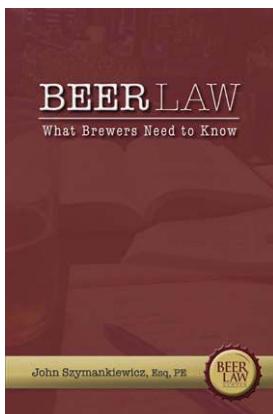
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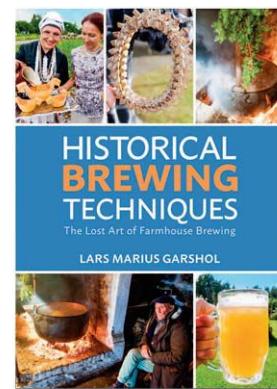
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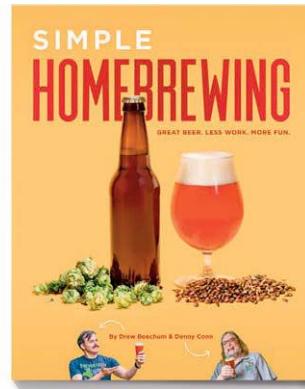
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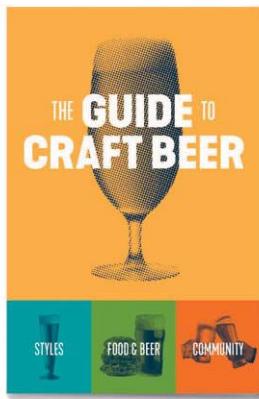
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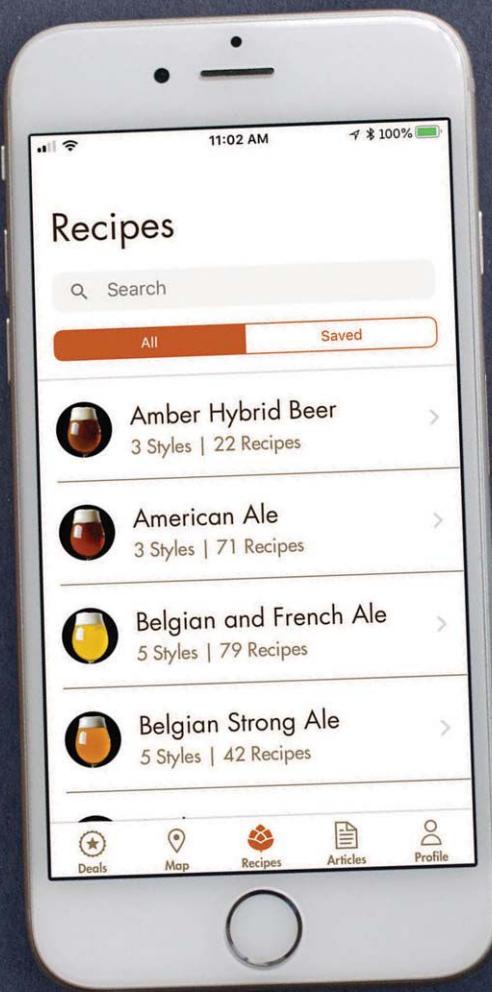
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Relax, Don't Worry, Have a Homebrew!

That mantra rings as true today as it did in 1978 when Charlie Papazian cofounded the American Homebrewers Association with Charlie Matzen. Homebrewing can be as simple or as complex as you want to make it, but the first step is always to relax and not worry.

To aid your relaxation and help you get the most out of *Zymurgy*, here are some standard assumptions and methods for our recipes. Of course, when a recipe says to do something different, follow the recipe. But you can always fall back on these general tips to brew great beer.



ON THE WEB

For more detailed info, head over to HomebrewersAssociation.org and dive into our How to Brew resources.

BREWING WITH ZYMBURGY

MAKING WORT

Most recipes in *Zymurgy* offer an all-grain version and a malt extract or partial-mash alternative. Pick the procedure you prefer and prepare some wort! Some recipes

might include a water profile. If you can't (or don't want to) deal with water chemistry, don't worry about it: just go ahead and brew! Extract brewers needn't add minerals to water.

Malt Extract Recipes

Making wort from malt extract is easy.

- Crush specialty grains, if any.
- Place milled grains in a mesh bag and tie it off.
- Steep bag of grains in 150–160°F (66–71°C) water for 30 min. in your brew pot.
- Remove bag of grains from the pot.
- Fully dissolve extract in the hot, grain-infused water (if there are no specialty grains in the recipe, you can skip directly to this step).
- Top up with water to your desired boil volume. (Leave some room for foam!)



All-Grain and Partial-Mash Recipes

Unless otherwise specified, all-grain brewers can conduct a single-temperature infusion mash with these parameters:

- Water/grain ratio: 1.25 qt./lb. (2.6 L/kg)
- Mash efficiency: 70%
- Mash temperature: 150–153°F (66.7–67.2°C)
- Mash duration: 60 minutes

Partial-mash recipes make the same assumptions but use a smaller amount of grain and augment the wort with malt extract.

BOILING

No matter how you get here, everyone loves adding hops.



- Boil time is 60 minutes unless otherwise stated.
- Boils are assumed to be the full batch volume, but you can also boil a concentrated wort and top up with water in the fermenter.
- Hop additions are given in minutes before the end of the boil.

Brew Lingo

Every field has specialized language, and homebrewing is no different. Here are some of the key terms, abbreviations, and acronyms you'll find throughout Zymurgy.

AA – alpha acid

ABV – alcohol by volume

AHA – American Homebrewers Association

BBL – US beer barrel (31 US gal or 117.3 L)

BIAB – brew in a bag

BJCP – Beer Judge Certification Program

Chico – American ale yeast, AKA Wyeast 1056, WLP001, SafAle US-05, and others

CTZ – Columbus, Tomahawk, and Zeus: interchangeable high-alpha-acid hops

DME – dry malt extract

DMS – dimethyl sulfide, an off flavor similar to canned corn or cooked vegetables

DO – dissolved oxygen

EBC – European Brewing Convention (beer color)

FG – final gravity

FWH – first wort hops, added to the boil kettle as it fills with sweet wort after mashing

HERMS – heat exchange recirculating mash system

HLT – hot liquor tank

IBU – international bitterness unit

LHBS – local homebrew shop

°L – degrees Lovibond (malt color)

LME – liquid malt extract

LTHD – Learn to Homebrew Day

MLT – mash-lauter tun

NHC – National Homebrew Competition

OG – original gravity

°P – degrees Plato (density of wort or beer)

RIMS – recirculating infusion mash system

RO – reverse osmosis, a water purification process that removes most dissolved ions

SG – specific gravity (wort/beer density)

SMaSH – single malt and single hop

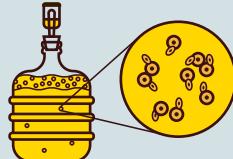
SMM – S-methyl methionine, precursor to dimethyl sulfide (DMS)

SRM – Standard Reference Method (beer color)

FERMENTING & CONDITIONING

Pitch yeast into chilled, aerated or oxygenated wort.

- Use twice as much yeast for lagers as you do for ales.
- Ales ferment at 60–70°F (15–20°C). Lagers ferment at 45–55°F (7–13°C).
- Condition ales at room temperature or colder for a week or two.
- Condition lagers at close to freezing for several weeks if you can (traditional but not required).



BOTTLING & KEGGING

If you bottle,

- Use 1 oz. of dextrose (corn sugar) per gallon of beer (7.5 g/L) for a good, all-purpose level of CO₂.
- Use less sugar for less fizz.
- Take care with higher carbonation levels—many single-use beer bottles aren't designed for high pressure.



If you force carbonate in a keg,

- Use the chart to dial in the gauge pressure on the regulator.



- Add 0.5 psi (35 mbar) for every 1,000 feet (300 meters) you live above sea level.
- To convert psi pressures to mbar, multiply by 69.
- To convert volumes of CO₂ to g/L, multiply by 2.

REGULATOR PRESSURES (PSI) FOR VARIOUS CARBONATION LEVELS AND SERVING TEMPERATURES

TEMP (°F)	VOL. CO ₂										
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
33	5.0	6.0	6.9	7.9	8.8	9.8	10.7	11.7	12.6	13.6	14.5
34	5.2	6.2	7.2	8.1	9.1	10.1	11.1	12.0	13.0	14.0	15.0
35	5.6	6.6	7.6	8.6	9.7	10.7	11.7	12.7	13.7	14.8	15.8
36	6.1	7.1	8.2	9.2	10.2	11.3	12.3	13.4	14.4	15.5	16.5
37	6.6	7.6	8.7	9.8	10.8	11.9	12.9	14.0	15.1	16.1	17.2
38	7.0	8.1	9.2	10.3	11.3	12.4	13.5	14.5	15.6	16.7	17.8
39	7.6	8.7	9.8	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5
40	8.0	9.1	10.2	11.3	12.4	13.5	14.6	15.7	16.8	17.9	19.0
41	8.3	9.4	10.6	11.7	12.8	13.9	15.1	16.2	17.3	18.4	19.5
42	8.8	9.9	11.0	12.2	13.3	14.4	15.6	16.7	17.8	19.0	20.1

■ = PSI

Source: Brewers Association Draught Beer Quality for Retailers



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If Barley Be Wanting

Virginia sits soundly within a temperate zone, but anyone who's ever spent a summer in the Piedmont knows why that time of year is nicknamed Hell's Front Porch. Heat indices stretching into the 90s and cresting over 100°F for a week at a time test the tolerance of anyone's assessment of "temperate." After one such summer, I threw a party to celebrate the welcome arrival of autumn and the season of Oktoberfest. That night there was a keg on the back deck, and in the keg was a proper Märzen. I had brewed it in March and let it lager all summer long before bringing it forth for the grand fête.

By J. K. Bywaters



Just down the back stairs sat a large wash tub filled with a selection of home-brewed ales in bottles. There was Uskglass, a northern English brown ale that had sat brooding on toasted chestnuts. There was Tri Diaracha, a Scottish wee heavy brewed with wild blackberries picked in high summer. And there were a few others. I had printed up a key to help my guests decipher the codes I had marked on the caps, but someone had picked it up and gone off with it. That was how I came to overhear the following admission from someone filling a mug from the keg.

"At first I was going to try one of the bottles," she said. "But it had a frowny face on it, so I put it back."

Later, I saw another guest approach her with the rediscovered piece of paper and point out something on the page.

"That's not a frowny face: it's a pumpkin! You know, like a jack-o'-lantern! It's a pumpkin beer. You should get one. It's really good!"

I was relieved to hear it.

It's laying it on thick to say that pumpkin ales are a perennially hot topic, but they're always on the back burner, and every autumn they come out and pick a fight or two. Pumpkin beers have their adherents: for some, pumpkin anything evokes nostalgic memories of Halloween, heading home for Thanksgiving, the last fire out of doors or the first fire on the hearth as the seasons change. I think they strike some people as gourmet, and still others as an interesting novelty.

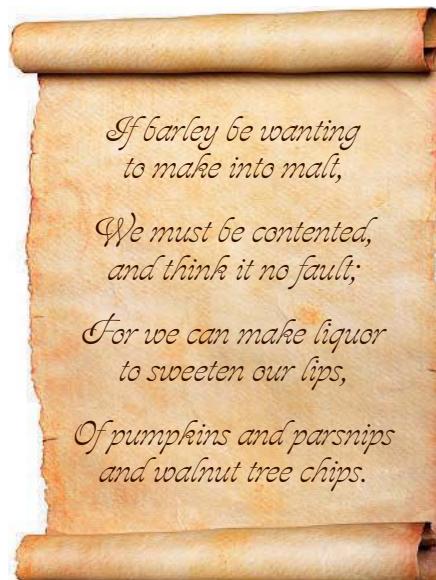
Other people can't stand them, deriding them as "pumpkin pie in a glass," "spice bombs," or "beer that doesn't taste like beer."

One could make the case that pumpkins have been a part of the American brewing tradition almost as long as there has been an American brewing tradition, but my "pumpkin beer" was simultaneously the most avant-garde offering of the night and a return to form.

Many, many books and articles tangentially or wholly given over to the subject

of brewing have referenced a particular stanza of early American verse as a point of interest or as hard evidence of colonists having brewed pumpkin ales. The source is seldom cited, and when it is, it is often mischaracterized as having been taken from a poem or even a colonist's letter to a friend still living in England.

In fact, the verse is taken from a broadsheet written by Captain Edward Johnson and printed up around 1643. It was a song meant to be sung to the tune of the more well-known "Down Derry Down," and far from being a letter to anyone in England, it was meant to fortify the New Englanders, to bolster a sense of pride, determination, and self-reliance in their hardscrabble colonial life, and to encourage them to hold fast instead of sailing back across the sea. The quatrain in question is as follows:



All right. Let's unpack this.

If barley be wanting to make into malt

The first line establishes an important caveat: everything that follows was only meant to be considered if there wasn't sufficient barley to be had. Novel or not, the colonists didn't look to pumpkin in this context as anything more than a source of fermentable sugars. But barley was best. If you could get barley, then brew with barley.

*We must be contented, and think
it no fault;
For we can make liquor to sweeten
our lips*

I think the crux of these next two lines is the last four words. The brew was still meant to be pleasant, and if some care were taken, it would be. I'd venture to guess that Captain Johnson is speaking from experience.

*Of pumpkins and parsnips
and walnut tree chips.*

Pumpkins we can take as read. Everyone knows about pumpkins. Indeed, it is a mark of the relative affluence of our modern times that most any reader who has ever wanted to try a pumpkin beer has almost surely had the opportunity to do so, and this without brewing it him- or herself. But parsnips? Parsnips? Plenty of people couldn't pick a parsnip from a pomegranate, and of those who could, I'd bet that somewhere around 50 percent have never gone so far as to make alliance with one.

Ladies and gentlemen, allow me to present *Pastinaca sativa*. Picture a slightly gray-tinted, cream-colored, bulbous-topped root vegetable similar in appearance and taste to an off-color carrot. It's sweet, but with a unique herbal note that suggests the underripe. It is an insistent and insouciant root, the epitome of the word vegetal. Many brewers would associate its aroma and taste with the dreaded dimethyl sulfide, or DMS. But do not despair—there is a path through the woods.

As for walnut tree chips, I don't think anyone needs to run walnut limbs through a woodchipper and throw a few handfuls into the mash tun. Before I brewed this ale for the first time, I spent some time trying to turn up evidence that the actual wood of English walnut or black walnut trees was used in brewing or cellaring beer. Although I didn't bivouac in the Library of Congress for a month, I personally couldn't find any specific source material that documented the use of walnut wood in early American brewing traditions.

We know that the colonists made furniture, cabinetry, paneling, and gunstocks from the wood, but I don't know that they made barrels from it. It's possible the Captain knew of actual walnut tree chips having been used in beer, but I think it's also possible he was simply looking for a rhyme. The nuts themselves, and especially the hulls, also have a high tannin content. Perhaps it's reasonable to suspect that a curious colonial brewer might well have experimented with using these parts of the tree as a bittering agent.



Black walnuts.

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But remember: Captain Johnson made it a point to include the infinitive phrase “to sweeten our lips.” I think it’s reasonable to think that actual walnuts may have been employed in some early American ales, not necessarily as a bittering agent but rather to enhance the flavor, especially if more dubious ingredients—possibly parsnips?—were also used. This was the tack I took.

If you want to try actual walnut wood, or black walnut hulls, proceed with caution. First, although both English walnuts (*Juglans regia*) and black walnuts (*Juglans nigra*) are safe for humans, it is true that walnut trees produce a compound called juglone, an allelopathic chemical that inhibits the growth of many other species of plants. Many people become increasingly sensitive to the dust and shavings of walnut wood over time, and juglone was suspected as the cause of this phenomenon, but isolated juglone has not produced detrimental pulmonary or dermatological effects in studies. However, be aware that if you want to try your hand at gathering your own black walnuts, the husks can become contaminated with *Penicillium* mold as they decay. This process can produce Penitrem A, a known neurotoxin.

Keep in mind, too, that shelling the nuts will be a day-long endeavor unless you are fortunate enough to have an old-timey black walnut huller, and even so, the husks and hulls will stain everything they touch. If you favor the DIY aesthetic, carry on. If you’d like to save time, black walnuts are commercially available, and English walnut halves and pieces are ubiquitous.

The accompanying recipe will take a little more time than your average brew day, but I think you will produce an ale that is worth the effort, one that has a unique character in the modern world even as it hearkens back to the earliest days of American brewing, nearly four hundred years in the past. So, raise a toast to those earliest American brewers who were already epitomizing the Yankee maxim “Make it do or do without.” And raise a toast to your jack-o’-lantern as well—if all goes well, his will be the only frowny face to be seen.

J. K. Bywaters is an award-winning storyteller, author, and brewer. His work has appeared in print in publications ranging from Holistic Healing magazine to the anthologies of *Bibliotheca Alexandrina*; recently online at resolutegent.com; and on the judging tables of central Virginia’s Dominion Cup. He has been telling tales, brewing ales, and tramping about in the woods for some time now, and cordially invites you to follow him on Facebook and Twitter.



Down Derry Down Colonial Pumpkin Ale

Pumpkin ale with walnuts

Recipe courtesy J. K. Bywaters.

If you plan to serve this beer right away, the pumpkin will deliver a light but noticeable and pleasant tang, which your favorite saison yeast will accentuate. If you’d rather age it a little while, that tang will mellow, in which case White Labs WLP011 European Ale is a good choice.

Batch volume: 5 US gal. (18.9 L)

Original gravity: 1.070 (17.1°P)

Final gravity: 1.009 (2.3°P)

Alcohol: 8% by volume

Bitterness: 24 IBU (walnuts may increase perceived bitterness)

MALTS

7.5 lb.	[3.40 kg] pale 2-row malt
1.5 lb.	[680 g] mild malt
12 oz.	[340 g] amber malt
12 oz.	[340 g] crystal 40°L malt
12 oz.	[340 g] Briess Victory malt
8 oz.	[227 g] soft white wheat malt
4 oz.	[113 g] Briess Special Roast malt

HOPS

1 oz.	[28 g] Fuggles @ 60 min
0.75 oz.	[21 g] East Kent Goldings @ 20 min
0.5 oz.	[14 g] East Kent Goldings @ 5 min

YEAST

Saison yeast or White Labs WLP011 European Ale (see intro text)

ADDITIONAL ITEMS

2 generous handfuls	rice hulls, as lautering aid
5–6 lb.	[2.27–2.72 kg] pumpkin, halved, innards removed, rind left on
8 oz.	[227 g] parsnips, peeled and chopped
4–8 oz.	[113–227 g] lightly toasted English or black walnuts @ 30 min
1 tablet	Whirlfloc @ 15 min

BREWING NOTES

Place pumpkin halves cut side down in a large roasting pan with the chopped parsnips nestled in the hollows where the pumpkin innards had been. Add about 1/4" (6 mm) water to the roasting pan. Bake at 300°F (150°C) for about one hour. Remove from oven and let cool to room temperature. Scrape pulp from pumpkin rind, mash parsnip pieces, and set aside.

Heat strike water to achieve a mash rest temperature of 152°F (67°C) and add to mash tun. Add pumpkin, parsnips, and rice hulls. Stir well. Mash in grains. Rest at 152°F (67°C) for 90 minutes.

While the mash rests, lightly toast the walnuts at 325°F (163°C) for about 12 minutes. Let nuts come to room temperature and crush in a paper bag (this will help remove some of the oils). Set aside.

Lauter and sparge to collect 6.5 gal. (24.6 L) of wort. Boil 90 minutes, adding hops, walnuts, and Whirlfloc as indicated above. Chill to desired fermentation temperature, pitch yeast, and ferment until specific gravity stabilizes at or near 1.009 (2.3°P). Bottle or keg.

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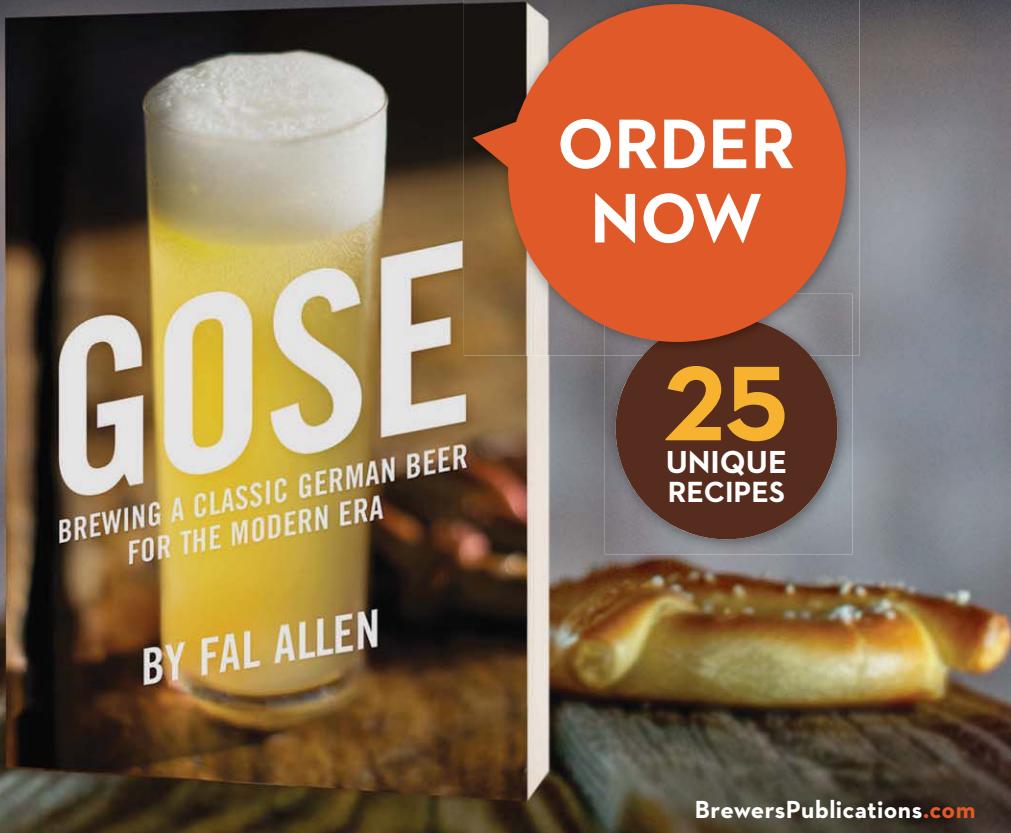


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There's Always Some Brewin' to Be Done

Not long ago, I visited some farming friends of mine. Kathleen, who describes herself as a “farm wife” (though she’s every bit a farmer in her own right), was baking a month’s worth of bread and buns.

She enjoyed what she was doing—and everybody appreciates her home baking. She’s not a commercial baker, but at the same time, breadmaking isn’t her hobby. The household needs bread, and she makes it.

This is my attitude towards homebrewing now. I’m not so much a brewer as an alewife. Or make that “honorary alewife,” if women will allow me to borrow that title.

In pre-industrial England, as elsewhere, it was women who brewed ale for their families’ nutritional needs. An alewife (also known as a brewster) was one who took care of the family’s brewing, plus maybe a little extra to sell.

Brewing is less of a hobby for me now than it was when I was first learning. Now it’s an enjoyable chore. It’s important that we never run out of beer, so there’s always some brewin’ to be done. I fit it in among my other domestic responsibilities, and I’m happy to say I’m good at it.

Instead of miniaturizing a professional brewing operation, I prefer to see my setup as an old country kitchen (it’s really a driveway). I don’t busy myself perfecting recipes and replicating successful brews. My role is to make the household’s beer so we have enough on hand.

The chief characteristic of the alewife’s approach is the simplicity of the gear. I use a pot, a burner, and a bag. No recirculating the mash: the temperature is held steady(ish) thanks to the insulating properties of my old army parka. No valves, no hoses—I’d rather not have to clean them.

After the boil, I chill my kettleful of wort in a tub with cold water circulating clockwise while I stir the wort the other way. Our tap water is really cold (it comes from a big body of water called Cold Lake). Chilling takes ten minutes.

I pick up the cooled kettle and dump the wort, trub and all, into a plastic fermenter.



A bag, a pot, and a burner are all an alewife needs to brew the household’s beer.

The physical dumping helps to aerate the wort. I think. I don’t know. It doesn’t matter.

Then I pitch, and I wait.

I use software to help me formulate recipes and know what to expect, but I don’t calculate efficiency. I punch in 80 percent as my expected brewhouse efficiency and generally hit or exceed my OG. If it doesn’t match the recipe profile, oh well—this beer will be a little more or a little less alcoholic.

Sanitation is of course important. I use a commercial foaming sanitizer, but I rinse it off—I just don’t want it in my beer. If the bacteria population on a surface is New

York City-scale before I sanitize, it may regenerate to the equivalent of the greater Fargo-Moorhead area by the time it touches the beer. I can live with that risk. So far, so good, many years in.

I ferment lagers in the coolest room in the house. I don’t know what temperature that is; it varies by the season. I cold-lager them for weeks or months in a spare fridge. They come out delicious. Don’t be afraid to try lagers just because you don’t have a temperature-controlled fermentation chamber!

I make a variety of English and American ales; including bitters, milds, stouts, IPAs (English and American) and APAs; and standard American (or Canadian) lager, Pils, Märzen, and bock. I try new things too, but I’m happy with the variety in my little repertoire.

For some, the fun and fascination of brewing is with the gear and the technique, and I get that. I admire and envy the ingenuity of people who can construct and operate sophisticated homebreweries. I’d love to spend a day brewing with them, and I’d love to have a couple pints of their beer.

But I draw my own inspiration from farm wives like Kathleen, and from the alewives of old.

If you want outstanding beer, don’t let a lack of expensive equipment stand in your way. Brewing comes down to mill, mash, boil, and ferment. People have been doing it for centuries—but they would have quit long ago if simple beer from simple processes wasn’t just plain damn good.

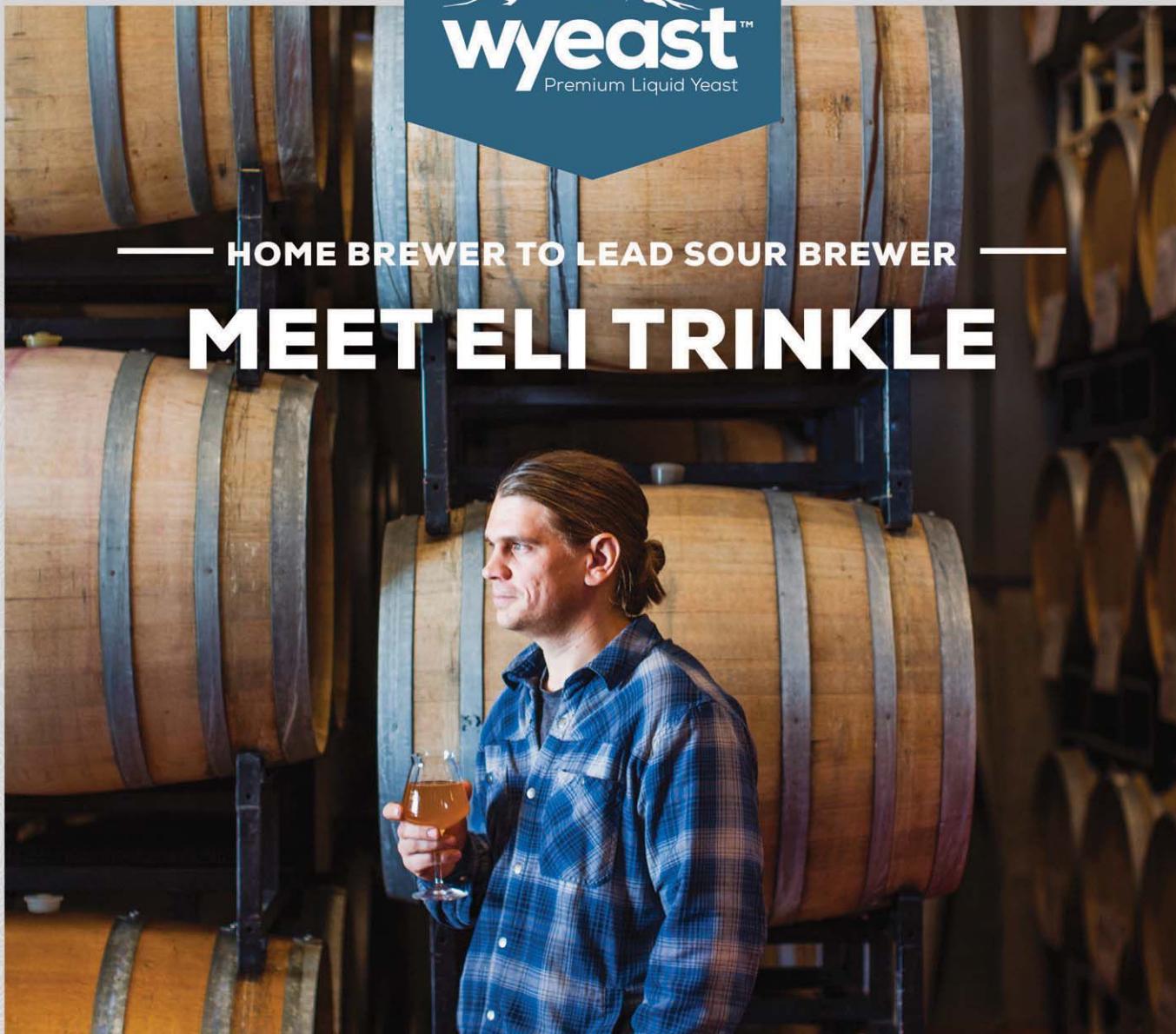
And if you prize simplicity in your own process, never feel that this beautiful burgeoning hobby is leaving you behind. As long as the world needs more beer—and it always will—there will be a place for the humble alewife.

Jeff Gaye has worked in an ice cream factory and two breweries, fought forest fires, played in symphony orchestras, and served in the Royal Canadian Air Force. He lives in Cold Lake, Alberta, where he publishes Respect, a biweekly newspaper for seniors and seniors-to-be.



— HOME BREWER TO LEAD SOUR BREWER —

MEET ELI TRINKLE



Eli Trinkle of Upland Brewing Co. was immediately drawn to home brewing after being introduced to it by his neighbor. After just one month of owning his own home brew setup, Eli was brewing all-grain with Wyeast smack-packs and kegging his own beer. He admits he was so intrigued by the process, it consumed his life. He spent countless hours researching and experimenting—he even worked as an assistant brewer while finishing his degree in engineering technology. Post-graduation, Eli decided that instead of pursuing more education, he'd turn his passion for brewing into a career.

Today, Eli has crafted a diverse portfolio of award-winning sours for Upland. He attributes his present-day brewing devotion to his colleagues at Upland, to the people of Bloomington, IN and the pride associated with pioneering a quality fermentation product. At Wyeast we share these same values, which is why we're pleased to toast the work of Eli and the rest of the Upland Brewing team.



See wyeastlab.com for homebrewing recipes from Eli and other commercial craft brewers.

PREMIUM LIQUID YEAST

Cold, Fresh and Carbonated

Delicious draft beer always on tap.
The way the brewer intended.

