

FOR THE **HOMEBREWER & BEER LOVER**

zymurgy®

■ The Journal of the American Homebrewers Association ■

PRESENTS

BEST BEERS SHOWDOWN



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YOU
CAN
BREW**

Cleaning
and
Sanitizing

CASCADIAN
DARK ALES

Charlie's
Carla Oat
Brown



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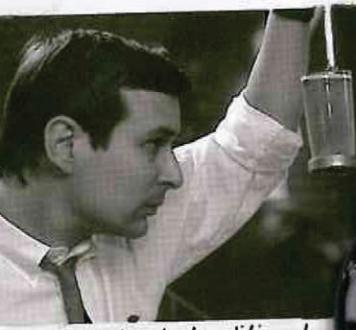
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PLUS: BEST BEERS IN AMERICA CLONE RECIPES

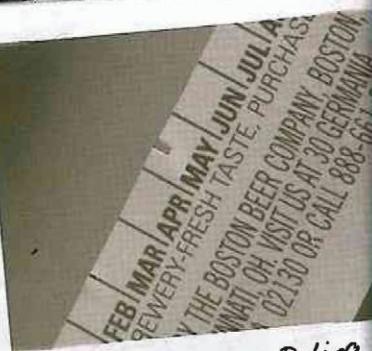
Cheers to 25 Years

THE PURSUIT OF PERFECTION

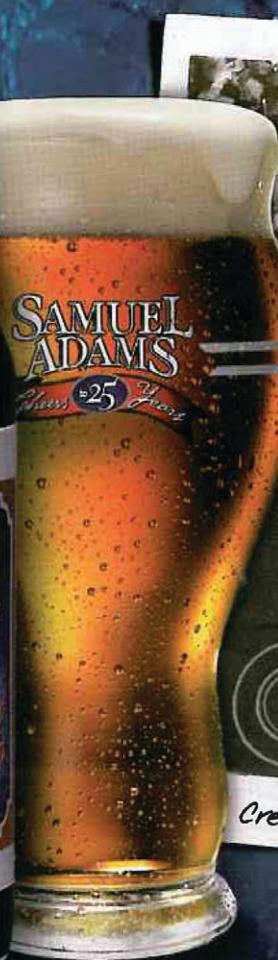
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on barrel-aged sour beer.

In the World Beer Cup, the Wood- and Barrel-Aged Strong Beer category overtook IPAs with the most number of entries (113). The gold medal went to Denver's Bull & Bush Brewery for its Legend of the Liquid Brain Imperial Stout. For a full list of World Beer Cup medalists, see page 38.

Speaking of the World Beer Cup, homebrew chef Sean Paxton whipped up a spectacular beer pairing dinner for nearly 2,000 people with such details as spent grain croutons and hop-infused honey. Paxton also prepared the grand banquet dinner for the National Homebrewers Conference in June for the second straight year.

The Brewers Association's annual awards were also presented at the Craft Brewers Conference, with Sierra Nevada's Ken Grossman winning the Russell Schehrer Award for Innovation for his leadership in technical brewing science. "When I started brewing 30 years ago, American beer was the laughingstock," he said. "We've raised the bar, and now other countries look to us for innovation." (For more on Sierra Nevada's 30th anniversary, see the *Zymurgy* Online Extra at HomebrewersAssociation.org).

Craft brewers posted more than 7-percent growth in production in 2009 despite the economy, and 2010 is also shaping up to be a solid year as the craft brewing revolution continues its rise. So, once again, cheers to craft brewers, homebrewers, and the *Zymurgy* readers who answered the call to vote for their favorite commercial beers in 2010.

Jill Redding is editor-in-chief of *Zymurgy*.



zymurgy®

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The results are in! Find out what Zymurgy readers think are the best beers—and the best breweries—in America in our eighth annual survey, plus clone recipes.

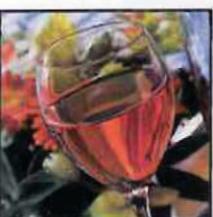
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There are many things that go into making great beer, including ingredients, styles, and methods, but if you don't properly clean and sanitize your equipment, all bets are off.

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Once you've cleaned all the organic and inorganic matter from your homebrew equipment, the next step in the process is sanitizing. The two go hand-in-hand.

- ONLINE EXTRA** **Sierra Nevada Turns 30** *by Sam Calagione*
To read this special, online-only feature, go to the *Zymurgy* page on HomebrewersAssociation.org.

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>> GET THERE! 4TH ANNUAL STONE SOUR FEST

The human palate is capable of detecting four basic tastes, but during a typical beer tasting only two of those (well, three if you count the pretzels) are experienced: bitter, sweet and salty. The Stone Brewing World Bistro & Gardens feels it's high time to include the fourth flavor domain, sour, in the equation.

Join Stone on July 18 for hours of sours as it celebrates this great, and often unexplored, tradition of tart and tasty ales. As in years past, Stone is gathering a vast array of sour beers both on tap and in bottles for the festival.

A \$40 Sour Pass includes a commemorative glass and 10 taster tickets. Food will be available to purchase both inside the bistro and outside in the beer garden. For more information visit www.stoneworldbistro.com/sourfest.



July 2-4
Seattle International Beerfest
Seattle, WA. www.seattlebeefest.com

July 16-17
Vermont Brewers Festival
Burlington, VT. www.vtbrewfest.com

July 16-18
Portland International Beerfest
Portland, OR. www.portland-beerfest.com

July 17
Indiana Microbrewers Festival
Indianapolis, IN. www.brewersofindianaguild.com

July 22-25
23rd annual Oregon Brewers Festival
Portland, OR. www.oregonbrewfest.com

July 23-24
13th annual Summer Beer Festival
Ypsilanti, MI. <http://michiganbrewersguild.org>

July 24
21st annual Sierra Brewfest
Grass Valley, CA. www.musicinthemountains.org/brewfest.php

July 30-31
Belgium Comes to Cooperstown
Cooperstown, N.Y. www.ommegang.com

August 14
Great Taste of the Midwest
Madison, WI. www.mhtg.org

August 15
Great Lakes Burning River Fest
Cleveland, OH. www.burningriverfest.org/home

GREAT BOOK WHAT'S NEW FROM BS BREWING CO.

33 Bottles of Beer

Homebrewer Dave Selden remembers scribbling tasting notes on little pads of paper at his first Great American Beer Festival last year. That's when the idea for a pocket-sized tasting notebook came into play.

The self-published 33 Bottles of Beer, made with 100 percent recycled paper, has 32 inside white pages plus the back inside cover to jot down tasting notes and stats on beers sampled. It also includes a flavor wheel where you can map a beer's unique flavor, and a five-star rating system.

Why 33?

"I sell them in packs of three, so that's 99 bottles of beer," explained Selden, who began homebrewing over five years ago and blogs at Portland's BS Brewing blog.

Selden's creation seems to be filling a void. Since the first printing in mid-November, he has sold almost 3,500 copies both online and through retailers. 33 Beers is available through retailers in 10 states and counting.

It retails for \$4, or three for \$10. To order, or to learn more, go to www.33beers.com.





If you've had a beer you just have to tell the world about, send your description, in 150 words or fewer, to jill@brewersassociation.org.

>> THE LIST

Homebrew chef Sean Paxton, in conjunction with author Randy Mosher, whipped up a food-and-beer pairing dinner for almost 2,000 people at the World Beer Cup gala awards dinner in Chicago on April 10. The dinner included five courses (almost 10,000 plates, if you're keeping track).

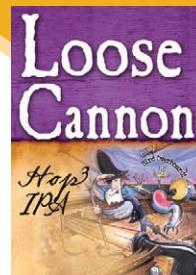


Here's a partial list of ingredients for the dinner:

- 600 gallons of beer (for pairing)
- 200 gallons of beer (for cooking)
- 400 pounds of butter
- 300 loaves of bread
- 500 pounds of onions
- 600 pounds of pork belly
- 160 pounds of mushrooms
- 275 dozen eggs
- 160 pounds of malt
- 100 pounds of sugar
- 6 gallons of honey

For more on Paxton, and some great recipes, go to www.homebrewchef.com.

>> YOU'VE GOTTA DRINK THIS



CLIPPER CITY HEAVY SEAS LOOSE CANNON

I pulled up to a small bar and BBQ joint in the middle of nowhere, Virginia, while biking across the country and asked "What's on tap?" "Loose Cannon," said the barkeep. "Is it any good?" I doubted. "It's our house beer, we love it." "I'll give it a shot."

He handed it to me, a beer so amber pure you'd think you could wear it around your neck. In my nose lingered the seductive scent of spicy floral hops. In my heart, an uncontrollable urge to indulge. Untamed citrus flavor penetrates a sweet malt backbone; its body is like that of a cloud from heaven. Have I sinned? I tried it just once, left alone, longing, questioning, wondering since when is the beer in rural America better than the barbecue? And why, God, can I not get this drink in Texas?

Reviewed by Keith Salas, Richardson, Texas

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by Our Readers

A Plug for Plastic Carboys

Dear *Zymurgy*,

The beast has reared its head again, and people are once again trashing plastic carboys for no good reason (*Dear Zymurgy*, May/June). I honestly don't



understand how there can be such ignorance amongst homebrewers, whom I've found are usually quite intelligent, reasonable people.

Apparently an expert winemaker needs to tell us beer makers

our business. To quote Daniel Pambianchi: "PET is FDA-approved and considered safe and non-toxic...PET carboys do not transfer flavors...manufactured to have negligibly low oxygen permeability; are hydrophobic, making them easier to wash than glass; and are not damaged or stained by the washing and sanitizing agents commonly used in winemaking."

[*Kit Winemaking*, Pambianchi; p. 39] Essentially, everything the detractors say about plastic carboys being inferior has been scientifically proven to be false.

I don't have a problem with people preferring glass out of tradition, compatibility with existing equipment, etc., but it seems entirely irrational that these fine products would be so easily dismissed by calling glass carboys "more desirable." All I know is that I'll never be at risk for losing a hand, arm, finger, or other sticky-outy bit because I use a "less desirable" product.

Cheers,

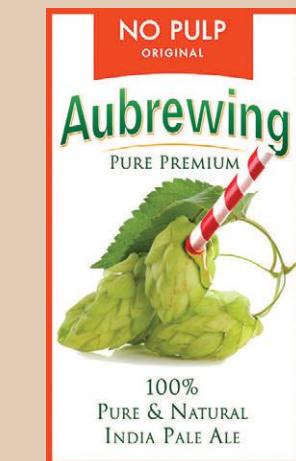
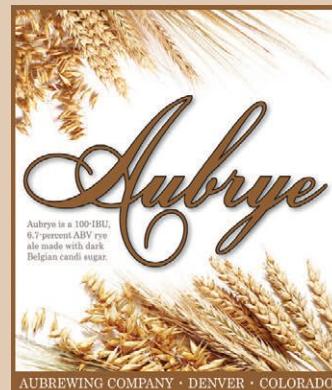
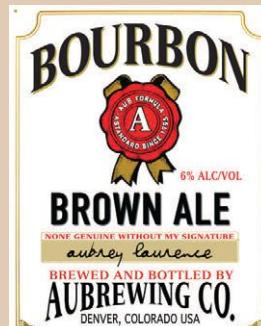
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FROM OUR READERS

Homebrew labels submitted by Aubrey Laurence of Frederick, CO



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What's Up with the Budweiser Ad?

Dear *Zymurgy*,

I look forward to each issue of *Zymurgy* and enjoy reading it from cover to cover. Imagine my horror when in the March/April issue I came across a Budweiser advertisement. I was shocked. I felt violated and betrayed. Please let whoever makes these advertising decisions know that I strongly oppose advertisements by companies that I consider to be enemies of real beer. Shame on you.

Richard Gleason, Jr.

What's Up with the Budweiser Ad? Part 2

Dear *Zymurgy*,

Budweiser? Are you kidding me? This is wrong in so many ways.

"The purpose of the Brewers Association is to promote and protect small and independent American brewers, their craft beers and the community of brew-

ing enthusiasts." Where exactly does Anheuser-Busch fall into this statement?

Disappointed,
Brett Hughes
AHA member and homebrewer

Zymurgy editor Jill Redding responds:
Actually, Budweiser has been a longtime advertiser in Zymurgy (check out the back cover of the July/August 2008 Zymurgy, for example), and Anheuser-Busch is a sponsor of the Great American Beer Festival (along with brands such as Coors Light and Miller Lite) as well as a member of the Brewers Association. We appreciate their support of homebrewing, and could not publish issues of Zymurgy without assistance from all of the companies that choose to advertise with us.

Send your letters to Dear Zymurgy at jill@brewersassociation.org. Hey homebrewers! If you have a homebrew label that you would like to see in our magazine, send it to Allison Seymour, Magazine Art Director, at Allison@brewersassociation.org. 

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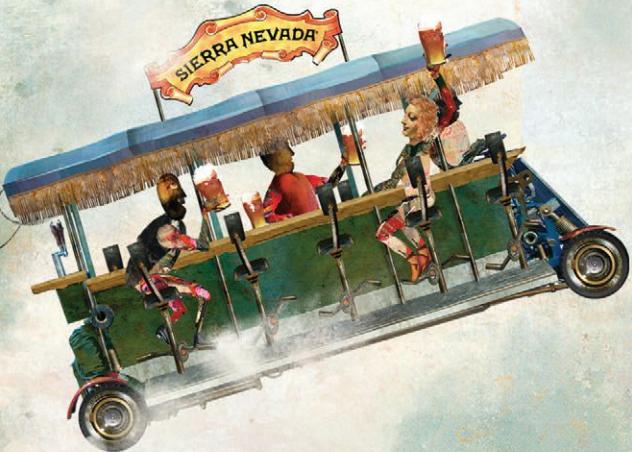


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by Professor Surfeit



Measuring Beer Eons for Ian

Hi Professor,
I have been brewing several beers that we do not (thankfully) filter. I let the yeast settle out for a week, then I keg the beers, and keep the kegs in the fridge at about 3 degrees (37° F). My bosses, who are not brewers, think that the beer will be getting "old" after the standard three months that filtered kegs of beer last. I am of the opinion that these kegs are essentially "bottle conditioned" with yeast still in the beer, so they should last a lot longer, just like some of my one-year-plus home-brews. Am I correct?

Thanks again,
Ian Watson

Dear Ian,
You're mostly right. Kegs are rarely pasteurized, so even most commercially brewed draft beer in kegs may have live yeast in them. The presence of live yeast helps keep beer fresher longer by scavenging oxygen. Reducing oxygen in any package of beer is a good thing. So tell your bosses that if they are buying draft beer that's filtered, then this beer can go "old" faster than properly kept unfiltered beer.

Eonic draft beer,
The Professor, Hb.D.

Tim's in a Tempest

Dear Professor,
I just finished bottling a batch of (home-brewed) Dogfish Head 60 Minute IPA, from Sam Calagione's wonderful *Extreme Brewing* book.

Great beer. Worst. Bottling. Session. Ever.

The recipe calls for dry hopping in the secondary, and I dutifully did so. When I went to bottle, I clogged up two plastic wands and a Phil's Philler, and ended up

using a bare hose and a clamp. It was my first two-hour bottling session.

Any suggestions—other than kegging, which I will certainly do next time—to make the procedure easier?

Clogged in Ohio,
Tim Boyer

Dear Tim,

My advice and simple solution: dry hop with hop pellets. I do it all the time. The hops float for a day or two, release their fresh goodness and then settle to the bottom as sediment. Siphon off into a third container and bottle from there.

Keeping it sane,
The Professor, Hb.D.

I Gruit in the Garden

Dear Professor,
I'm a brewer of gruit ale. Over the years, I've relied heavily on Stephen Buhner's book *Sacred and Herbal Healing Beers*. I ask for any help in finding other references to this ale.

I thought there was an issue of *Zymurgy* that covered it. Would you tell me what issue and how I can find it?

A related question: are there any bitterness rating charts on other herbs as is done with hops?



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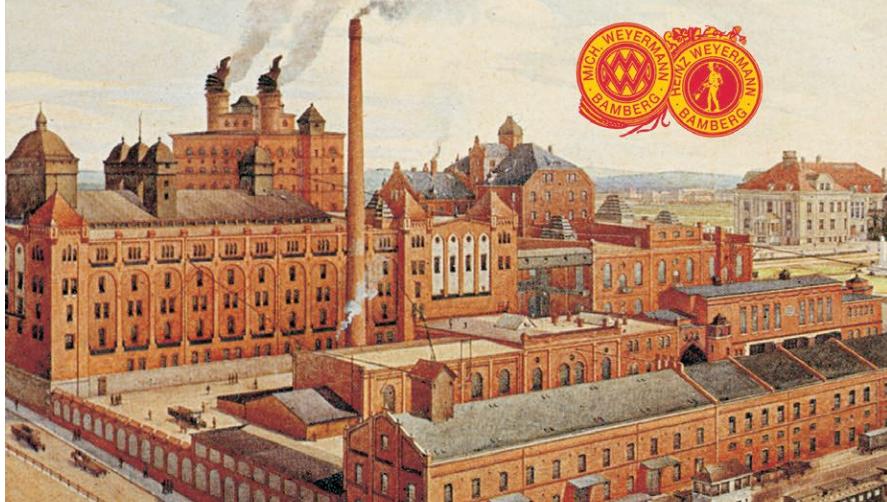
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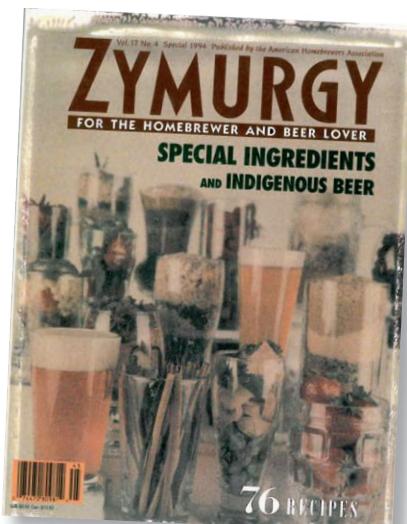
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Sabine Weyermann and Thomas Kraus-Weyermann

James Adams, the "Gruit Guy"
Maynard, Mass.

Yo Gruit Guy,

I've made and tasted some mighty fine gruits in my life. Cheers to your efforts. Steve Buhner's Sacred and Herbal Healing Beers is an excellent book on the history and use of herbs and spices in beer. In the 1994 Special Ingredients and Indigenous Beer Issue of Zymurgy, you'll find a number of articles. Specifically there are nine articles on herbs and spices and more stories related to gruit brewing and ingredients in the "Indigenous Beers" section. The 1994 issue of Zymurgy was a groundbreaking, paradigm-changing publication.



You can also go to HomebrewersAssociation.org, guide yourself to Zymurgy/Archives and do a keyword search of the 1993-to-current index of the magazine.

To my knowledge, there is not a bitterness rating chart for herbs. Hop bitterness is a measurement of a specific compound. Herb bitterness is dependent on a variety of compounds and circumstances. Sorry I can't help you there, but Mr. Google and participating herbalists may give you some guidance.

*Heal me Gruit Guy,
The Professor, Hb.D.*

Hey homebrewers! If you have a brewing-related question for Professor Surfeit, send it to "Dear Professor," PO Box 1679, Boulder CO 80306-1679; fax 303-447-2825; or e-mail professor@brewersassociation.org.



By Amahl Turczyn Scheppach

Yeast Nutrients

It's fairly well known that mead must is relatively devoid of nutrients on its own, compared to beer wort or a fruit-based must, and that the addition of some sort of yeast nutrient can help with yeast vitality. Is it necessary? Not strictly, but yeast nutrient may help to prevent a stuck fermentation, and it can produce a cleaner tasting beverage. But what exactly is in yeast nutrient, how does it compare with yeast energizer, and when or how do you actually add it?

Modern yeast nutrient formulations reflect the latest research into how yeast grow, and what they need to not only survive, but thrive. Basically, this research has shown that beyond a good supply of sugar, yeast need nitrogen, phosphorus, vitamins and trace metals. Sugar supplies the energy, phosphorus helps create DNA, vitamins are used to help make the best use of enzymes, and nitrogen is really the building block of the yeast cell—it makes up about 10 percent of the dry weight of the cell. But is an inorganic



nitrogen source the best way to get your yeast the nitrogen they need? That's where things get interesting.

First, a bit of background on the evolution of yeast nutrients. When they first became popular, winemakers recognized the benefits of nitrogen. It made sense to just use an inexpensive, inorganic nitrogen source. Food-grade urea, derived from animal urine, was plentiful and contained nitrogen. Wait a minute—food-grade? While this may seem like an oxymoron, it was a crude but effective way of delivering that key nutrient, and indeed one can still find this nutrient in crystalline and powdered form.

Other inorganic nitrogen sources followed, the most popular of which is Di-Ammonium Phosphate (DAP), which is still used in great quantities to this day. DAP not only supplied wine yeast with

nitrogen in the form of ammonium salts, it also supplied another nutrient that seemed to keep yeast happy: phosphorus. DAP was cheap and readily available, and soon became the yeast nutrient of choice for the wine industry. It also became the main ingredient in commercially available nutrient blends. But this wasn't the end of the evolution of yeast nutrient, because a diet of DAP and sugar isn't really the best thing for yeast. It's a bit like a human trying to live on a strict diet of caffeinated soda—the yeast tend to live short and unhealthy lives as a result.

As more research was done, scientists gained a better understanding of not only what nutrients yeast need, but how they best assimilated those nutrients. For fermentations beyond wine, especially, it was found that organic nitrogen was highly beneficial, so amino acids were also added (usually in the form of autolyzed

AMERICAN HOMEBREWERS ASSOCIATION CLUB ONLY COMPETITION

Mead

Entries are due July 30. Judging will be held August 8. Entry fee is \$7. Make checks payable to American Homebrewers Association.

Entry Shipping:

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Hosted by Deborah Lee and Hop Barley & the Alers of Boulder, Colo., this competition covers BJCP categories 24, 25, and 26. For more information, contact Deborah Lee at queenbee@gotmead.com.

Extra Special Braggot

This recipe is based on "E.S. Braggot" by Tim Hayner of the Impaling Alers in Kent, Wash.

Ingredients

for 5.25 US gallons (19.9 L) with a 3.5 gallon (13.2 L) boil

2 cans	(6.6 lb, or 3 kg) Coopers Light Malt Extract
0.5 lb	(0.23 kg) Crystal Malt (60° L)
0.5 lb	(0.23 kg) Crystal Malt (120° L)
12 lb	(5.4 kg) wildflower honey
1.5 oz	(50 g) Perle hop pellets, 7.2% a.a. (60 min) (42 IBU)
1.0 oz	(28 g) East Kent Golding hop pellets, 4.75% a.a. (15 min) (8 IBU)
1 Tbsp	(14 g) Irish moss (15 min)
2 packages	Wyeast 1098 British Ale yeast, or 2 vials White Labs WLP005 British Ale yeast
	Coopers Brewery Carbonation Drops for bottling

Original Specific Gravity: 1.130-1.142

Final Specific Gravity: 1.026

IBU: 50

ABV: 14-16%

Directions

Steep grains in 1 gallon (3.8 L) of water, heat to 154° F (68° C) for 30 minutes. Strain and sparge with 0.25 gallon (0.95 L) hot water. Stir in malt extract and top up with water to 3.5 gallons (13.2 L). Bring to a boil and add the bittering hops. Boil for 45 minutes and add the second hop addition and the rehydrated Irish moss. Continue boiling for 15 minutes. Turn off the heat, remove the hops, and add the 12 lb (5.4 kg) of honey. Allow to sit for 15 to 20 minutes before cooling the must. Cool to ~65 to 70° F (18 to 21° C) then pour into fermenter with enough pre-boiled cool water to make 5.25 gallons (19.9 L). Aerate and pitch yeast when the temperature drops to 65-70° F (18-21° C). Ferment at 67° F (19° C) for approximately three weeks or until primary fermentation completes.

Fermentation temperature control is crucial for preventing esters and higher alcohols from forming. Age in secondary for 4 to 6 months at 67° F (19° C). Prime with Coopers Brewery carbonation drops at bottling for a carbonation of approximately 1.0-1.5 volumes of CO₂. Allow several weeks to achieve carbonation. After the braggot is carbonated, store for a couple of weeks at a serving temperature of 50-54° F (10-12° C) before serving.

yeast), as well as micronutrients (vitamins and minerals). According to some sources, this is what distinguished "yeast nutrient" from "yeast energizer"—nutrient was mostly DAP, and energizer was more of a multivitamin approach. DAP is still found in yeast nutrient, but many blends add much less of it now. While yeast nutrient will no doubt continue to evolve, most current products take the shotgun approach, and blend an amino acid source, micronutrients, inorganic nitrogen and yeast hulls or "ghosts."

Yeast hulls aren't so much a nutrient, but a source of lipids called sterols. Sterols are used by yeast to strengthen cell walls, which is crucial for alcohol tolerance. Sterols can be produced by the yeast, but only under aerobic conditions, so having extra yeast hulls around in the latter stages for fermentation can be beneficial. Hulls can also absorb some of the toxins produced by the yeast during fermentation, which can be particularly effective in avoiding stuck fermentations.

A couple of companies are making yeast nutrient-like products based on a procedure in which yeast is grown under special conditions and then killed and dried. During the growth phase, the yeast is imbued with nutrients like zinc and magnesium before it is sacrificed. It is assumed that the cell walls are also ruptured (lysed) before the drying process so that the amino acid nutrients are exposed. The addition of this inactive yeast in the brew kettle combines all the advantages of yeast hulls, extracts and essential trace metals. The trace metal ions in particular become far more bio-available to yeast than they would be as simple multivitamin additions. Zinc and magnesium are beneficial to yeast in small quantities, but they tend to bind to other compounds before the yeast can use them; the yeast may even do the binding (or "chelating") themselves as a defense mechanism, since many metals are in fact poisonous to yeast.

Products like Servomyces offer a way around this. Specialized yeast hull products are expensive, and some brewers report that they don't notice much of a difference when using them. But theoretically they offer a natural, non-chemical

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YEAST NUTRIENTS

Some commercially available yeast nutrients and their advertised ingredients/description.

Urea: the main nitrogen-containing substance in the urine of mammals.

DAP (Diammonium phosphate)

Wyeast Yeast Nutrient: B vitamins, minerals, inorganic nitrogen (DAP), organic nitrogen (amino acids), zinc, phosphates and other trace elements.

White Labs Yeast Nutrient: "Mostly amino acids."

Fermax: DAP, dipotassium phosphate, magnesium sulfate and autolyzed yeast

Superfood: yeast hulls, yeast extracts, DAP, vitamins, and minerals

Fermaid K: Usable nitrogen, thiamin, folic acid, niacin, calcium pantothenate, yeast hulls (lipids)

Go-ferm: 100% biological specific inactive yeast produced through a unique yeast biomass process that is fine-tuned to obtain high levels of certain essential vitamins, minerals and amino acids that yeast requires for a healthy fermentation.

Servomyces: "Servo is yeast and is propagated in a micronutrient rich environment and then killed off prior to packaging. Boiling incorporates the Servo into the wort. The benefit of Servo is that micronutrients, e.g. zinc, are able to pass through its cell walls to your live yeast cell, thereby delivering the micronutrients without toxicity."

blends will not be totally soluble in water, so make sure liquids and solids, if any, are added. While some have argued that a staggered addition of nutrients is best, more recent research has indicated that as long as nutrient additions are made before 30-percent attenuation is reached, there's no need to stagger additions. But if you happen to forget to add nutrient and then get around to it a day or two after you've pitched, there shouldn't be a problem.

to make great strides in yeast nutrient formulation, there are a few stodgy traditionalists who prefer a more natural approach. The trouble is, there is no hard data to recommend how much of each of these potential nutrients to add, especially when mead strength, honey type, yeast type and nutrient type are all variables. But based on my puttering around with various mead experiments, I can at least offer some loose estimates.

Bee pollen may be the best approach, since you need so little that flavor impingement

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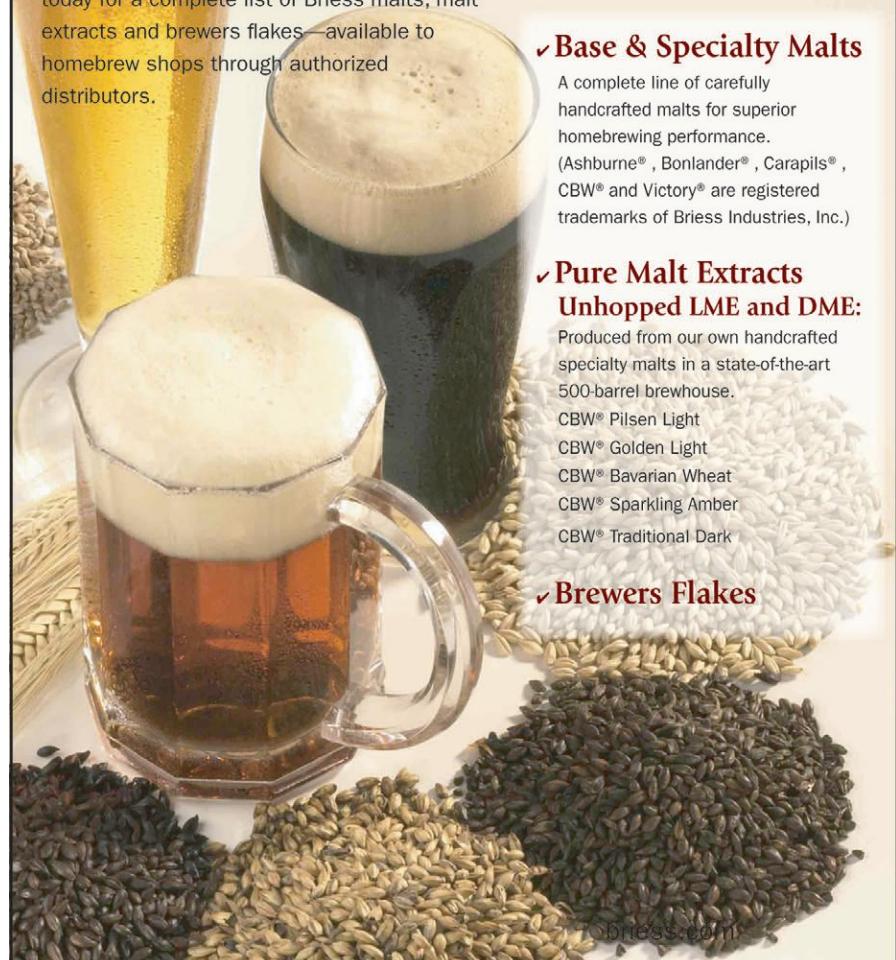
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solution that allows the yeast to ferment with less effort (i.e. cleaner). And if you are into harvesting and re-pitching one or more generations of yeast slurry from a previous batch, the trace metals (particularly zinc) can keep your yeast healthy from batch to batch.

Using Yeast Nutrients

It's important to note that yeast nutrients must be added in the proper amounts. Too much can definitely cause problems, most notably a lingering chemical, salt or B-vitamin character. Once it's there, it may age out, or it may not, so take care to not put in more of any given nutrient than what the manufacturer recommends.

As far as how and when to add nutrients, most go into the boiling kettle 15 minutes or so before knockout. Many meadmakers don't boil their must, but nutrients should still be boiled in a little water before they are added. Also note that many of the

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is not a concern. Plus, it seems only natural to use the honeybee's food source to complement its energy source. Fresh bee pollen is chock full of amino acids, vitamins, minerals, enzymes, proteins, fatty acids, and compounds we can't even identify. It can be used at a minute rate of one gram per gallon to meads shortly after the onset of fermentation.

For brewers who like using wine yeast in their mead must, raisins might be the way to go. Wine yeast is cultured for grape-based musts, so this is a simple way of introducing those same, familiar nutrients the yeast is expecting. Don't worry about slicing them open—just toss in 20-25 unsweetened raisins per gallon right after fermentation starts, and you should see a healthy fermentation. This should be enough to provide sufficient nutrition without adding too much in the way of recognizable grape flavor, though lighter meads may have a trace of wine character. Note that any fruit will contain nutrients for wine yeast, so melomels are great meads to make, and depending upon how much fruit is added, yeast nutrient may not be necessary at all.

Meadmakers who are also brewers can rely on good old beer wort as a natural nutrient source, particularly of Free Amino Nitrogen (FAN)—this is not something honey usually contains. (Note that DAP can be used as a substitute for FAN.) Like raisins, however, you will need to add a good quantity to realize a nutrient benefit, and this risks flavor impingement. Technically, you are making a braggot here, but if you happen to be using a stronger-flavored honey, spices, or other dominant flavors, this method works quite well. Hop bitterness is probably not something you want in your mead, so wort from a lightly hopped beer such as hefeweizen is probably the best bet. I've had good luck adding two quarts of canned, cooled 13° P gravity wort to a 5-gallon batch of mead. Or add about 12 ounces of light dry malt extract and avoid hop bitterness altogether.

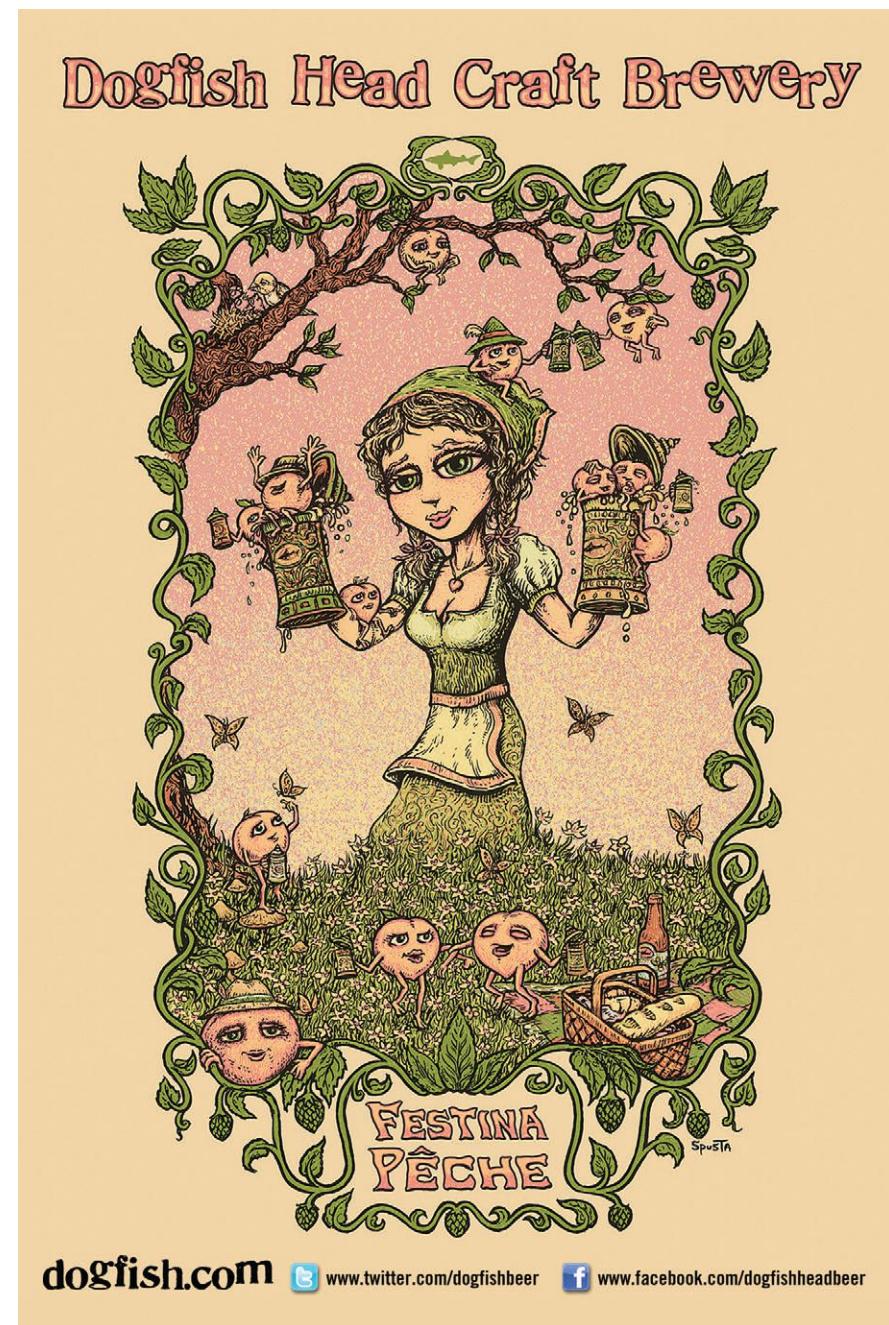
Yeast have an amazing ability to create what they need from what's available to them, but it turns out that when they are forced to synthesize a nutrient they need,

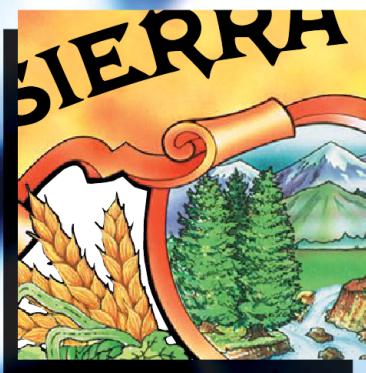
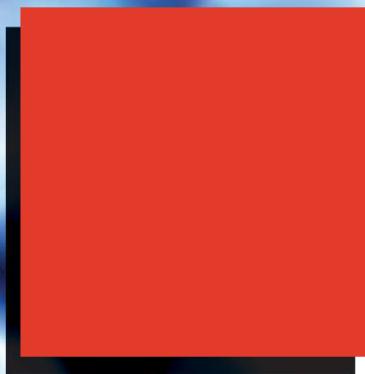
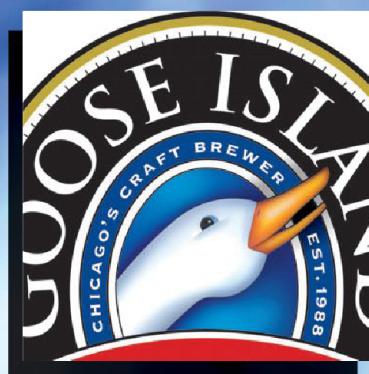
there are intermediate substances created that can taint their surroundings—and when those surroundings happen to be the mead you're brewing, it makes sense to give them what they need from the outset, rather than force them to make it themselves. That's where yeast nutrient comes in.

Amahl Turczyn Scheppach is a former craft brewer and associate editor for Zymurgy, and now brews at home in Lafayette, Colo.

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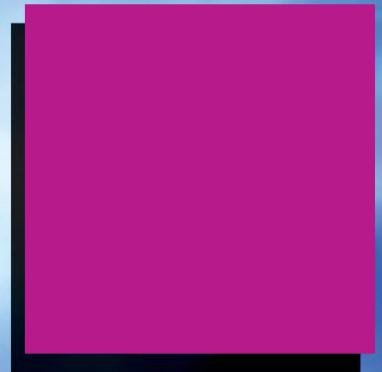
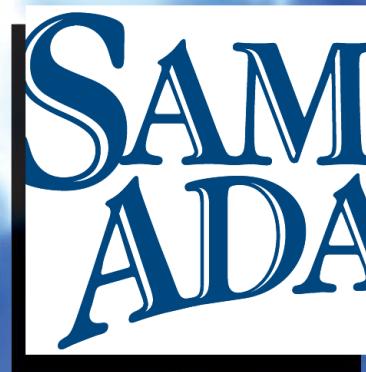
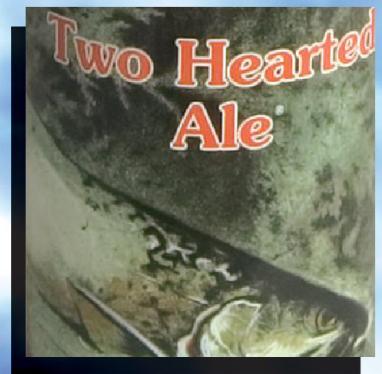




THE RESULTS ARE IN!

8th Annual Survey
Zymurgy's Best Beers
in America

By Jill Redding



TOP-RANKED BEERS

(T indicates tie)

1. Russian River Pliny the Elder
2. Bell's Two Hearted Ale
3. Stone Arrogant Bastard
4. Dogfish Head 90 Minute IPA
5. Sierra Nevada Pale Ale
6. Stone IPA
- T7. Bear Republic Racer 5
- T7. Guinness
- T7. Sierra Nevada Bigfoot Barleywine
- T7. Sierra Nevada Celebration
11. Stone Ruination
- T12. North Coast Old Rasputin
- T12. Sierra Nevada Torpedo
- T12. Rahr Winter Warmer
- T12. Rahr Ugly Pug
- T12. Rahr Iron Thistle
- T17. Oskar Blues Ten Fidy
- T17. New Glarus Belgian Red
- T17. Dogfish Head 60 Minute IPA
- T17. Duvel
- T21. Lagunitas IPA
- T21. Samuel Adams Boston Lager
- T21. Rahr Storm Cloud
- T21. Saison Dupont
- T25. Founders Kentucky Breakfast Stout
- T25. Rahr Bucking Bock
- T25. Ommegang Three Philosophers
- T28. New Belgium Fat Tire
- T28. Alaskan Smoked Porter
- T28. Anchor Steam
- T31. Ayinger Celebrator Doppelbock
- T31. Dogfish Head Palo Santo Marron
- T31. Rahr Summer
- T31. Rahr Red
- T31. Rahr Blind Salamander
- T31. Rahr Blonde
- T31. Rahr Octoberfest
- T31. Victory Prima Pils
- T31. New Belgium La Folie
- T31. Russian River Consecration
- T41. Oskar Blues Dale's Pale Ale
- T41. Rahr Buffalo Butt
- T41. New Belgium 1554
- T41. Orval
- T41. Lagunitas Hop Stoopid
- T41. Rogue Dead Guy
- T41. Unibroue La Fin Du Monde
- T41. Deschutes Black Butte Porter
- T49. Surly Furious
- T49. Dogfish Head Indian Brown
- T49. Rahr Whiskey Warmer
- T49. Rodenbach Grand Cru

The results are in! Each of the past eight years, we've asked *Zymurgy* readers to send us a list of their 20 favorite beers. The only rule is that the beer has to be commercially available somewhere in the United States.

We received a record 2,867 votes for 1,192 different beers from 450 breweries across the United States and beyond.

And this year's winner is...the same as last year! Russian River's Pliny the Elder claimed the top spot for the second straight year, beating Bell's Two Hearted Ale by a mere two votes.

"Wow! Two votes isn't much," said Russian River's Vinnie Cilurzo. "I love Two Hearted Ale. It is such a great hoppy beer. I'm going to have to get Bell's to send some bottles out to California for our staff to drink."

"We are flattered to be voted *Zymurgy*'s number one beer for a second year in a row. Russian River is so blessed to have such a great customer base that seeks our beer out and often travels from all over the country to visit our brewpub. We are very appreciative of the homebrew community and the support they give us!"

Pliny the Elder (named after the Roman naturalist who created the botanical name for hops) is an award-winning double IPA that checks in at 8-percent alcohol by volume. You can find Vinnie's recipe for Pliny the Elder on page 21. We ran it last year, but (ahem!) inadvertently bungled part of the recipe when converting it from percentages, so we're presenting the corrected version here for you to brew, along with several other clone recipes.

Bell's Two Hearted Ale is a perennial favorite, finishing in the top five the past three years. It is brewed with 100 percent Centennial hops and checks in at 7 percent abv.

"What an honor," said Bell's production manager John Mallett regarding Two Hearted Ale finishing second in the voting. "If there's a group that knows about beer, that's certainly the group," he said of *Zymurgy* readers.



Mallett said Two Hearted is a favorite at the brewery. "If it's not on at the bar, someone's hearing about it, which is great. Our consumer base is really attuned to our beer. A lot of work goes into it, and our entire brewing schedule is built around when Two Hearted brews and moves."

Zymurgy reader Martin Brungard of Indianapolis called Two Hearted Ale "pleasingly approachable."

"Bell's Two Hearted Ale presents the drinker with a chance to enjoy malt and hops in a joyous union," wrote Brungard.

Reader Matt Weide of Minneapolis called it a "true desert island beer."

Stone Arrogant Bastard finished third for the second straight year, and Dogfish Head 90-Minute IPA, last year's runner-up, was fourth.

"I cannot walk into my local watering hole without 90 Minute being my first beer," said Craig Guido of Randolph, Mass. "Sam and Dogfish Head have created probably the best beer on the planet (at least in my book!)."

Sierra Nevada Pale Ale rounded out the top five. Sierra Nevada beers claimed three of

the top 10 spots, with Bigfoot Barleywine and Celebration finishing among a four-way tie for seventh place.

"It's too bad it's a seasonal as this is the best beer in America," proclaimed Nevada's Chris Whitbeck of Celebration Ale. "I have been to over 200 breweries and have tasted beers all over the USA and at the GABF, and this is my favorite all-time beer."

Sierra Nevada has been in the spotlight in

2010 as it celebrates its 30th anniversary. To learn more about its history, be sure to read the July/August Online Extra by Dogfish Head's Sam Calagione available at HomebrewersAssociation.org.

Stone also hogged several spots in the top 15, with Stone IPA finishing sixth and Ruination finishing 11th.

"Ruination Ale is a celebration of all that an IPA can be. Its floral hoppiness is prominent with minimal bitterness," said

PLINY THE ELDER

Russian River Brewing Co., Santa Rosa, Calif.

Recipe provided by Vinnie Cilurzo

Ingredients

for 6.0 gallons (22.7 L)

[Net: 5 gallons (18.9 L) after hop loss]

13.25 lb	(6.01 kg) Two-Row pale malt
0.6 lb	(272 g) Crystal 45 malt
0.6 lb	(272 g) Carapils (Dextrin) Malt
0.75 lb	(340 g) Dextrose (corn) sugar
3.50 oz	(99 g) Columbus* 13.90% A.A. 90 min.
0.75 oz	(21 g) Columbus* 13.90% A.A. 45 min.
1.00 oz	(28 g) Simcoe 12.30% A.A. 30 min.
1.00 oz	(28 g) Centennial 8.00% A.A. 0 min.
2.50 oz	(71 g) Simcoe 12.30% A.A. 0 min.
1.00 oz	(28 g) Columbus* 13.90% A.A. Dry Hop (12 to 14 days total)
1.00 oz	(28 g) Centennial 9.10% A.A. Dry Hop (12 to 14 days total)
1.00 oz	(28 g) Simcoe 12.30% A.A. Dry Hop (12 to 14 days total)
0.25 oz	(7 g) Columbus* 13.90% A.A. Dry Hop (5 days to go in dry hop)
0.25 oz	(7 g) Centennial 9.10% A.A. Dry Hop (5 days to go in dry hop)
0.25 oz	(7 g) Simcoe 12.30% A.A. Dry Hop (5 days to go in dry hop)

*Tomahawk/Zeus can be substituted for Columbus

White Labs WLPO01 California Ale Yeast or Wyeast 1056 American Ale Yeast

Original Gravity: 1.072

Final Gravity: 1.011

Extract Efficiency: 75 percent

IBUs: 90-95 (actual/not calculated)

ABV: 8.2%

SRM: 7

Directions

Mash grains at 151-152° F (66-67° C) for an hour or until starch conversion is complete. Mash out at 170° F (77° C) and sparge. Collect 8 gallons (30 L) of runoff, stir in dextrose, and bring to a boil. Add hops as indicated in the recipe. After a 90 minute boil, chill wort to 67° F (19° C) and transfer to fermenter. Pitch two packages of yeast or a yeast starter and aerate well. Ferment at 67° F (19° C) until fermentation activity subsides, then rack to secondary. Add first set of dry hops on top of the racked beer and age 7-9 days, then add the second set. Age five more days then bottle or keg the beer.

Extract Substitution

Substitute 6.5 lb (3.0 kg) of light dry malt extract for two-row malt. Due to the large hop bill for this recipe, a full wort boil is recommended. Steep grains in 1 gallon (3.8 L) of water at 165° F (74° C) for 30 minutes, then remove and rinse grains with hot water. Stir in dextrose and top up kettle to 8 gallons (30 L), and bring to a boil. Add hops as indicated in the recipe. After a 90 minute boil, chill wort to 67° F (19° C) and transfer to fermenter. Pitch two packages of yeast or a yeast starter and aerate well. Ferment at 67° F (19° C) until fermentation activity subsides, then rack to secondary. Add first set of dry hops on top of the racked beer and age 7-9 days then add the second set. Age five more days then bottle or keg the beer.

BREWERY RANKINGS

These rankings are based on total votes received by each brewery's beers.

1. Rahr & Sons Brewing Co., Fort Worth, Texas
2. Stone Brewing Co., Escondido, Calif.
3. Dogfish Head Craft Brewery, Milton, Del.
4. Sierra Nevada Brewing Co., Chico, Calif.
5. Russian River Brewing Co., Santa Rosa, Calif.
6. New Belgium Brewing Co., Fort Collins, Colo.
7. Bell's Brewery, Kalamazoo, Mich.
8. Boston Beer Co. (Samuel Adams), Boston, Mass.
9. Deschutes Brewery, Bend, Ore.
10. Oskar Blues Brewing Co., Lyons, Colo.
11. Lagunitas Brewing Co., Petaluma, Calif.
12. Rogue Ales, Newport, Ore.
- T13. Anchor Brewing Co., San Francisco, Calif.
- T13. Avery Brewing Co., Boulder, Colo.
- T15. New Glarus Brewing Co., New Glarus, Wis.
- T15. Brewery Ommegang, Cooperstown, N.Y.
17. North Coast Brewing Co., Fort Bragg, Calif.
18. Victory Brewing Co., Downingtown, Pa.
19. Bear Republic Brewing Co., Healdsburg, Calif.
20. Odell Brewing Co., Fort Collins, Colo.
21. Goose Island Beer Co., Chicago, Ill.
22. Founders Brewing Co., Grand Rapids, Mich.
- T23. Three Floyds Brewing Co., Munster, Ind.
- T23. Allagash Brewing Co., Portland, Maine
25. Great Divide Brewing Co., Denver, Colo.

WE RECEIVED A RECORD

2,867 VOTES FOR 1,192

DIFFERERS FROM

450 BREWERIES ACROSS

THE UNITED STATES

AND BEYOND.

TOP IMPORTS

(T indicates tie)

1. Guinness (Ireland)
2. Duvel (Belgium)
3. Saison Dupont (Belgium)
4. Ayinger Celebrator Doppelbock (Germany)
- T5. Unibroue La Fin du Monde (Canada)
- T5. Orval (Belgium)
- T6. Chimay Grande Reserve (Belgium)
- T6. Rodenbach Grand Cru (Belgium)
8. Pilsner Urquell (Czech Republic)
- T9. Rochefort 10 (Belgium)
- T9. Samuel Smith's Oatmeal Stout (England)
- T9. Young's Double Chocolate Stout (England)

Zymurgy reader Wally Mulderig of San Diego. "I love it so much I bought a bike jersey with its emblem."

While many perennial favorites made the top 50 list this year, *Zymurgy* readers also had a great time exploring beers they'd never tried before. Many discovered newly released beers and liked them so much that they became immediate favorites. Sierra Nevada Kellerweis, New Belgium Ranger IPA and Samuel Adams Noble Pils were among those that quickly developed a following.



BEST PORTFOLIO

(T indicates tie)

Ranked by number of beer brands named in the poll

1. Boston Beer Co. (Samuel Adams) (22 beers)
2. Dogfish Head Craft Brewery (20 beers)
3. Rogue Ales (19 beers)
4. New Belgium Brewing Co. (16 beers)
- T5. Bell's Brewery (15 beers)
- T5. Deschutes Brewery (15 beers)
- T5. New Glarus Brewing Co. (15 beers)
- T5. Stone Brewing Co. (15 beers)
- T9. Avery Brewing Co. (14 beers)
- T9. Rahr & Sons Brewing Co. (14 beers)
- T11. Lagunitas Brewing Co. (13 beers)
- T11. Spoetzl Brewery (Shiner) (13 beers)
- T11. Sierra Nevada Brewing Co. (13 beers)
- T14. Great Divide Brewing Co. (12 beers)
- T14. Russian River Brewing Co. (12 beers)
- T16. The Lost Abbey (11 beers)
- T16. Anderson Valley Brewing Co. (11 beers)
- T16. Victory Brewing Co. (11 beers)
- T19. Allagash Brewing Co. (10 beers)
- T19. Odell Brewing Co. (10 beers)
- T19. Brewery Ommegang (10 beers)

Samuel Adams Noble Pils was originally brewed for Boston Beer founder Jim Koch's daughter's wedding. It is a Bohemian Pilsner brewed with all five noble hops and floor-malted Bohemian barley (see Dear *Zymurgy*, May/June 2010).

"The economics that Sam Adams can bring to creating Pilsner for the masses shines in their experience and ability to purchase noble European hops," said *Zymurgy* reader Jeff Long of Sterling, Va. "This beer is delightful."

Long is also a fan of New Belgium's Ranger IPA. "New Belgium released a 70 IBU IPA sort of out of the blue to me," he said. "I just did not see this coming from them."

Many beers are on readers' lists not just because of the flavor, but because of "beer moments" they have created.

"My top beer, hands down, is Troegs Mad Elf, not just because it is a delicious brew, but because what it represents to me," said Kevin Reese of Holmes, N.Y. "Every winter when the siblings are home from

SPIRIT OF HOMEBREW

This ranking is based on total number of votes received divided by annual production in barrels.

1. Rahr & Sons Brewing Co., Fort Worth, Texas
2. Port Brewing/The Lost Abbey, San Marcos, Calif.
- T3. Jolly Pumpkin Artisan Ales, Dexter, Mich.
- T3. Alpine Beer Co., Alpine, Calif.
5. Russian River Brewing Co., Santa Rosa, Calif.

college and the family is all together, we get a couple six-packs of Mad Elf to enjoy around the fire. For me, Mad Elf will always be associated with Christmas and warm, fuzzy feelings during the coldest time of the year."

Brent Brubaker has an all-time favorite in Lost Abbey Angel's Share.

"The first time I had this beer on November 7, 2006, I knew it would go down as the best beer I would ever have," he said. "It is layered with currants, fig, vanilla, caramel and bourbon/brandy notes and even with minor changes in various vintages, this still ranks a masterpiece."

Others found inspiration in unexpected places.

"I have a new number one: Maui Coconut Porter," proclaimed Rick Suk of Newark, Calif. "I was a hop head like many homebrewers, but after tasting this nectar I have come over to the dark side (and yes, it is in a can)."

FOREIGN AFFAIRS

Responses again this year showed that *Zymurgy* readers love the beers brewed by their local brewpubs and microbreweries—but also those from overseas. Of the top 50 beers in the poll, seven are imports, led by Guinness Draught Stout, the top-ranked import four of the past five years. Guinness tied for seventh overall.

Duvel was the number two import, in a tie for 17th place overall, and Saison Dupont was tied for 21st overall. Belgian

beers dominated the imports, taking six of the top 10 spots.

While many of the best beers are brewed by our local breweries in our own hometowns, imports can provide a glimpse into another world, whether experienced here or overseas.

"Hop It by Urthel combines the best of a Belgian farmhouse ale and a classic IPA," wrote Ken Carman of Nashville, Tenn. "This wonderful creation was imagined when Belgian brewers visited America because they were impressed by the new brew scene."

"The most interesting one on [my] list is the offering from the Quebec brewery St. Ambroise [Noire], which is a super creamy stout," said Andy Shuford of Montpelier, Vt. "On draft with some nitro infusion, it is just like a chocolate milkshake. It is good in the bottle, but not the same as the creamy draft version."

"Hanssens Oude Gueuze is truly a treat," said reader Bev Blackwood. "Just tart enough to let you know you're drinking a sour beer, but not so much you fear for your tooth enamel. That balance is so difficult to create, yet Hanssens manages to make it seem like the most simple (and delicious) thing in the world."

"De La Senne Tara Boulba is a great example of how much flavor and complexity can be packed into a 4.5-percent abv beer," said Bruce Blake of Waldoboro, Maine. "American brewers need to learn from their British and Belgian colleagues how to brew lower gravity beers with real character."

Reader Graydon Newman wrote about Cuvee de Ranke, "Sour, funky, lemony, refreshing—like waking up in a barn next to someone far more attractive than you deserve. If you see it, buy it, and repeat to yourself, 'You are very lucky.'"

AHEAD OF THE PACK

As in years past, we also kept track of which breweries received the most votes. This year's top brewery, by a landslide, is Rahr & Sons Brewing Co. in Fort Worth, Texas.

UGLY PUG SCHWARZBIER CLONE

Rahr & Sons Brewing Co., Fort Worth, Texas

Thanks to Frederick "Fritz" W. Rahr, Jr., founder and president, for providing the recipe!

Ingredients for 5 U.S. gallons (19 L)

7.0 lb	(3.18 kg) pale two-row pils malt
1.67 lb	(757 g) light Munich malt
4.3 oz	(122 g) chocolate malt
3.2 oz	(91 g) melanoidin malt
3.2 oz	(91 g) wheat malt
2.1 oz	(60 g) Carafla Special malt
0.67 oz	(19 g) Perle pellet hops, 8% a.a. (60 minutes)
	White Labs WLP810 San Francisco lager yeast

Boil Time: 90 minutes

IBUs: 18

SRM: 21

Original Gravity: 1.051

Assumed Efficiency: 75%

Directions

Infusion mash at 152°F (67°C) for 90 minutes.

Extract Recipe

Substitute 5.3 lb (2.4 kg) light malt extract syrup for the pale malt. Crush and steep specialty grains in 160° F (71° C) brewing water, dissolve extract, and proceed with boil.



RACER 5 IPA

Bear Republic Brewing Company, Healdsburg, Calif.

Ingredients for 5 U.S. gallons (19 L)

10.5 lb	(4.76 kg) pale two-row malt
1.5 lb	(0.68 kg) wheat malt
0.5 lb	(227 g) 20L crystal malt
0.5 lb	(227 g) Belgian caramel pils malt
0.5 oz	(14 g) Columbus pellet hops, 15% a.a. (60 min)
1.0 oz	(28 g) Columbus pellet hops, 15% a.a. (20 min)
1.0 oz	(28 g) Cascade pellet hops, 7% a.a. (20 min)
0.5 oz	(14 g) Columbus pellet hops, 15% a.a. (10 min)
0.5 oz	(14 g) Cascade pellet hops, 7% a.a. (10 min)
0.5 oz	(14 g) Amarillo pellet hops, 10% a.a. (dry)
0.5 oz	(14 g) Columbus pellet hops, 15% a.a. (dry)
0.5 oz	(14 g) Centennial pellet hops, 10.5% a.a. (dry)
	White Labs WLPO51 California V ale yeast

Boil Time: 90 minutes

IBUs: 70

SRM: 5.4

Original Gravity 1.072

Assumed Efficiency: 75%

Directions

Mash at 152° F (67° C) for 60 minutes. Mash out at 168° F (76° C) for 10 minutes. Ferment at 70° F (21° C), then condition in secondary at 60° F (16° C) for at least one week.

Extract Recipe

Substitute 8 lb (3.63 kg) light malt extract syrup for pale malt. Crush and steep specialty grains in 160° F (71° C) brewing water, dissolve extract, and proceed with boil. SRM can increase to about 8 depending on pale extract color.

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Boil time: 90 min

IBUs: 73

SRM: 60

Specific Gravity: 1.092

Assumed Efficiency: 75%

Directions

Infusion mash at 155 °F (68° C) for 60 minutes.
Add hops, chocolate and coffee as specified.
Ferment for two weeks at 65° F (18° C). Soak
0.25 oz (7 g) toasted French oak chips in 1 cup
(237 mL) Kentucky bourbon for two days. Soak
ground Kona coffee in 1 cup (237 mL) boiled,
cooled water and leave overnight, covered, 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.

Mini Mash Recipe

Substitute 7.75 lb (3.52 kg) light malt extract
syrup for 10 lb (4.5 kg) of the pale malt. Conduct
a mini-mash with the remaining 3.25 lb (1.5 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.

Rahr's loyal fans placed a whopping 12
beers in the top 50, including Ugly Pug,
a schwarzbiere for which the recipe is
included.

"This is a great surprise and a tremendous
honor for all of us at Rahr & Sons
Brewing, especially after what the brewery
has gone through the past few months,"
said founder and president Fritz Rahr, Jr.

On February 12, Fort Worth received
12.5 inches of heavy, wet snow, collapsing
the roof of the brewery on top of the
brewhouse, fermentation room, packaging
area, vault cooler, tap room and
offices, said Rahr. "Luckily nobody was
inside when it happened."

Rahr & Sons is currently finishing up its
repairs and should be up and running
again by the time this issue is printed. "To
say it's been an interesting few months

would be an understatement!" said Rahr.

Finishing second for the second straight year was Stone Brewing Co. of Escondido, Calif.

We also tabulated which breweries had the most brands in the voting. That honor went to Boston Beer Co. with 22 of its Samuel Adams brews getting votes. Dogfish Head was close behind with 20 brands.

GREAT BEERS, SMALL BREWERIES

Once again, we raise a glass to those breweries that, though small in production, score high with beer lovers. We determine the Spirit of Homebrew Award by taking a brewery's total number of votes and dividing it by the brewery's production in number of barrels.

Rahr & Sons, which brewed 4,200 barrels of beer in 2009 according to statistics submitted to the Brewers Association, is the Spirit of Homebrew winner for 2010. Finishing second was Port Brewing/The Lost Abbey of San Marcos, Calif., which brewed 3,955 barrels in 2009.

Jolly Pumpkin Artisan Ales of Dexter, Mich. (1,485 barrels) and Alpine Beer Co. of Alpine, Calif. (834 barrels) tied for third place, with Russian River Brewing Co. rounding out the top five.

RECIPES

As usual, we're providing clone recipes for some of the top vote-getters. The recipe for 90 Minute IPA can be found in the July/August 2005 *Zymurgy* and a recipe for Bell's Two Hearted Ale was included in July/August 2003. However, *Zymurgy* contributor Amahl Turczyn Scheppach still had plenty of great beers to choose from, so we've provided clone recipes for four more favorites. Give them a try and let us know what you think.

Thanks for voting, and thanks to those of you who provided comments and reviews of your favorite beers. We'll include information about participating in the 2011 poll in future issues and on HomebrewersAssociation.org.

Jill Redding is editor-in-chief of *Zymurgy*.

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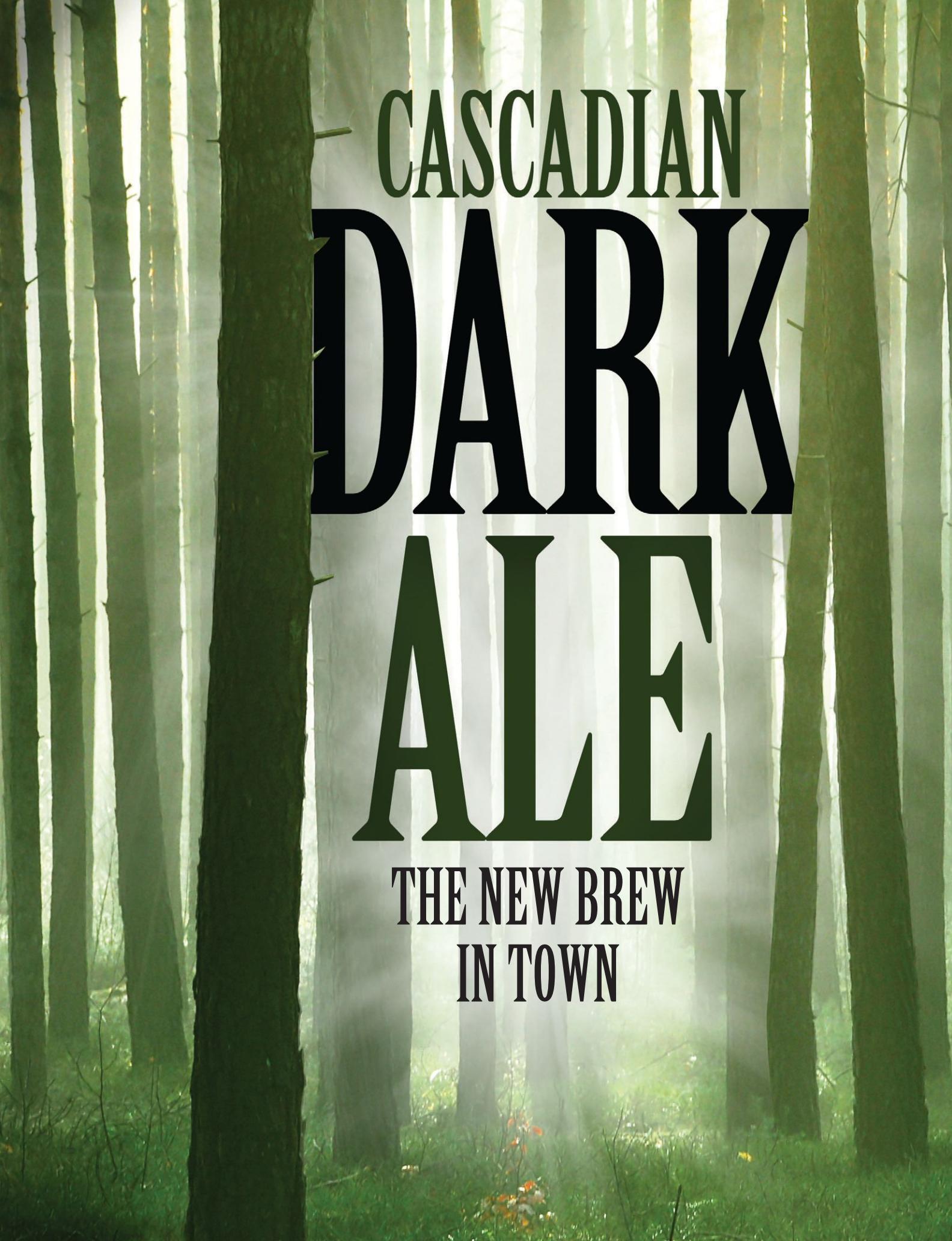
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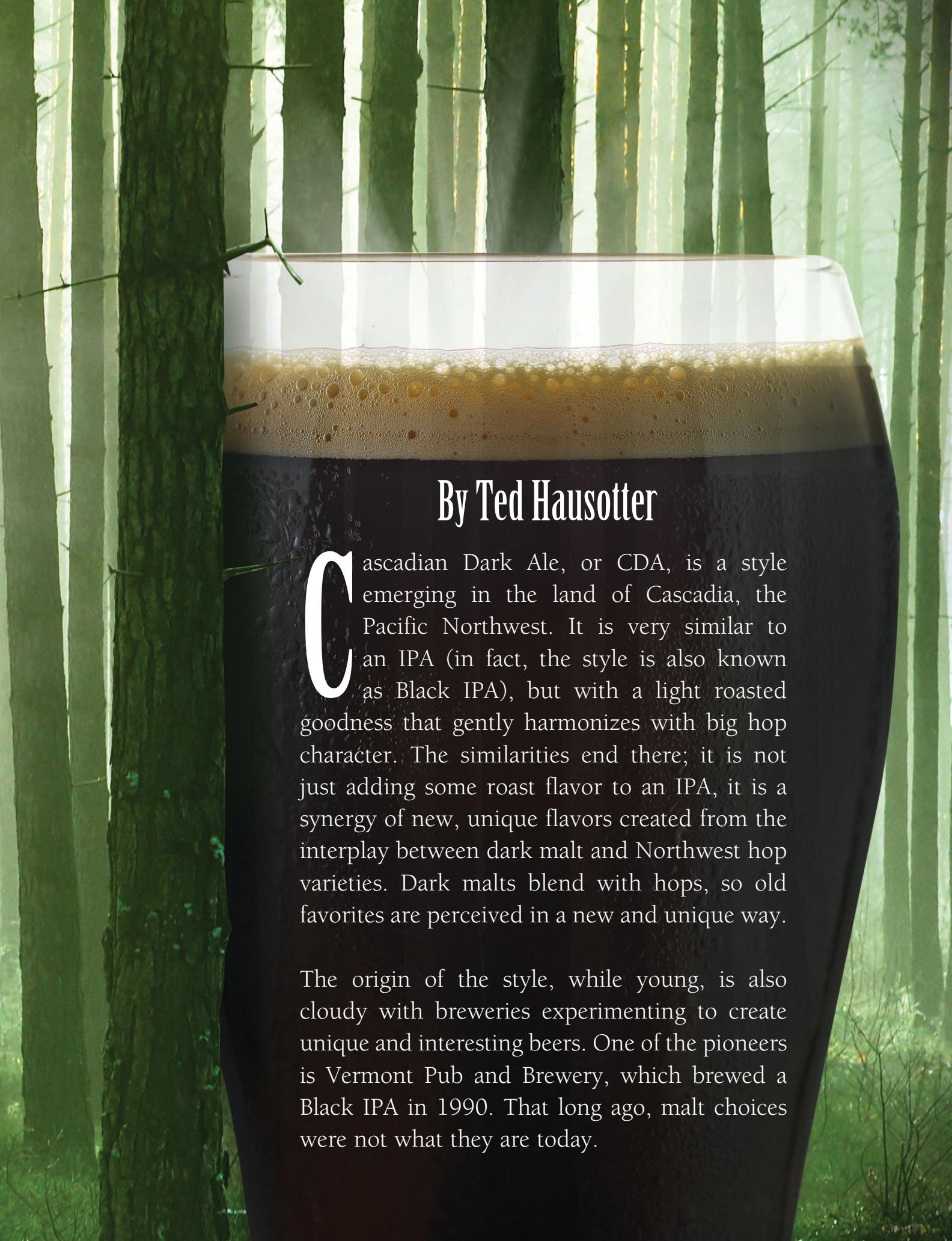
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CASCADIAN DARK ALE

THE NEW BREW
IN TOWN



By Ted Hausotter

Cascadian Dark Ale, or CDA, is a style emerging in the land of Cascadia, the Pacific Northwest. It is very similar to an IPA (in fact, the style is also known as Black IPA), but with a light roasted goodness that gently harmonizes with big hop character. The similarities end there; it is not just adding some roast flavor to an IPA, it is a synergy of new, unique flavors created from the interplay between dark malt and Northwest hop varieties. Dark malts blend with hops, so old favorites are perceived in a new and unique way.

The origin of the style, while young, is also cloudy with breweries experimenting to create unique and interesting beers. One of the pioneers is Vermont Pub and Brewery, which brewed a Black IPA in 1990. That long ago, malt choices were not what they are today.

Abe's Ground Floor CDA

Ingredients for 5.5 U.S. gallons (21L)

9.9 lb	(4.5 kg) Gambrinus organic two-row malt
1.0 lb	(450 g) Briess organic 60L caramel malt
0.25 lb	(113 g) Briess organic roast malt
0.75 lb	(340 g) Weyermann® Carafa® special II malt
0.25 lb	(113g) Briess organic chocolate malt
0.5 oz	(14 g) Centennial whole hops 9.3% a.a. (first wort hop)
1.0 oz	(28 g) Summit whole hops 18.1% a.a. (60 min)
0.5 oz	(14 g) Amarillo whole hops 8.4% a.a. (15 min)
0.5 oz	(14 g) Centennial whole hops 9.3% a.a. (15 min)
0.5 oz	(14 g) Amarillo whole hops 8.4% a.a. (flame off)
0.5 oz	(14 g) Simcoe whole hops 12.2% a.a. (flame off)
1.5 oz	(42 g) Amarillo whole hops 8.4% a.a. (dry hop)

Wyeast 1318 London Ale III yeast

Efficiency: 80%

Original Gravity: 1.064

Final Gravity: 1.011

IBUs: 64

Boil: 75 minutes

Directions

Single infusion mash at 151° F (66° C) for 75 minutes. Boil for 75 minutes. Ferment at 70-72° F (21-22° C), transfer and age at 64° F (18° C) for eight days before kegging. Dry hop with 1 to 1.5 oz (28-42 g) Amarillo whole hops.

Extract Version: Replace 9.9 lb of two-row malt with 8 lb (3.6 kg) Alexander liquid malt extract (2 cans). Place specialty malts in a bag and soak in 150° F (66° C) water. Drain, adding the runnings to the boil.

Barley Brown's Turmoil

Ingredients for 5.5 U.S. gallons (21 liters)

10.5 lb	(4.75 kg) two-row malt
1.1lb	(500 g) Munich malt
0.7 lb	(320 g) Wheat malt
1.0 lb	(450 g) 40L crystal malt
1.1 lb	(500 g) Weyermann® Carafa® special II malt
4.25 oz	(120 g) Columbus pellet hops (sparge)
1.4 oz	(40 g) Simcoe pellet hops 12.2% a.a. (first wort hop)
1.6 oz	(45 g) Magnum pellet hops 12.8% a.a. (60 min)
0.9 oz	(25 g) Simcoe pellet hops 12.2% a.a. (60 min)
1.15 oz	(33 g) Amarillo pellet hops 8.4% a.a. (30 min)
0.9 oz	(25 g) Cascade pellet hops 5% a.a. (15 min)
0.9 oz	(25 g) Cascade pellet hops 5% a.a. (2 min)
1.75 oz	(50 g) Cascade pellet hops 5% a.a. (flame off)
4.25 oz	(120 g) Amarillo whole hops 8.4% a.a. (dry hop)

Wyeast 1056 American Ale yeast

Directions

Single infusion mash at 152° F (67° C) until converted. Boil for 75 minutes. Ferment at 70-72° F (21-22° C), transfer and age at 64° F (18° C) for eight days before kegging. Dry hop with 4.25 oz (120 g) Amarillo whole hops.

As you can see there are a lot of hops in this beer. It calculates at 185 IBU and is analyzed at 94 IBU. Don't even worry about the alpha acid ratings if you are slightly different.

Ferment at 70 to 72 °F (21-22 °C), transfer and age at 64 °F (18 °C) for eight days then keg. Dry hop with 4.25 oz (120g) Amarillo whole hops.

Extract Version: Replace two-row, wheat and Munich malt with 8 lb (3.6 kg) Alexander liquid malt extract (2 cans) and 1.5 lb (680 kg) dry malt extract. Place specialty malts in a bag and soak in 150 °F (66 °C) water, drain, then add the runnings to the boil.

Efficiency: 80%

Original Gravity: 1.076

Final Gravity: 1.011

IBUs: 94

The late Greg Noonan, brewmaster at Vermont Pub and Brewery, roasted his own malts in making his Blackwatch IPA because the quality and type of malts available did not live up to his expectations. Today, Blackwatch is more roasted than most of the Cascadian Dark Ales brewed on the West Coast, and can be described as a hoppy stout or porter.

The style picked up speed and definition in 2003, spontaneously evolving from the temperate rain forests in Oregon with Rogue's Black Brutal, also known as Skull Splitter. In 2004, British Columbia brewery Phillips created Black Toque, now called Skookum (a Cascadian Brown Ale). Later that year, Barley Brown's brewers in eastern Oregon found a bottle of Rogue's CDA and were inspired to brew their own version. Since then, it has become a mainstay in Barley Brown's lineup. They have both a standard CDA called Turmoil and an imperial called Chaos. Deschutes Brewery in Bend, Ore. joined the fold this past March by creating Hop in the Dark Cascadian Dark Ale.

The style is reaching out beyond the Northwest corner of North America, with beers from Stone and 21st Amendment in California. At a Cascadian Dark Ale symposium in Portland, Ore., 19 different CDAs were on draft, with even an offering from New York! There are undoubtedly more pubs and small breweries that have brewed this style.

Characteristics of CDA

What makes a CDA a new beer style? To start with, it does not fit into any of the existing styles for commercial brewers or homebrewers. It has been described as a hop bomb, which works best with the resinous, citrusy hops from the Pacific Northwest. The hops meld with the dark malt, making perfect harmony. They are as hoppy as an IPA, but roasted malt lies gently in the finish. The body and the roast character are lighter than a stout or porter. The roasted malt expression

is similar to a German Schwarzbier, but stronger. The roast character is reserved, not burnt and black, allowing the hop flavor to dominate. Hops are prominent in both aroma and flavor.

The hop profile is unique in CDAs. The interplay between the hops and roast malt gives a unique twist to old favorites. Common hops for a CDA are all the great IPA hops such as Cascade, Columbus, Simcoe, Centennial, Amarillo and Chinook. Malt and hop flavors collide and meld into greatness, and when you taste these hops in a CDA, their citrusy character changes, moving away from grapefruit and toward orange and tangerine flavors. Mint and rosemary, rare flavors in an IPA, emerge. Piney and resinous characteristics are also more outspoken than is typical in an IPA. It is like the roast malt coaxes new flavors from the hops.

The hop profile is unique in CDAs. The interplay between the hops and roast malt gives a unique twist to old favorites. It is like the roast malt coaxes new flavors from the hops.



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While these beers are also sometimes referred to as Black IPAs, they are not black, but dark brown to black. Imperial versions can be black and opaque. The head is usually lighter in color than expected from the use of Carafa® special malt and Sinamar®. The use of either of these products gives the appearance of a darker beer, but with a lighter than expected roast malt flavor and aroma. The color leads you to think it is a stout, but surprises you with light roasted flavors. Head retention is usually good. Body is lighter for the ABV than expected. Both

the higher attenuation rate and the large amount of bitterness team up to give the impression of a medium-bodied beer.

Brewing a CDA

To brew a good CDA, using fresh hops that are in good condition is paramount to a successful outcome. Any of the above-mentioned hops will produce a good CDA, as will many blends; it just requires copious amounts of them.

Dry hopping is almost always required to get the bold hop aroma. Many brewers

find that dry hopping at room temperature gives an increased hop profile. The normal length of time for dry hopping is five to 14 days. The large amount of hops results in a bitter beer, as it should be. You should not be discouraged by bitterness, rather encouraged; these are bitter beers when brewed in their native habitat.

As homebrewers, we calculate the bitterness and compare it to the style parameters. However, what we compare is just the potential bitterness, not what is actually extracted into the beer, unless you are willing to send your beer to a lab for analysis. It is common in beers with higher bitterness and original gravity to be less bitter by analysis than by calculation. To know if you are getting the most out of your hops, compare your beer to a good commercial IPA or CDA with the IBUs listed; if you are sweeter, add more bittering hops. The suggested increment to increase bitterness is 10 calculated IBUs. Most homebrewers' calculated bitterness will be at least 10 IBUs higher than an analyzed IBU rate for these bigger, more bitter beers. For Barley Brown's Turmoil, the beer is analyzed as having 94 IBU; using Greg Noonan's formulas from *The New Brewing Lager Beer*, it has over 180 IBU!

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expressions. Many commercial breweries use Sinamar® to help enhance the color without large roasted flavor additions.

For the brewing process, it is important to mash on the cooler side for an infusion mash. Most Northwest breweries use a mash temperature range of 150 to 151° F (65-66° C), but cooler will also work well. Some of the larger breweries use a step mash starting at 130° F (54° C) and then slowly step up to 156 to 158° F (69-70° C). Whichever mash profile you select, it should favor beta-amylase activity as that will produce a more fermentable mash that yields a higher attenuation rate so the beer has a lighter body. Increasing the water-to-grist ratio during mashing will also help increase beta-amylase activity.

A good ratio is 44 ounces of water per pound of malt (2.9L/kg) for a thin mash. The dark malts are often cold-water extracted to reduce the harsh astringent tannins. Other breweries will add them directly to the mash after sparging has started. Sparging temperatures can also be lowered, reducing tannin extraction. Some breweries have sparged at temperatures as low as 158° F (70° C). It is important to not over-sparge as the resulting beer can be harsh and astringent. A good CDA should look dark, but not taste burnt, creating a sensory illusion.

Style Parameters

Note that this is just a snapshot of a consensus of today's CDAs; as the style is new, it will further evolve as it grows and matures.

Original Gravity: 1.060 to 1.075

Final Gravity: 1.008 to 1.016

Bitterness: 60 to 90 IBU

Color: 30 to 40 SRM

At this time, there is not a category for CDA or Black IPA in the BJCP style guidelines; the style is too new. If you want to enter one in a homebrew contest, they are best entered into the specialty Category 23. Be sure to send the organizer information on the style so that judges will know how to judge it.

Note that for the 2010 Brewers Association style guidelines for professional brewers,

the category American-Style India Black Ale was added, and it will be judged for the first time at the 2010 Great American Beer Festival in September. Those guidelines can be viewed at www.BrewersAssociation.org.

CDA is from Abe Goldman-Armstrong, a Northwest beer writer, homebrewer and CDA promoter. His recipe is the basis for many commercial CDAs. The recipes are for 5.5 gallons to allow for loss due to whole hops absorbing wort.

Ted Hausotter is an award-winning homebrewer from Baker City, Ore. and the Mountain/Northwest regional representative for the Beer Judge Certification Program.

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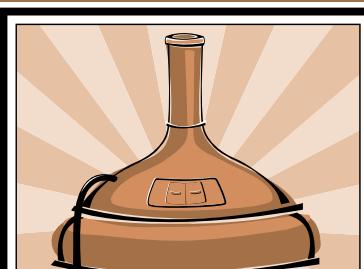
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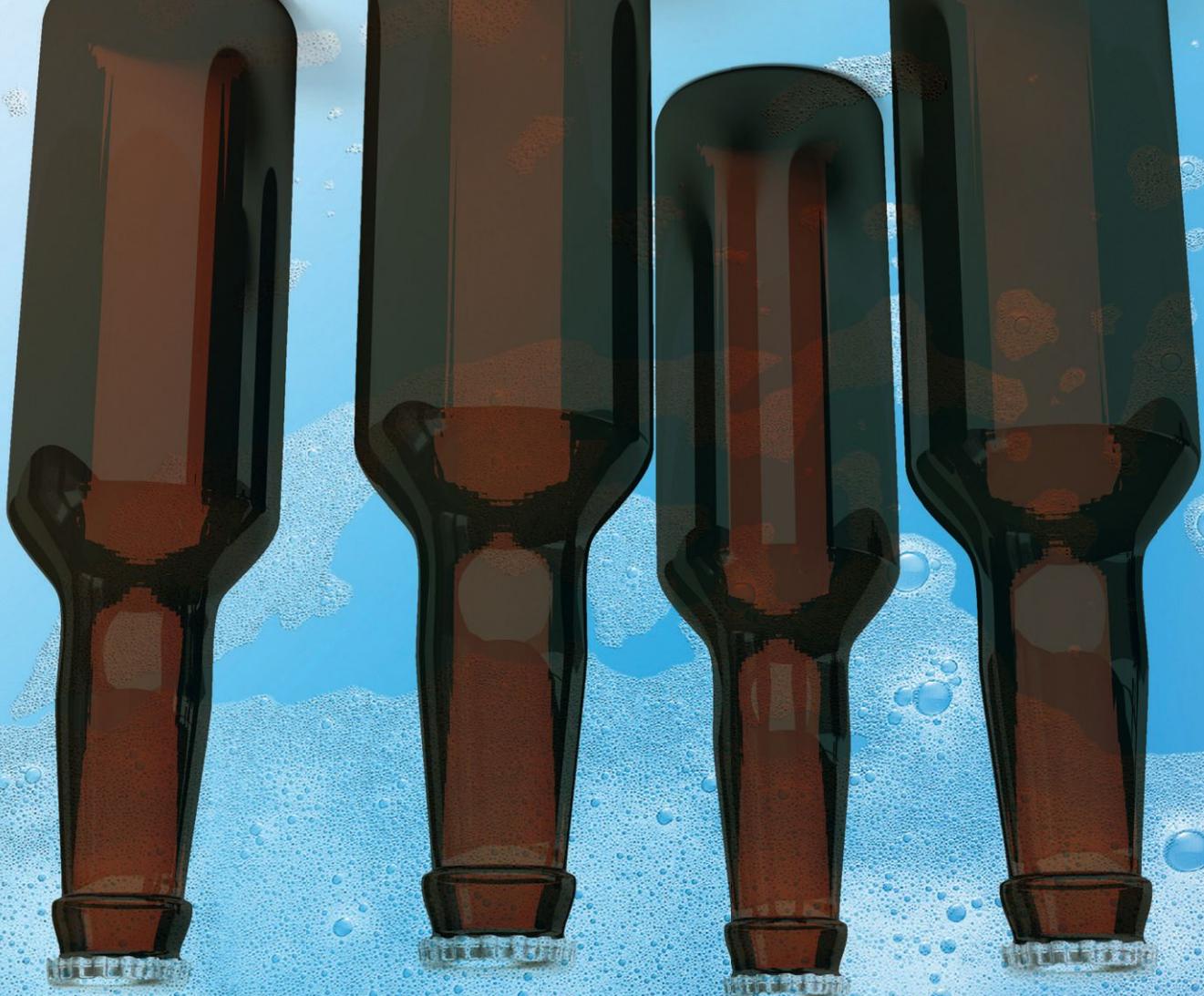
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HERSKOVITS

PART 1: CLEANING

There are many things that go into making great beer, including ingredients, styles, and methods, but if you don't properly clean and sanitize your equipment, all bets are off. The single most important and fundamental aspect of making good tasting, high quality beer is your cleaning and sanitizing regimen.

Visibly soiled equipment can change the flavor of your beer, but what about the soil and bacteria you can't see? Cleaning and sanitizing go hand-in-hand. This article will cover cleaning, and part two (on page 36) will focus on sanitizing.

Brewing beer produces two different types of soil: organic (oils and proteins) and inorganic (minerals). Both types of soils can harbor bacteria and affect flavor. Soil chemistry says that we should use an alkaline product to remove the organic and an acid to remove the inorganic. However, there are constantly evolving technologies that provide for both types of soils to be cleaned with one product.

"Cleaning" means to physically remove, through chemical or mechanical action, all foreign material from your equipment. In the kitchen, we use dishwashers or liquid soaps to scrub our dishes, which works great on kitchen soils. However, in the food processing industry, specific

chemicals were discovered to work better on specific types of soils. For example, caustic (i.e. alkaline) cleaners burn or dissolve oil and fats while acid cleaners dissolve minerals. This works great in large breweries with automatic equipment. Homebrewers should not use caustics or industrial acids because those chemicals are dangerous and not intended for home use. In fact, a lot of microbreweries are moving away from caustic cleaners because of safety concerns.

Homebrewers should use a non-caustic built alkaline cleaner designed to remove both types of soils. There are multiple choices on the market for built alkaline cleaners. The basic building blocks of a good alkaline cleaner are builders, surfactants, and chelators. How these three are combined in a product varies greatly, and not all products contain all three.

An alkaline product's main function is to saponify the fatty soil into solution.

Builders are designed to provide the alkalinity necessary to saponify oils without introducing the hazards of caustic. Some examples of these builders are sodium carbonate, sodium percarbonate and metasilicates. Builders by themselves will work on some soils, but their effectiveness can be improved with the help of surfactants and chelators.

A surfactant is a surface activation agent. They come in multiple forms, but basically they make water "wetter." This allows the solution to get into cracks and crevices that they otherwise would not reach. Surfactants are often associated with foam. There are surfactants that cause high foam, but there are some that are low foam or even antifoam. All surfactants are designed to work within a specific temperature range. Make sure you stay within the proper temperature range indicated on the packaging, to avoid causing foam when it is not desired or no foam when it is desired. Surfactants

can also drop out of solution and stick to the sides of equipment (redeposition, like water spots).

Chelation is the process of dissolving minerals into solution. An example of chelation is how the hemoglobin in blood dissolves and suspends iron in the red blood cells. Acids naturally dissolve minerals, but alkaline products can't do this by themselves. So, a good built product should contain some type of chelator. This process is important to cleaning for a few reasons. One, it allows alkaline products to remove both types of soils. Second, it aids in anti-soil redeposition. Cleaning your equipment is one thing, but if the minerals and soap leave a residue, the job didn't get done.

Not all products were created equal or designed for the same soil. Follow the instructions on the container. If you want to improve the performance or change it to your specific needs, there are a few things

in your control. The fundamental cleaning regimen includes Time, Temperature, Concentration, and Agitation. If you increase two or three, you will be able to decrease the others. What does this mean? If you increase the Time and Temperature, you can decrease the concentration. If you increase the concentration and temp you should be able to decrease the time. Agitation usually reduces the time needed as well. Temperature ranges should be strictly adhered to. Generally, cleaning and rinsing should be done at the same temperature.

How do you apply the chemicals? Depending on your equipment and what is most convenient determines which method to use. The three methods are: manual scrubbing, soaking, and CIP (clean in place). Most homebrewers will find it easier to manually scrub, soak or a combination of both. CIP is a mechanical process used in large breweries not generally practical for the average homebrewer.

Remember, cleaners can only work on the soil they physically touch. If you are scrubbing, make sure to get in all cracks, under lids, and around temperature probes. Threaded equipment can also cause problems. Make sure to take all threaded fittings apart every time you clean to insure that nothing is hiding in the threads. Stay away from products with fragrance. Fragrances tend to stick around like chlorine and or other halogens and appear in the final flavor and/or aroma of the beer.

When all equipment is cleaned, rinse and sanitize prior to brewing. The proper method between brews should be to clean with built alkali products containing chelators, rinse with water, store equipment, sanitize, and brew. You can sanitize prior to storing your equipment, but this is not necessary. Even if you do sanitize before storing your equipment, you should always re-sanitize just prior to brewing.

PART 2: SANITIZING

Bacteria are everywhere. They live on your skin and float in the air. Bacteria will get into your brewing equipment just by handling it. Most bacteria are harmless, but given the right environment they will multiply and infect your beer. Infected beer will taste different than you intended or even make the beer undrinkable.

Killing microorganisms is measured at three different levels: sanitizing, disinfecting and sterilizing. To sanitize your equipment means to reduce the level of microorganisms below the level at which they would be deemed harmful to consume and not leave a detrimental chemical residue. Disinfectants and sterilizers are used for medical applications and each requires a higher concentration of chemical to kill more bacteria. For homebrewing purposes, sanitizing is step two of the two-step cleaning and sanitizing process to get your equipment ready for brew day.

The most common types of sanitizers that homebrewers use are heat, chlorine, iodine, quaternary ammonia and acid anionics. Let's take a look at each, including their pros and cons.

Heat: Yes, heat works! Steam, boiling water, or even an oven can sanitize. This is one of the oldest methods of killing bacteria. The main advantage of using heat is that it won't leave a chemical residue that can impart flavors into your beer. Soaking small tools in a pot of boiling water or placing them in the oven is an

easy way to sanitize, but it is impractical for large items. The main disadvantage is that everything is hot and thus difficult to work with. High heat also creates a safety issue, as well as requiring much more time and effort.

Chlorine: Chlorine is commonly referred to as bleach or sodium hypochlorite. This was the first chemical choice that food processors had to sanitize with. It does work and is therefore the standard that all other chemical sanitizers are measured against. Its main advantage is that it is

cheap and easy to use. You can buy a gallon of bleach at the grocery store for about the same price as bottled water. To ensure a proper kill with bleach you must use 200 parts per million (ppm) of available chlorine. The downside is that this concentration will leave a residue that can impart flavors and odors into your beer. Chlorine smells bad, burns skin, bleaches everything, and doesn't work on spores without some manipulation.

Iodine: Industry wanted a product that would work similar to chlorine, but without the negative aspects mentioned above. So they came up with another halogen, iodine. Iodine is actually an insoluble rock that is emulsified into solution using surfactants. The main advantage of iodine is that it is non-corrosive. However, it has a nasty tendency of staining everything red that it touches. That can be an advantage if you assume that "When it's red, it's dead." But most brewers find it to be an annoyance that their clear tubes are no longer transparent. It is more expensive than chlorine but relatively less expensive than other choices. The biggest disadvantage is that it is a halogen and can affect flavor similar to chlorine.

Quaternary ammonium products: These are great disinfectants that are common in most household products, but have a downside as sanitizers. They are high foamers and will impart flavor into the beer and should therefore be avoided on brewing equipment.

Acid anionics: These products are a good choice because they don't impart flavors into the beer like the previous choices. They will kill the necessary organisms in order to provide a sanitary environment and do not need to be rinsed before brewing. The only disadvantage is that most are high foamers, which are not conducive to cleaning in place through a pump.

After choosing a sanitizer, the next step is to read the product's instructions. Unlike cleaning, you don't have a choice as to how you use these products. Using too much product can leave a harmful residue, while too little might not attain the proper kill rate. Using sanitizing products at the proper time, temperature, concen-

tration and agitation are important. Do not get creative with them!

All equipment that you use to brew needs to be cleaned, but only the equipment that comes in contact with the product (wort) after the boil must be sanitized. The boil will technically kill any organisms that come over from the mash. Make sure that all tubing, scissors, measuring cups, bottles, caps, kegs, fermenters and temperature probes are sanitized. When

in doubt, sanitize it. I even sanitize the gloves I wear just in case I touch something that could contaminate my beer.

Proper cleaning and sanitizing won't guarantee a perfect brew, but they'll at least get you off to a promising start. Happy brewing!

Jon Herskovits is a chemist for Five Star Chemicals and Supply Inc. in Commerce City, Colo.

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Matthew Brynildson



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Ballast Point Brewers



Large Brewpub

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Iron Hill Brewery Team



Small Brewpub

Devils Backbone Brewing Company,
Roseland, VA

Jason Oliver

Category 1: American-Style Cream Ale or Lager, 17 entries

Gold: Red Dog, Miller Brewing Co., Milwaukee, WI
Silver: Old Style, Pabst Brewing Co., Woodridge, IL
Bronze: Lone Star, Pabst Brewing Co., Woodridge, IL

Category 2: American-Style Wheat Beer, 16 entries

Gold: Shredders Wheat, Barley Brown's Brew Pub, Baker City, OR
Silver: Rockfish Wheat, Blue Mountain Brewing, Afton, VA
Bronze: DD Blonde, Hop Valley Brewing Co., Springfield, OR

Category 3: American-Style Wheat Beer with Yeast, 24 entries

Gold: Point Horizon Wheat, Stevens Point Brewery, Stevens Point, WI
Silver: UFO Hefeweizen, Harpoon Brewery, Boston, MA
Bronze: Whitetail Wheat, Montana Brewing Co., Billings, MT

Category 4: Rye Beer, 22 entries

Gold: Harvest Moon Rye, Rock Bottom Brewery - Arlington, Arlington, VA
Silver: Ry'e Bob, The Grumpy Troll Brewery, Restaurant & Pizzeria,
Mount Horeb, WI
Bronze: Ross Rye Lager, Great Divide Brewing Co., Denver, CO

Category 5: Fruit Beer or Field Beer, 86 entries

Gold: Da' Yoopers, Rocky Mountain Brewery, Colorado Springs, CO
Silver: Lolita, Goose Island Beer Co., Chicago, IL
Bronze: Éphémère Apple, Unibroue, Chamby, Canada

Category 6: Herb and Spice Beer or Chocolate Beer, 109 entries

Gold: Coco Jones Porter, Black Raven Brewing Co., Redmond, WA
Silver: Lemon Grass Wheat Ale, Outer Banks Brewing Station, Kill Devil
Hills, NC
Bronze: Black Licorice Lager, Short's Brewing Co., Bellaire, MI

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2010 Winners List

Category 7: Coffee Flavored Beer, 47 entries

Gold: Dude! Where's My Vespa?, Rock Bottom Brewery, Arlington, VA
Silver: Addiction, Mountain Sun Pub and Brewery, Boulder, CO
Bronze: Morning Bear, Devils Backbone Brewing Co., Roseland, VA

Category 8: Specialty Beer, 27 entries

Gold: Country Girl Kabocha Ale, Baird Brewing Co., Numazu, Japan
Silver: COEDO Beniaka, Coedobrewery Kyodoshoji Corp. Ltd., Kawagoe,
Japan
Bronze: Maple Tripple, Lawson's Finest Liquids, Warren, VT

Category 9: Specialty Honey Beer, 27 entries

Gold: Tauras Alus su medumi, UAB "Kalmapiolio - Tauro grup ", Panevezys,
Lithuania
Silver: Bracia, Thornbridge Brewery, Bakewell, United Kingdom
Bronze: Cable Car Amber Ale, World Brews, Novato, CA

Category 10: Session Beer, 28 entries

Gold: Polygamy Porter, Utah Brewers Co-Op, Salt Lake City, UT
Silver: Firestone Extra Pale Ale, Firestone Walker Brewing Co.,
Paso Robles, CA
Bronze: Guppie Pale Ale, BJ's Restaurant & Brewery - Chandler, Huntington
Beach, CA

Category 11: Other Strong Beer, 44 entries

Gold: Imperial Jack, 21st Amendment Brewery, San Francisco, CA
Silver: Green Flash Stout, Green Flash Brewing Co., Vista, CA
Bronze: Doug's Very Noddy 40th Birthday Lager, Buckbean Brewing Co.,
Reno, NV

Category 12: Experimental Beer, 51 entries

Gold: 100% Brett Autumn Maple, The Bruery, Placentia, CA
Silver: Harvest, Snipes Mountain Brewing Co., Sunnyside, WA
Bronze: Red & White, Dogfish Head Craft Brewery, Milton, DE

Category 13: Out of Category - Traditionally Brewed Beer, 47 entries

Gold: Fathom IPL, Ballast Point Brewing Co., San Diego, CA
Silver: Hot Rocks Lager, Port Brewing Co., San Marcos, CA
Bronze: State Pen Porter, Santa Fe Brewing Co., Santa Fe, NM

Category 14: Gluten Free Beer, 10 entries

Gold: Celia Saison, The Alchemist, Waterbury, VT
Silver: O'Brien Brown Ale, O'Brien Brewing, Bakery Hill, Australia
Bronze: RedBridge, Anheuser-Busch InBev, St. Louis, MO

Category 15: American-Belgo-Style Ale, 46 entries

Gold: Ommegang Biere de Mars, Brewery Ommegang, Cooperstown, NY
Silver: Hop God, Nebraska Brewing Co., Papillion, NE

Category 16: Wood- and Barrel-Aged Beer, 32 entries

Gold: Bourbon Barrel Aged Piper Down, Ballast Point Brewing Co.,
San Diego, CA
Silver: Kentucky Bourbon Barrel Ale, Alltech's Lexington Brewing Co.,
Lexington, KY
Bronze: Pullman's Reserve, Flossmoor Station Restaurant & Brewery,
Flossmoor, IL

Category 17: Wood- and Barrel-Aged Strong Beer, 113 entries

Gold: The Legend of the Liquid Brain Imperial, Bull & Bush Brewery,
Denver, CO
Silver: Barrel Aged La Petite Mort, Black Raven Brewing Co., Redmond, WA
Bronze: Rudolf's Bourbon Scotch Ale, Rock Bottom Brewery, Cincinnati, OH

Category 18: Wood- and Barrel-Aged Sour Beer, 39 entries

Gold: Creeper, SweetWater Brewing Co., Atlanta, GA
Silver: Rodenbach Vintage, Palm Breweries N.V., Steenhuffel, Belgium
Bronze: White Woods, Cisco Brewers Inc., Nantucket, MA

Category 19: Aged Beer, 20 entries

Gold: Alaskan Smoked Porter 1998, Alaskan Brewing Co., Juneau, AK
Silver: Gonzo Imperial Porter Vintage 2007, Flying Dog Brewery,
Frederick, MD

Bronze: Saint Bob's Imperial Stout '06, Il Vicino Brewing Co.,
Albuquerque, NM

Category 20: Kellerbier/Zwickelbier, 32 entries

Gold: Störtebeker Bio "1402", Stralsunder Brauerei GmbH,
Stralsund, Germany
Silver: VIAEMILIA, Birrificio del Ducato, Roncole Verdi, Italy
Bronze: Hell In Keller, Uncle Billy's Brew & Que, Austin, TX

Category 21: Smoked Beer, 35 entries

Gold: Caldera Rauch Ur Bock, Caldera Brewing Co., Ashland, OR
Silver: Smoke Ale, Rogue Ales, Newport, OR
Bronze: Fujizakura Kogen Beer Rauch Bock, Fujikanko Kaihatsu Co. Ltd.,
Minamitsuru, Japan

Category 22: European-Style Low-Alcohol Lager/German-Style Leicht(bier), 16 entries

Gold: Falcon Extra Brew 3.5%, Carlsberg Sverige AB, Stockholm, Sweden
Silver: Distelhäuser Leichtes, Distelhäuser Brauerei,
Tauberbischofsheim, Germany

Bronze: Prripps Blå 3.5%, Carlsberg Sverige AB, Stockholm, Sweden

Category 23: German-Style Pilsener, 69 entries

Gold: Pilsner, Sierra Nevada Brewing Co., Chico, CA
Silver: Trumer Pils, Trumer Brauerei, Berkeley, CA
Bronze: Grünten-Pils, Engelbräu Rettenberg, Rettenberg, Germany

Category 24: Bohemian-Style Pilsener, 43 entries

Gold: Golden Pilsner, Morgan Street Brewery, St. Louis, MO
Silver: Gambrinus Excelent, Plze ský Prazdroj a.s., Plze , Czech Republic
Bronze: Velkupovicky KOZEL Premium, Plze ský Prazdroj a.s., Plze , Czech
Republic

Category 25: Münchner-Style Helles, 48 entries

Gold: Hoepfner Export, Privatbrauerei Hoepfner GmbH, Karlsruhe, Germany
Silver: Zipfer Märzen, Brau Union Österreich AG, Linz, Austria
Bronze: Gordon Biersch Gold Export, Gordon Biersch Brewery Restaurant
Group, Chattanooga, TN

Category 26: Dortmunder/European-Style Export or German-Style Oktoberfest/Wiesen (Meadow), 42 entries

Gold: Schönramer Gold, Private Landbrauerei Schönram, Petting / Schönram, Germany
Silver: Spezialbier Edel, Aktienbrauerei Kaufbeuren AG, Kaufbeuren, Germany
Bronze: Weihnachtsbier, Alpirsbacher Klosterbräu Glauern GmbH & Co. KG,
Alpirsbach, Germany

Category 27: Vienna-Style Lager, 28 entries

Gold: Schild Brau Amber, Millstream Brewing Co., Amana, IA
Silver: Vienna Lager, The Covey Restaurant & Brewery, Fort Worth, TX
Bronze: Heavy Seas Marzen, Clipper City Brewing Co., Baltimore, MD

Category 28: German-Style Märzen, 28 entries

Gold: Rocktoberfest, Rock Bottom Brewery - Long Beach, Long Beach, CA
Silver: Gordon Biersch Marzen, Gordon Biersch Brewery Restaurant Group,
Chattanooga, TN
Bronze: Festus, The SandLot, Denver, CO

Category 29: European-Style Dark/Münchner Dunkel, 33 entries

Gold: Chuckanut Dunkel, Chuckanut Brewery, Bellingham, WA
Silver: Welterburger Kloster Barock Dunkel, Klosterbrauerei Welterburg
GmbH, Kelheim, Germany
Bronze: Munich Dunkles, Blind Tiger Brewery & Restaurant, Topeka, KS

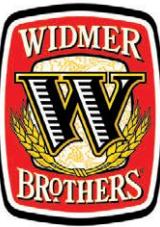
Category 30: German-Style Schwarzbier, 38 entries

Gold: Black Forest Schwarzbier, Squatters Pub Brewery, Salt Lake City, UT
Silver: TAPS Schwarzbier, TAPS Fish House & Brewery - Corona, Corona, CA
Bronze: Schwartz Bier, Devils Backbone Brewing Co., Roseland, VA





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Category 31: Traditional German-Style Bock, 25 entries

Gold: Troegenator, Troegs Brewery, Harrisburg, PA
Silver: Sidewinder Bock, Great American Restaurants, Centreville, VA
Bronze: Kollaborator, Devils Backbone Brewing Co., Roseland, VA

Category 32: German-Style Heller Bock/Maibock, 26 entries

Gold: Distelhäuser Frühlingsbock, Distelhäuser Brauerei, Tauberbischofsheim, Germany
Silver: Kalnapilis 7.30, UAB "Kalnapilio - Tauru grūpa", Panevezys, Lithuania
Bronze: Kloster Starkbier, Alpirsbacher Klosterbräu Glauer GmbH & Co. KG, Alpirsbach, Germany

Category 33: German-Style Doppelbock or Eisbock, 43 entries

Gold: Broken Skeg, Breakwater Brewing Co., Oceanside, CA
Silver: Dunkles Bock, Boundary Bay Brewery, Bellingham, WA
Bronze: Dominator Dopplebock, Sun King Brewing Co., Indianapolis, IN

Category 34: American-Style Lager, 75 entries

Gold: Olympia, Pabst Brewing Co., Woodridge, IL
Silver: National Bohemian, Pabst Brewing Co., Woodridge, IL
Bronze: Coors Light, Coors Brewing Company, Golden, CO

Category 35: American-Style Specialty Lager, 19 entries

Gold: Boulevard Pilsner, Boulevard Brewing Co., Kansas City, MO
Silver: Mickey's Malt Liquor, Miller Brewing Co., Milwaukee, WI
Bronze: Colt 45, Pabst Brewing Co., Woodridge, IL

Category 36: American-Style Amber Lager, 24 entries

Gold: Numazu Lager, Baird Brewing Co., Numazu, Japan
Silver: Upland Oktoberfest, Upland Brewing Co., Bloomington, IN
Bronze: Riverwest Stein, Lakefront Brewery, Milwaukee, WI

Category 37: American-Style Dark Lager, 12 entries

Gold: Session Black, Full Sail Brewing Co., Hood River, OR
Silver: Durango Dark, Durango Brewing Co., Durango, CO
Bronze: Ben's Brown, Golden Hills Brewing Co., Reardon, WA

Category 38: Australasian, Latin American or Tropical-Style Light Lager, 19 entries

Gold: Tiger Crystal, Asia Pacific Breweries Ltd., Singapore
Silver: Quilmes Cristal, Cervecería y Maltería Quilmes, Quilmes, Argentina
Bronze: Landshark, Anheuser-Busch InBev, St. Louis, MO

Category 39: International-Style Lager, 58 entries

Gold: Tiger Beer, Asia Pacific Breweries Ltd., Singapore
Silver: Gambrinus Sv tří, Plze ský Prazdroj a.s., Plze , Czech Republic
Bronze: Egils Polar, Olgérðin Egill Skallagrímsson, Reykjavik, Iceland

Category 40: Baltic-Style Porter, 28 entries

Gold: Danzig, Devils Backbone Brewing Co., Roseland, VA
Silver: 3 Dog Night, Chama River Brewing Co., Albuquerque, NM
Bronze: Token, Alpine Beer Co., Alpine, CA

Category 41: Belgian-Style Witbier, 47 entries

Gold: Allagash White, Allagash Brewing Co., Portland, ME
Silver: Ommegang Witte Wheat Ale, Brewery Ommegang, Cooperstown, NY
Bronze: Whoop Ass Witbier, Great Basin Brewing Co., Reno, NV

Category 42: Belgian- and French-Style Ale, 57 entries

Gold: Saison Sayuri, Baird Brewing Co., Numazu, Japan
Silver: Saison du Bastone, Bastone Brewery, Royal Oak, MI
Bronze: Fluxus '09, Allagash Brewing Co., Portland, ME

Category 43: Belgian-Style Blonde Ale or Pale Ale, 41 entries

Gold: Troubadour Blond, Brewery The Musketeers, Ursel, Belgium
Silver: Brugse Zit Blond, Brouwerij de Halve Maan, Brugge, Belgium
Bronze: Leffe Blonde, Anheuser-Busch InBev, St. Louis, MO

Category 44: Belgian-Style Sour Ale, 23 entries

Gold: Geuze Mariage Parfait, Brouwerij BOON N.V., Lembeek, Belgium
Silver: Oude Geuze Boon, Brouwerij BOON N.V., Lembeek, Belgium
Bronze: Lambic de Hill, Iron Hill Brewery & Restaurant, Wilmington, DE

Category 45: Belgian-Style Flanders/Oud Bruin or Oud Red Ale, 20 entries

Gold: Oude Tart, The Bruery, Placentia, CA
Silver: Red Poppy, The Lost Abbey, San Marcos, CA
Bronze: Le Serpent, Snake River Brewing, Jackson, WY

Category 46: Belgian-Style Dubbel, 29 entries

Gold: Ommegang Abbey Ale Dubbel, Brewery Ommegang, Cooperstown, NY
Silver: Mad Monk Dubbel, Chicago Brewing Co., Las Vegas, NV
Bronze: Abbey Dubbel, Iron Hill Brewery & Restaurant, Wilmington, DE

Category 47: Belgian-Style Tripel, 53 entries

Gold: Daisy Chain Tripel, Chicago Brewing Co., Las Vegas, NV
Silver: Samuel Adams New World Triple, Boston Beer Co., Boston, MA
Bronze: Merry Monks' Ale, Weyerbacher Brewing Co., Easton, PA

Category 48: Belgian-Style Pale Strong Ale, 33 entries

Gold: Omer, Traditional Blond, Bockor Brewery, Bellegem, Belgium
Silver: Revelations, Pizza Port Carlsbad, Carlsbad, CA
Bronze: Fin du Monde, Unibroue, Chamby, Canada

Category 49: Belgian-Style Dark Strong Ale, 46 entries

Gold: Witte Noire Imperial Amber Wheat Ale, De Proef Brouwerij, Lochristi, Belgium
Silver: La Grivoise de Noel, Micro-Brasserie le Trou du Diable, Shawinigan, Canada
Bronze: Brooklyn Local 2, The Brooklyn Brewery, Brooklyn, NY

Category 50: Other Belgian-Style Ale, 35 entries

Gold: New Norcia Abbey Ale, Malt Shovel Brewery, Camperdown, Australia
Silver: Frozen Kriek, Sleeping Lady Brewing Co., Anchorage, AK
Bronze: Signature Quadrupel, Choc Beer Company, Krebs, OK

Category 51: English-Style Summer Ale, 24 entries

Gold: Leghorn, Roosters Brewing Co. Ltd., Knaresborough, United Kingdom
Silver: Y.P.A., Roosters Brewing Co. Ltd., Knaresborough, United Kingdom
Bronze: Helios Pale Ale, Upland Brewing Co., Bloomington, IN

Category 52: Classic English-Style Pale Ale, 29 entries

Gold: Summit Extra Pale Ale, Summit Brewing Co., Saint Paul, MN
Silver: Michelob Pale Ale, Michelob Brewing Co., St. Louis, MO
Bronze: Heavy Seas Pale Ale, Clipper City Brewing Co., Baltimore, MD

Category 53: English-Style India Pale Ale, 32 entries

Gold: India Pale Ale, Goose Island Beer Co., Chicago, IL
Silver: Brewer's Alley India Pale Ale, Brewer's Alley Restaurant and Brewery, Frederick, MD
Bronze: Russell IP eh!, Russell Brewing Co., Surrey, Canada

Category 54: Ordinary Bitter, 12 entries

Gold: Drop Top, Widmer Brothers Brewing Co., Portland, OR
Silver: Redoak Bitter, Redoak, Sydney, Australia
Bronze: Cutthroat Pale Ale, Uinta Brewing Co., Salt Lake City, UT

Category 55: Special Bitter or Best Bitter, 30 entries

Gold: Bachelor Bitter, Deschutes Brewery, Bend, OR
Silver: Lumberyard Red, Beaver St. Brewery, Flagstaff, AZ
Bronze: Spitfire, Shepherd Neame Ltd., Faversham, United Kingdom

Category 56: Extra Special Bitter or Strong Bitter, 24 entries

Gold: Steep Trail Amber Ale, Black Diamond Brewing Co., Concord, CA
Silver: Organic Velvet ESB, Hopworks Urban Brewery, Portland, OR
Bronze: Extra Special Ale, Yards Brewing Co., Philadelphia, PA

Category 57: Scottish-Style Ale, 29 entries

Gold: Highland Courage, Rock Bottom Brewery - Bethesda, Bethesda, MD
Silver: MacPelican's Scottish Style Ale, Pelican Pub & Brewery, Pacific City, OR
Bronze: Russell Wee Angry Scotch Ale, Russell Brewing Co., Surrey, Canada

Category 58: English-Style Mild Ale, 23 entries

Gold: Minerva Pale Ale, Cerveceria Minerva SA de CV, Zapopan, Mexico
Silver: London Tavern Ale, Valley Brewing Co., Stockton, CA
Bronze: Whistler Black Tusk Ale, Whistler Brewing Co., Vancouver, Canada

Category 59: English-Style Brown Ale, 46 entries

Gold: Red Hydrant Ale, Big Dog's Brewing Co., Las Vegas, NV
Silver: Longboard Brown, Rock Bottom Brewery - La Jolla, La Jolla, CA
Bronze: Mudslinger Ale, Redhook Ales Woodinville, Woodinville, WA

Category 60: Brown Porter, 37 entries

Gold: Tamerville Brown Porter, Black Raven Brewing Co., Redmond, WA
Silver: Caldera Pilot Rock Porter, Caldera Brewing Co., Ashland, OR
Bronze: Industrial Porter, Crown Brewing Co., Crown Point, IN

Category 61: Robust Porter, 64 entries

Gold: Pier Rat Porter, Pizza Port San Clemente, San Clemente, CA
Silver: Founders Porter, Founders Brewing Co., Grand Rapids, MI
Bronze: Russian River Porter, Russian River Brewing Co., Santa Rosa, CA

Category 62: Sweet Stout, 25 entries

Gold: Duck-Rabbit Milk Stout, The Duck-Rabbit Craft Brewery Inc., Farmville, NC
Silver: Cream Stout, Redwood Brewing Co., Flint, MI
Bronze: Udder Goodness, Rock Bottom Brewery - Desert Ridge, Phoenix, AZ

Category 63: Oatmeal Stout, 34 entries

Gold: Oatmeal Stout, Gella's Diner and LB Brewing Co., Hays, KS
Silver: Velvet Merlin, Firestone Walker Brewing Co., Paso Robles, CA
Bronze: Barney Flats Oatmeal Stout, Anderson Valley Brewing Co., Boonville, CA

Category 64: Scotch Ale, 38 entries

Gold: AleSmith Wee Heavy, AleSmith Brewing Co., San Diego, CA
Silver: Three Heavy, Dry Dock Brewing Co., Aurora, CO
Bronze: Reed's Wee Heavy, Pizza Port Carlsbad, Carlsbad, CA

Category 65: British-Style Imperial Stout, 24 entries

Gold: Russian Imperial Stout, Iron Hill Brewery & Restaurant, Wilmington, DE
Silver: Crazy Ivan, Iron Hill Brewery & Restaurant, Wilmington, DE
Bronze: Jay Walker, Walking Man Brewing, Stevenson, WA

Category 66: Old Ale, 15 entries

Gold: Fourth Dementia Olde Ale, Kuhnhenn Brewing Co., Warren, MI
Silver: Irish Walker, Olde Hickory Brewing, Hickory, NC
Bronze: Subzero, Rock Bottom Brewery - Indianapolis, Indianapolis, IN

Category 67: Strong Ale, 26 entries

Gold: Outback X, Bend Brewing Co., Bend, OR
Silver: Dirty Bastard, Founders Brewing Co., Grand Rapids, MI
Bronze: Cabin Fever, Boundary Bay Brewery, Bellingham, WA

Category 68: Barley Wine-Style Ale, 58 entries

Gold: Little Korkny Ale Niepoort Barrel, Norrebro Bryghus, Copenhagen N., Denmark
Silver: Thor's Hammer, Central City Brewing Co., Surrey, Canada
Bronze: Alaskan Barleywine 2009, Alaskan Brewing Co., Juneau, AK

Category 69: German-Style K Isch/K In-Style K Isch, 23 entries

Gold: Schlafly Kolsch Ale, The Saint Louis Brewery, Inc., St. Louis, MO
Silver: Fox Light, Fox River Brewing Company, Oshkosh, WI
Bronze: Chaser Pale, Blackstone Brewing Co., Nashville, TN

Category 70: German-Style Brown Ale/Düsseldorf, 26 entries

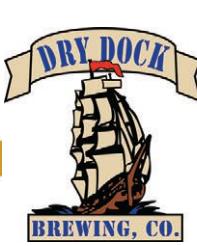
Gold: Lands End Amber, Kannan Creek Brewing Co., Grand Junction, CO
Silver: The Detroit Dwarf, The Detroit Beer Co., Detroit, MI
Bronze: ALT, Widmer Brothers Brewing Co., Portland, OR

Category 71: German-Style Sour Ale, 9 entries

Gold: Berliner Weisse, Snake River Brewing, Jackson, WY
Silver: Ich Bin Ein Berliner Weisse, Nodding Head Brewery and Restaurant, Philadelphia, PA
Bronze: Gose, Upright Brewing Co., Portland, OR



www.rockbottom.com



www.drydockbrewing.com



www.karistrauss.com



www.greatbasinbrewingco.com



www.firestonewalker.com



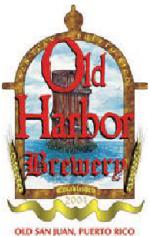
www.biddogsbrews.com



www.norrebrobryghus.dk



www.pointbeer.com



www.oldharborbrewery.com



www.blackravenbrewing.com



www.dbrewingcompany.com



www.sunkingbrewing.com

Category 72: South German-Style Hefeweizen/Hefeweissbier, 66 entries

Gold: Hefeweizen, Firestone Walker Brewing Co., Paso Robles, CA
Silver: Baltika N°8 Wheat, Baltika Breweries, St. Petersburg, Russia
Bronze: Top Heavy Hefeweizen, Piece Brewing Co., Chicago, IL

Category 73: German-Style Pale Wheat Ale, 13 entries

Gold: TAP 2 Mein Kristall, Schneider Weisse, Kelheim, Germany
Silver: Unertl Leichte Weisse, Weißbräu Unertl GmbH & Co. KG, Mühldorf, Germany
Bronze: Distelhäuser Kristallweizen, Distelhäuser Brauerei, Tauberbischofsheim, Germany

Category 74: German-Style Dark Wheat Ale, 22 entries

Gold: VùDù, Birrificio Italiano, Lurago Marinone, Italy
Silver: Unertl Mühl dorfer Weisse, Weißbräu Unertl GmbH & Co. KG, Mühldorf, Germany
Bronze: Distelhäuser Dunkles Weizen, Distelhäuser Brauerei, Tauberbischofsheim, Germany

Category 75: South German-Style Weizenbock/Weissbock, 27 entries

Gold: Plank Heller Weizenbock, Brauerei Michael Plank, Laaber, Germany
Silver: Old Harbor Taina, Old Harbor Brewery, San Juan, Puerto Rico
Bronze: AleSmith Decadence 2009, AleSmith Brewing Co., San Diego, CA

Category 76: Irish-Style Red Ale, 26 entries

Gold: Red Trolley Ale, Karl Strauss Brewing Co., San Diego, CA
Silver: Samuel Adams Irish Red, Boston Beer Co., Boston, MA
Bronze: Ragtop Red, Rock Bottom Brewery - La Jolla, La Jolla, CA

Category 77: Classic Irish-Style Dry Stout, 22 entries

Gold: McLurh's Irish Stout, Dillon DAM Brewery, Dillon, CO
Silver: Port Truck Stout, Pizza Port Carlsbad, Carlsbad, CA
Bronze: Porterhouse Plain Porter, The Porterhouse Brewing Co., Dublin, Ireland

Category 78: Foreign-Style Stout, 21 entries

Silver: Zonker Stout, Snake River Brewing, Jackson, WY
Bronze: Spetsnaz Stout, The Grumpy Troll Brewery, Restaurant & Pizzeria, Mount Horeb, WI

Category 79: Golden or Blonde Ale, 50 entries

Gold: Heavy Seas Gold Ale, Clipper City Brewing Co., Baltimore, MD
Silver: Sunlight Cream Ale, Sun King Brewing Co., Indianapolis, IN
Bronze: Aud Blonde, Russian River Brewing Co., Santa Rosa, CA

Category 80: American-Style Pale Ale, 77 entries

Gold: Pale 31, Firestone Walker Brewing Co., Paso Robles, CA
Silver: Drakes 1500 Pale Ale, Drakes Brewing Co., San Leandro, CA
Bronze: Mission Street Pale, Firestone Walker Brewing Co., Paso Robles, CA

Category 81: American-Style Strong Pale Ale, 59 entries

Gold: O'Brien's IPA, Alpine Beer Co., Alpine, CA
Silver: Hop Bomb IPA, Rock Bottom Brewery - Bellevue, Bellevue, WA
Bronze: Lumberyard IPA, Beaver St. Brewery, Flagstaff, AZ

Category 82: American-Style India Pale Ale, 104 entries

Gold: Norm's Raggedy-Ass IPA, Big Rock Chop House & Brewery, Birmingham, MI
Silver: Centennial IPA, Founders Brewing Co., Grand Rapids, MI
Bronze: Duet, Alpine Beer Co., Alpine, CA

Category 83: Imperial India Pale Ale, 69 entries

Gold: Hardcore IPA, BrewDog, Fraserburgh, United Kingdom
Silver: Bonnie's Raggedy-Ass Imperial IPA, Big Rock Chop House & Brewery, Birmingham, MI
Bronze: Imperial IPA, Boundary Bay Brewery, Bellingham, WA

Category 84: American-Style Amber/Red Ale, 66 entries

Gold: Rudolph's Red, Rock Bottom Brewery - La Jolla, La Jolla, CA
Silver: Red Rock, Triple Rock Brewery and Alehouse, Berkeley, CA
Bronze: Odell Red Ale, Odell Brewing Co., Fort Collins, CO

Category 85: Imperial Red Ale, 32 entries

Gold: Behemoth, Three Floyds Brewing Co. LLC, Munster, IN
Silver: Lumberyard Imperial Red, Beaver St. Brewery, Flagstaff, AZ
Bronze: Shark Attack, Pizza Port Solana Beach, Solana Beach, CA

Category 86: American-Style Brown Ale, 40 entries

Gold: Nut Brown Ale, Goose Island Beer Co., Chicago, IL
Silver: Hawai'i Nui Brewing Company Hapa, Hawai'i Nui Brewing Co., Hilo, HI
Bronze: Christmas Ale, Goose Island Beer Co., Chicago, IL

Category 87: American-Style Sour Ale, 14 entries

Gold: Raspberry Torte, Iron Hill Brewery & Restaurant, Wilmington, DE
Silver: Viking Oud Bruin, Norrebro Bryghus, Copenhagen N., Denmark
Bronze: Wild Ale #4, Santa Fe Brewing Co., Santa Fe, NM

Category 88: American-Style Stout, 31 entries

Gold: Black Magic Stout, Ogg's Pizza & Brewing Co., San Clemente, CA
Silver: Sticky Stout, Pizza Port Carlsbad, Carlsbad, CA
Bronze: Terminal Stout, Rock Bottom Brewery - Chicago, Chicago, IL

Category 89: American-Style Imperial Stout, 37 entries

Gold: Seven Imperial Stout Niepoort Barrel, Norrebro Bryghus, Copenhagen N., Denmark
Silver: Sexual Chocolate Imperial Stout, Foothills Brewing, Winston-Salem, NC
Bronze: Imperial Stout, Founders Brewing Co., Grand Rapids, MI

Category 90: International Pale Ale, 28 entries

Gold: Sculpin IPA, Ballast Point Brewing Co., San Diego, CA
Silver: Straits Pale, Asia Pacific Breweries Ltd., Singapore
Bronze: P.L. IPA, Firestone Walker Brewing Co., Paso Robles, CA

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By Amahl Turczyn Scheppach

America's Finest City Homebrew Competition

The 19th Annual America's Finest City Homebrew Competition 2010 was held February 19-20 in San Diego, Calif. As always, it was hosted by the Quality Ale & Fermentation Fraternity (QUAFF), that same intrepid Southern California brew club that had a chokehold on the AHA National Homebrew Competition Club of the Year title for six years, from 2001 through 2006. First-year competition organizer Cole Davisson provided the scoop from this year's AFC.

Zymurgy: How many entries did the 2010 event draw, and how did this compare to previous years?

CD: This year, we had 402 entries. I believe this is just under 100 more entries than we have on an average year. This year, we were a qualifying event for the Masters Championship of Amateur Brewing (MCAB). I saw a number of entries from outside of our local area that I imagine might not have been entered if we hadn't been a QE.

Zymurgy: What are the most competitive clubs entering this competition besides QUAFF?

CD: We drew entries this year from a number of Southern California clubs who put in impressive showings. The Temecula Valley Homebrewers, The Long Beach Home Brewers, and Fear No Beer all took multiple awards, as did The Brewing Network. Some of our local San Diego clubs provided numerous entries, including the Society of Barley Engineers, Foam on the Brain, and the North County Homebrewers.

Zymurgy: What's the Beer Machine title, and were there any special prizes this year for that honor? How about for



North County Brown

Paul Sangster, Carlsbad, Calif. (QUAFF)

America's Finest City Homebrew Competition 2010 Brewing Machine co-winner

Ingredients

for 5 U.S. gallons (19 L)

8.0 lb	(3.63 kg) pale two-row malt
10.0 oz	(283 g) special roast
7.0 oz	(198 g) brown malt
6.2 oz	(176 g) 40L crystal malt
3.6 oz	(102 g) pale chocolate malt
1.25 oz	(120 g) E.K. Goldings hops, 4.5% a.a. (60 min)
0.5 oz	(14 g) E.K. Goldings hops, 4.5% a.a. (5 min)
2.0 g	calcium chloride (mash, 60 min)
9.0 g	calcium carbonate (mash, 60 min)
	White Labs WLP013 London ale yeast (1 L starter)

Original Gravity: 1.053

Final Gravity: 1.013

IBUs: 21

SRM: 15.6

Assumed efficiency: 75%

Directions

Infusion mash at 152 °F (67 °C) for 60 minutes. Mash out at 168 °F (76 °C) for 20 minutes. Ferment at 68 °F (20 °C). Condition in keg for 28 days at 42 °F (6 °C).

Extract version

Substitute 6 lbs (2.7 kg) liquid malt extract for the pale malt. Steep remaining grains in 168 °F (76 °C) brewing water for 30 minutes, sparge, add malt extract, bring to boil, and proceed with recipe.



the Best of Show winners?

CD: As in the past three years, all winners, including BOS and Brewing Machine, receive custom AFC medallions. Medals are awarded for first, second and third in each category of beer, mead and cider. Special medals are awarded to the BOS in beer and mead/cider, as well as to the Brewing Machine, an award given to the brewer who receives the most medals across all categories. This year, for the first time, we actually had a tie for Brewing Machine. Paul Sangster from QUAFF and Steve Kirby from Los Cebadartistas in Tucson, Ariz. each had the same number of gold, silver and bronze medals, with six each.

Zymurgy: Since this is an MCAB qualifier as well as a BJCP/AHA sanctioned event, the level of judging must have been pretty high. Anything special QUAFF does to attract big gun judges?

CD: The San Diego area suffers from a bit of an embarrassment of riches when it comes to BJCP judges. We draw in judges from San Diego, Orange County, L.A.

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KUDOS—BEST OF SHOW

AHA/BJCP Sanctioned Competition Program

November 2009

FOSSILS Porter Competition, 22 entries—
Richard Bruscie, New Albany, IN.

February 2010

KLCC Microbrew Festival Homebrew
Competition, 241 entries—Justin Mills-Price,
Roseburg, OR.

Beer Quest Session Ale, 22 entries—American
Pale Ale, Bryon Belding, Lincoln, NE.

America's Finest City Homebrew Competition
2010, 402 entries—Matt Staley, Ladera Ranch,
CA.

Garage Brewers Society 3rd Annual Chili
Cookoff and Beer Competition, 17 entries—
Chris Buchanan, O'Fallon, MO.

Homebrew at the W.E.B., 458 entries—
Phil Sullivan, Royal Oak, MI.

2010 Taste Great Southern Beer and Wine
Competition, 65 entries—Halfluck Brewing,
Rob Hart, Perth, Western Australia.

March 2010

Amber Waves of Grain, 358 entries—
Michael Reda, W. Babylon, NY.

Masters Championship of Amateur Brewing
XIII, 237 entries—David Keller, Bat Cave, NC.

Bockfest 2010, 64 entries—Tim Hayner,
Bellevue, WA.

21st Annual Reggae and Dredhop
Competition, 344 entries—Patrick Crawford,
Denver, CO.

Cascade Brewers Cup, 377 entries—
Russell Everett, Seattle, WA.

The Highland Cup, 91 entries—Brandon Dana,
Asheville, NC.

Kona Brewers Festival Home Brew
Competition, 250 entries—Rocket Rod
Romanak, Jake Romanak, Kailua-Kona, HI.
The Drunk Monk Challenge, 617 entries—
Chuck Grote, South Elgin, IL.

Shamrock Open XV, 332 entries—Terry Smith,
Highpoint, NC.

Iowa Brewers Union Open 2010, 182
entries—Tim Leber, Kansas City, MO.

Lethbridge Werthogs Homebrew
Competition, 120 entries—Mark Heise,
Regina, SK.

2nd Annual Brewfest, 22 entries—Steve Busby.

BlueBonnet Brew-Off 2010 -World's #1- 24th
Annual Celebration, 1,627 entries—Phillip
Rose, Lubbock, TX.

March Mashness, 155 entries—Chris Smith,
Minneapolis, MN.

Brider Brew Crew Homebrew Competition,
28 entries—Dirk and Andee Howard,
Smithfield, UT.

Celebrevention 2010, 130 entries—
Annie Johnson, Sacramento, CA.

McChord Brewfest, 69 entries—What the
Helles...Bock, Randy Scorby, Baker City, OR.

Brewfest 2010, 26 entries—
Terry Frey, Orland Park, IL.

17th Annual Peach State Brew Off,
582 entries—Brian Chambers, Stockbridge, GA.
Hudson Valley HomeBrewers 20th Annual
Competition, 251 entries—Manny Holl,
Poughkeepsie, NY.

Belgian Beerfest, 25 entries—Michael Bowron,
Melbourne, Victoria, Australia.

Lonerider Brewery - Brew it Forward,
76 entries—Donavan Dolph, Chapel Hill, NC.

Slurp & Burp Open, 353 entries—
Ted Hausotter, Baker City, OR.

BOSS Chicago Cup Challenge, 273 entries—
Zbig & Sylvia Banach, New Lenox, IL.

UNYHA 32nd Annual/21st New York
State Open Homebrew Competition, 282
entries—John Zelazny, Rochester, NY.

April 2010

Snow Goose Home Brew Break-Up
Competition, 26 entries—Redoubt
Schwarzbiel, Steve Jayich, Anchorage, AK.

World Cup of Beer, 638 entries—Arlyn Johns,
Oakland, CA.

Las Vegas Winterfest 2010, 115 entries—
Matt Breen, Las Vegas, NV.

AHA Club-Only Competition, American Ales,
73 entries—Mel Thompson, Gaithersburg, MD.

Champion of the Pint, 138 entries—
Peter Polczynski, Tulsa, OK.

The Oregon Garden's Homebrewers Classic,
195 entries—Richard Olson - Capitol Brewers
of Salem, Salem, OR.

2010 ALES Home Brew Open/AHA NHC
Qualifier Competition, 259 entries—
Joshua Hudson, Regina, SK.

South Shore Brewföff, 136 entries—
Brendan Prindiville, Boston, MA.

Wort Hog Brewers Summer Beer Festival,
47 entries—Carl & Ruanne Sandrock, Pretoria,
Gauteng, South Africa.

2010 Nebraska Shootout, 36 entries—
Dave Oenbring, Lincoln, NE.

Mead Free or Die, 126 entries—
Yancy Bodenstein, Gaithersburg, MD.

Between the Bluffs Homebrew Competition,
80 entries—David Palm, La Crosse, WI.

2010 Puget Sound Pro-Am, 345 entries—
Dan Stilwell, Lynnwood, WA.

Mayfaire 2010, 322 entries—Bavarian
Hefeweizen, Steve Cook, Burbank, CA.

COHO Spring Fling, 135 entries—Brett
Thomas, Bend, OR.

May 2010

Competencia Previa MDQ 2010, 12 entries—
Ramiro De Diego, San Martin de los Andes,
NQN, Argentina.

Greg Noonan Memorial Homebrew
Competition, 277 entries—John Allin,
Bethlehem, NH.

Blue Grass Cup, 257 entries—Keith Primeaux,
Baton Rouge, LA.

and the Inland Empire. This year, we had two judging sessions, Friday evening and Saturday morning. For Friday evening, we had 58 BJCP certified judges show up, and we had 65 on Saturday.

Zymurgy: Online registration is becoming the norm for competitions these

days. When did AFC begin making it mandatory, and do you think that's discouraged any entrants?

CD: For the past two years, we have only accepted entries online. Next year, we are hoping to accept payment online only, as handling all the cash and checks is



AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

For complete calendar, competition and judging information go to
www.HomebrewersAssociation.org/pages/competitions



July 3 **2010 WanCup2**

Hamamatsu, Shizuoka, JP. Entry Deadline: 6/25/10.
 Tadashi Tsuda, wancup2010@homebrew.gr.jp
www.wancup2.org/home-ja.php

July 3 **Mundelein American Cup**

Mundelein, IL. Entry Deadline: 6/26/10. Bruce Dir,
 847-566-8012, thedirs@att.net www.babblehomebrewers.com or www.mundelein.org

July 10

Indiana State Fair Brewers Cup

Indianapolis, IN. Entry Deadline: 6/26/10. Anita Johnson, 317-257-9463, brewerscup@indianastatefair.com www.brewerscup.org

July 10

Ohio Brew Week Competition

Athens, OH. Entry Deadline: 6/25/10. Jason Klein,
 765-404-7446, kleinjc40@hotmail.com
www.ohiobrewweek.com/homebrew.html

July 12

West Coast Brewers Iron Brewer 2010

Perth, WA, AU. Brendan O'Sullivan, +618
 407887798, competitions@westcoastbrewers.
 com www.westcoastbrewers.com/competitions

July 16

Mufasa Challenge II

Cincinnati, OH. Entry Deadline: 7/04/10. Robert Westendorf, 513-245-1224, R_Westendorf@fuse.net www.bloatarian.org

July 17

Ohio State Fair Homebrew Competition

Columbus, OH. Entry Deadline: 6/20/10. Brett Chance, 614-644-4126, b.chance@expo.state.oh.us www.ohiostatefair.com/images/stories/10_Homebrew_Form.pdf

July 17

2010 ESB Homebrew Challenge Cup

Sydney, NSW, AU. Entry Deadline: 7/2/10.
 Peter Symons, 0295801165, prsymons@gmail.com www.aussiehomebrewer.com/forum//index.php?showtopic=42421

July 17

23rd Annual SoCal Regional Homebrew Championship

Corona, CA. Entry Deadline: 7/2/10. Christopher Kinsman, 951-534-9614, kinsmanpivo@gmail.com www.inlandempirebrewers.com/Welcome.html

July 24

Buffalo County Fair Beer/Wine/Mead Competition

Kearney, NE. Entry Deadline: 7/19/10. Doug Kramer, 308-236-1382, dkramer46@charter.net www.buffalocountyfairgrounds.com

July 24

3rd Annual All-American Competition

Appleton, WI. Entry Deadline: 7/17/10. Dan Grady, 920-205-0157, dangrady@gmail.com www.aleclubcompetitions.com

July 31

Lunar Rendezbrew 17

Seabrook, TX. Entry Deadline: 6/25/10. John Snider, 281-642-7150, commander@mashtronauts.com <http://mashtronauts.pbworks.com/>

July 31 **Gnarly Barley Homebrew Competition of Larimer County**

Loveland, CO. Entry Deadline: 7/24/10. Pamela McAlpin, 970-224-2767, just.pamela@gmail.com

July 31 **14th Annual NJSF/SCF&HS Homebrew Competition**

Augusta, NJ. Entry Deadline: 7/18/10. Ken Sharrock, 973-641-1710, ksharrock@embarqmail.com www.scubabrewclub.com

July 31 **E.T. Barnette Homebrew Competition**

Fox, AK. Entry Deadline: 7/28/10. Scott Stihler, 907-474-2138, stihlerunits@mosquitobytes.com www.mosquitobytes.com/Den/Beer/Events/Events.html

July 31 **First Coast Cup**

Jacksonville, FL. Entry Deadline: 7/16/10. Michael Lentz, 904-254-0526, dmlentz@comcast.net www.thecask.org/first%20coast%20cup.htm

August 7 **15th Annual Montgomery County Agricultural Fair Homebrew Competition**

Gaithersburg, MD. Entry Deadline: 7/31/10. William Ridgely, 301-762-6523, aaronridge@comcast.net www.g_a_b_s.tripod.com

August 8 **Cuyahoga County Fair**

Berea, OH. Entry Deadline: 7/29/10. James Lewandowski, 440-334-6022, FairGuy01@yahoo.com www.cuyfair.com/

August 8 **AHA Club-Only Competition, Mead**

Westminster, CO. Entry Deadline: 7/30/10. Deborah Lee, 303-287-3574, queenbee@got-mead.com www.HomebrewersAssociation.org/pages/competitions/club-only-competitions

August 10 **Plan it for the Granite!**

Toronto, ON, CA. Entry Deadline: 8/5/10. Roger Beal, 416-454-5409, rogerbeal@vif.com

August 13 **Suds on the Shore Homebrew Competition**

Ludington, MI. Entry Deadline: 7/30/10. Andy Kmetz, 231-843-8593, arkthree@hotmail.com www.sudsontheshore.com

August 14 **Blues and Brews Homebrew Competition**

Hubbardston, MA. Entry Deadline: 8/1/10. Thia St. Martin, 978-582-4740, tbaboval@yahoo.com www.foambrew.com

August 14 **Concurso Internacional Doblebock Somos Cerveceros**

Mar del Plata, Buenos Aires, AR. Entry Fee: free for foreign entrants. Entry Deadline: 7/23/10. Contact: Jorge Lozanoff, 5411-4296-0327, jvloz@ciudad.com.ar www.somoscerveceros.com.ar

August 15 **Concurso Internacional Oatmeal Stout Somos Cerveceros**

Mar del Plata, Buenos Aires, AR. Entry Deadline: 7/23/10. Jorge Lozanoff, 5411-4293-0327, jvloz@ciudad.com.ar www.somoscerveceros.com.ar

August 15 **Kentucky State Fair Homebrew Competition**

Louisville, KY. Entry Deadline: 7/1/10. Chuck Harp, 502-386-9037, chuckharp@bellsouth.net www.kystatefair.org

August 16 **Concurso Internacional Dorada Pampeana Somos Cerveceros**

Mar del Plata, Buenos Aires, AR. Entry Deadline: 7/23/10. Jorge Lozanoff, 5411-4296-0327, jvloz@ciudad.com.ar www.somoscerveceros.com.ar

August 19 **Western Idaho State Fair Homebrew Competition**

Boise, ID. Entry Deadline: 8/16/10. Loren Carter, 208-342-4775, lcarter@boisestate.edu

August 20 **Minnesota State Fair Homebrewed Beer, Mead and Cider Competition**

Saint Paul, MN. Entry Deadline: 8/6/10. Sarah Stremcha, 651-261-8839, ssstremcha@gmail.com www.mnbrewers.com/events/mnfair

August 21 **22nd Annual New Mexico State Fair Pro-Am**

Albuquerque, NM. Entry Deadline: 8/7/10. Philip Brown, 505-508-0131, phil525@hotmail.com www.mgriesmeyer.com/doatest/mn

August 21 **Beer and Sweat 2010**

Fort Mitchell, KY. Entry Deadline: 8/9/10. Scott LaFollette, 513-515-6672, scott@beerandsweat.org www.beerandsweat.org

August 27 **Colorado State Fair Homebrew Competition**

Pueblo, CO. Entry Deadline: 8/14/10. Kristin Taylor, 719-248-4468, kristintaylor@msn.com www.coloradostatefair.com

August 28 **The Limbo Challenge - How Low Can You Go**

Addison, TX. Entry Deadline: 8/5/10. James Orkin, 214-864-8516, director@limbocomp.org www.limbocomp.org

August 28 **Brew Masters Competition**

Florence, WI. Entry Deadline: 8/21/10. Edward Mathis, 906-221-7244, felix14_lonestar@yahoo.com www.tricountyfermenters.com

August 28 **Cooper's Lake Brewers Fest Competition**

Slippery Rock, PA. Entry Deadline: 8/26/10. Fred Brezel, 724-368-8710, brewfest@cooperslake.com www.cooperslake.com/brewfest

August 28 **6th Annual Morebeer! Forum Competition**

Concord, CA. Entry Deadline: 8/14/10. Randy Griggs, 925-768-0313, Randyg@morebeer.com www.morebeer.com/search/103670

August 29 **Puyallup Fair Amateur Beer Competition**

Puyallup, WA. Entry Deadline: 8/21/10. 253-845-9791, pat@thefair.com www.thefair.com

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now the biggest burden of managing the entries. While I suppose there may be some brewers who avoid a competition if they have to enter online, I'm not convinced that we want to take any steps to make our competition much bigger. There are dozens of competitions nationwide, so there is certainly something for everyone. This year, as in past years, all entries (two bottles per) were received at AleSmith Brewing, and stored for us in their walk-in cooler. AleSmith is always incredibly supportive of this effort, and their staff works hard to receive each entry for us and handle all the beers lovingly. However, they have a finite amount of space and time. If our competition gets any bigger, I'm afraid we will start to impose an even greater burden on their generosity, and I don't want to see that happen.

Zymurgy: Based on this year's success, will you be making any changes for the 2011 competition?

CD: We learn some new lessons every year about the online signup process. We are already enhancing our web application to give entrants a better opportunity to fully describe their entries for the judges.

Zymurgy: Who have been your most supportive sponsors over the years?

CD: We always receive great support from AleSmith Brewing, and St. Dunstan's Episcopal Church provides the space for the judging sessions. All costs, however, are met by the club. Membership in QUAFF costs \$20 per year, and those dues are used to pay for AFC, as well as to supplement several other events each year, including an Oktoberfest picnic, and the club's holiday party.

Zymurgy: Thanks for your time, Cole! Best of luck for next year's event.

Included for your brewing pleasure is AFC “Brewing Machine” co-winner Paul Sangster’s “Northern County Brown” ale recipe.

Amahl Turczyn Scheppach is a former craft brewer and associate editor for **Zymurgy**, and now brews at home in Lafayette, Colo.

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www.bjcp.org



OUR EXPERT PANEL includes David Houseman, a Grand Master IV judge and competition director for the BJCP from Chester Springs, Pa.; Beth Zangari, a Grand Master level judge from Placerville, Calif. and founding member of Hangtown Association of Zymurgy Enthusiasts (H.A.Z.E.); Scott Bickham, a Grand Master II judge from Corning, N.Y., who has been exam director or associate exam director for the BJCP since 1995; and Gordon Strong, a Grand Master V judge, principal author of the 2004 BJCP Style Guidelines and president of the BJCP board who lives in Beavercreek, Ohio.

One way beer judges check their palates is by using commercial "calibration beers"—classic versions of the style they represent. Zymurgy has assembled a panel of four judges who have attained the rank of Grand Master in the Beer Judge Certification Program. Each issue they score two widely available commercial beers (or meads or ciders) using the BJCP scoresheet. We invite you to download your own scoresheets at www.bjcp.org, pick up a bottle of each of the beverages and judge along with them in our Commercial Calibration.

Two bocks were on tap for our Calibration judges this issue. First up was New Glarus Cabin Fever Honey Bock, the Wisconsin brewery's first seasonal release for 2010.

Cabin Fever is a helles (pale) bock with a golden color. It is brewed with an exclusive blend of Wisconsin pale and caramel malts that balance seamlessly with a unique lager yeast and European hop. The recipe includes clover honey from Pure Sweet Honey of Verona, Wis.

Cabin Fever checks in at 5.5 percent alcohol by volume. The brewery suggests pairing it with cheese such as Dunbarton Blue, an earthy cheddared blue cheese

from Wisconsin's Roelli Cheese Company.

Next up was Butt Head Bock, an award-winning beer from Tommyknocker Brewery in historic Idaho Springs Colo. Idaho Springs was the site of the first significant gold discovery in Colorado in 1859. In that year, the Argo mine and other mines in the area supplied the U.S. mint with \$2 million worth of gold.

The high-gravity doppelbock is brewed with a generous supply of roasted malts, producing caramel sweetness and a rich mouthfeel. It checks in at 8.2 percent abv.

Butt Head Bock is also available in an oaked version from Tommyknocker.

An advertisement for the Great American Beer Festival Pro-Am Competition. It features a large image of a beer glass filled with a golden beer. To the left of the glass is a vertical "2010" graphic. To the right, the text reads: "Brewers Association presents the 5th Annual Great American BEER FESTIVAL PRO-AM COMPETITION". Below this, it says: "The competition pairing professional brewers and award-winning homebrew recipes from American Homebrewers Association members." Further down, it details the event: "GABF Pro-Am Medals will be presented to professional and amateur brewing pairs at the Great American Beer Festival Awards Ceremony September 18, 2010 Colorado Convention Center Denver, Colorado". At the bottom, it says: "For more information, visit the Competitions section of HomebrewersAssociation.org". Logos for the Brewers Association (BA) and the American Homebrewers Association (AHA) are in the bottom right corner.

THE SCORES



Cabin Fever Honey Bock—New Glarus Brewing Co., New Glarus, Wis.
BJCP Category: 5A Helles Bock/23 Specialty (honey)

THE JUDGES' SCORES FOR CABIN FEVER HONEY BOCK



Aroma: Pils based malt profile up front with hints of honey and noticeable alcohol presence. No diacetyl. No fruity esters. No DMS. Very low hop aroma. Very pleasant aroma but no melanoidins or toastiness often associated with helles bock. (8/12)

Appearance: Dark gold color. Brilliant clarity. Thick, white, long-lasting head. Well carbonated. Very pretty beer. (3/3)

Flavor: Grainy malt profile up front. Very pleasant but more Pilsner-like than a helles bock with rich melanoidins and some toasty notes. Almost a Classic American Pilsner even with some corn-like character. A bit of a sweet finish. No hop flavor but moderate hop bitterness balances the malt sweetness. Alcohol is quite apparent but I didn't initially perceive the honey in the flavor as it likely fermented out and contributed to the alcohol presence; as the beer warmed the honey character became more evident. (18/20)

Mouthfeel: Alcohol warming, but not hot or harsh. Medium body and mouthfeel. Moderately high carbonation. Not creamy or smooth but no astringency or harshness. (4/5)

Overall Impression: A very drinkable and tasty beer. All the flavor expected of a Classic American Pilsner. I personally liked the grainy malt and corn presence, but it's out of place in the traditional helles bock where melanoidins and some toastiness would have worked better for the style. The German brewing with American ingredients tradition was apparent. A great beer to have with brats and Philly soft pretzels. (7/10)

Total Score: (37/50)

Aroma: Moderately strong biscuity malt aroma, with hint of cinnamon and black pepper spicy hop. Clean fermentation. Clean lightly floral honey aroma hangs in the background, emerging more strongly when the beer is roused. (10/12)

Appearance: Brilliant clarity, deep golden color. Low creamy off-white layer of foam doesn't persist as a head, but lingers as a light layer of foam with a pearly sheen. (3/3)

Flavor: Pronounced, but not heavy toasted bread crust and biscuity malt flavor, with very low peppery hop flavor, and moderate bitterness. Low alcohol flavor; very clean. Well balanced presentation of all components. A hint of clover honey at first gives way to the bready malt, finishes with a lingering bitterness and light, sweet residue of honey that accentuates the spicy peppery hop. Sweet finish is more pronounced as the beer sits. (18/20)

Mouthfeel: Medium full body with smooth, creamy texture. Moderate carbonation, not prickly, clean finish with low alcohol warmth. No astringency. (5/5)

Overall Impression: Delightful Maibock with lightness on the palate from honey, which actually could be just a bit more pronounced and not overwhelm the biscuity, bready malt. Malt profile is well supported with a clean fermentation and low peppery, cinnamon hop flavor. A flavorful beer to celebrate with any day, any time. (8/10)

Total Score: (44/50)

Aroma: Medium-strong clover honey aroma with some light toasted malt underneath. The fermentation character is clean, but there is some light alcohol in the background, and the honey adds some fruitiness. It smells a little on the sweet side due to the honey, but that would be expected given the name of the beer. (9/12)

Appearance: Everything is on the mark, including the light golden color and good effervescence. The head retention is impressive, and the clarity is brilliant. (3/3)

Flavor: There is light biscuit/toasted malt up front with a little graininess. The honey sweetness crescendos, adding some fruity notes in the middle, before being slowly attenuated by a moderate hop bitterness. The fermentation character is clean, as it should be for a bock. There is some alcohol present, but at a low enough level to only add a little sweetness. The balance would be better if there was a little more hop bitterness to dry out the finish. A little medium Munich or Vienna malt would also enhance the complexity. (15/20)

Mouthfeel: Medium-full body. Medium carbonation. Creamy and palate-filling. The honey adds a nice quality to the mouthfeel. Lightly warming; not hot at all. The body and mouthfeel enhance the flavor experience nicely. (5/5)

Overall Impression: The body is medium with some residual sugars coating the lips and tongue. There is a light prickle from carbonation, and a little alcohol warmth that is appropriately well-hidden. (4/5)

Overall Impression: This is a very nice beer that expresses the honey well. Although honey is nearly completely fermentable, the beer ends up a little further on the sweet side than one typically finds in a German lager. A little more bitterness from hops or moderately kilned malts would make it a little tighter. The honey in the aroma is distinctive and lets the drinker know what to expect. (8/10)

Total Score: (40/50)

Aroma: Mild aroma. A light sulfur note along with a hint of noble hops. The honey is subtle but noticeable. Lacks the typical richness of a German Maibock. Fairly clean. The honey aromatics come out as it warms. (9/12)

Appearance: Tall off-white head, frothy and persistent. Beautiful gold color. Brilliant clarity. (3/3)

Flavor: Nice blend of malt and honey flavor. The bitterness is medium-low, allowing the malt and honey to dominate. The honey flavor comes out more in the finish and aftertaste, while the malt is more apparent early. Clean lager fermentation with just a hint of sulfur. The malt is quite neutral in character, flavor-wise; it lacks the characteristic richness of German bocks. The clover honey is noticeable as a varietal. Light noble hop flavor. (15/20)

Mouthfeel: Medium-full body. Medium carbonation. Creamy and palate-filling. The honey adds a nice quality to the mouthfeel. Lightly warming; not hot at all. The body and mouthfeel enhance the flavor experience nicely. (5/5)

Overall Impression: Easy to drink. The honey is very well balanced with the malt. As a German style bock, it is a little lacking. Could use more of the richness and depth of flavor that German malt typically provides. The yeast is a little sulfury; it's not overly distracting but it is noticeable. I'd suggest a different strain or perhaps lagering longer. (7/10)

Total Score: (39/50)



THE JUDGES' SCORES FOR BUTT HEAD BOCK



Aroma: All malt with hints of caramel, toast, roast malt and dark pit fruit melanoidins supported by substantial alcohol. No hop aroma. No DMS. No diacetyl. Very nice and on style. (10/12)

Appearance: Dark amber color. Bright clarity. Thin, rapidly dissipating, tan, rocky head. Low carbonation. Head perhaps affected by high alcohol presence. (2/3)

Flavor: Roasted malt up front and a bit over the top. I'd prefer more melanoidins and some light toastiness. No hop flavor but hop bitterness there to balance. Alcohol is big and a bit hot, leaving harshness in the finish. No DMS. No diacetyl. Dark pit fruit (plums, prunes) character. The alcohol flavor is prominent and somewhat distracting, especially when perceived with the roast malt. Finished sweet but on the bitter side of malty. Balance was to alcohol and not to rich maltiness. (14/20)

Mouthfeel: Medium-full body but mouthfeel finished up thinnish. Low carbonation. Very warming alcohol. Some rough edges in mouthfeel from alcohol. (3/5)

Overall Impression: Quite drinkable but the roast character and focus on alcohol took this beer out of the range of the best examples of the style. Just not as balanced as the classic examples. A good beer for Lent as it is quite nourishing as the style originators intended. This worked very well with some aged, sharp cheddar cheese that I had on hand to enjoy with the remainder of the bottle. (7/10)

Total Score: (36/50)



Aroma: Intensely rich toasty caramel malt with equally intense notes of dried tree ripened prunes, with treacle and baked cherries. No hop aroma. Very clean yeast profile, with chocolate malted milk emerging as the beer sits a bit. (8/12)

Appearance: Deep copper with burnished red highlights, brilliant clarity. Low head formation of creamy, light tan bubbles, falls to a mist on the surface. (3/3)

Flavor: Tree-ripened, sun-warmed prune flavors up front give way to caramel sweet maltiness. Hop bitterness is low compared to the intense stone fruit character, but just enough to give balance. No hop flavor. Main components are toasted stone fruit and rich melanoidin malts, yet the beer is clearly fully attenuated. Hint of acidity from darker malts adds complexity mid-palate and in the finish. (18/20)

Mouthfeel: Full bodied with moderately low, softish carbonation; low alcohol warming midway. Creamy, warm texture with no astringency. Clean finish with a low, lingering warmth. (5/5)

Overall Impression: Richly complex, moderately strong doppelbock, with lots of toasty chocolate, malted milk flavors that back up the intense prune and baked cherry fruitiness. Satiating and comforting, this beer brings to mind the style origin as "liquid bread." Alcoholic character is subdued by the richness, making a very drinkable, comforting and satisfying sip. (8/10)

Total Score: (42/50)



Aroma: Toasted malt at the forefront with raisins and plums in the background. The alcohol enhances the dark fruit character. The ester level is on the high side for this style, with a little solvent and tropical fruit character. The nose has great complexity, but would be more appropriate for an Old Ale than a lager. (7/12)

Appearance: Copper color with mahogany highlights and a modest beige head. The head retention is appropriate given the alcohol level. Clarity is excellent. (3/3)

Flavor: The beer starts with a solid malt character, marked by toasted breadcrumbs, melanoidins and caramel. The dark fruits that were prevalent in the aroma are present, but more subdued. The initial sweetness carries through to the finish, where it is balanced by moderate hop bitterness and a low level of roasted malts. There are some pear esters (as opposed to tropical fruit) that are at an appropriate level for the style. The malt-hop-fermentation character balance is very good and really sells this beer. (16/20)

Mouthfeel: The moderate carbonation permits the malt to come through, and while there is some alcohol warmth, there is not excess hotness. The residual malt leaves some sugars on the lips. (5/5)

Overall Impression: The beer is very nice, although the aroma is not as clean as the best examples of the style. It's a bit too fruity and the nose comes across more like an Old Ale or Winter Warmer. But the beer makes up a lot of ground with its complex and well-balanced flavor. Balance is a key for this style, and it's well done in this interpretation. (8/10)

Total Score: (39/50)



Aroma: Rich bready malt, some alcohol sharpness along with dried fruit esters. The malt is fairly deep in character with some dark toast notes. The alcohol is a little perfumy—a bit distracting. Seems fresh and clean, perhaps young. The alcohol and esters tend to overshadow the malt. No hops. (8/12)

Appearance: Medium copper color. The low beige head settled quite fast. Clear. (2/3)

Flavor: Rich malt, deeply flavored, like heavily toasted bread crusts. Reminds me of dark Munich malt. Medium bitterness, some of it coming from alcohol; this is a bit too high, since it interferes with the malt flavor. Low hop flavor noted. Some raisin and prune esters are present. The malt is fairly nice with deep flavors but the heavy toast verges on roast/burnt. The dark malt overtones tend to overshadow the base malt richness. The esters and alcohol are a bit too much, although I think aging could help. Seems very clean and well fermented. As it warms, hints of milk chocolate emerge. (14/20)

Mouthfeel: Medium-full body. Medium-high carbonation. Some alcohol hotness—too sharp. The alcohol level seems right—it's just too forward and noticeable. (4/5)

Overall Impression: Needs additional lagering. The alcohol is too sharp and forward. The malt is rich and strong but has too much of a dark toast/light roast character. I would increase the Munich-type malts and cut back on the more roasted malts or dark crystal malts. The alcohol is adding extra bitterness, which hurts the overall balance. The clean fermentation character shows that it was well made. (7/10)

Total Score: (35/50)

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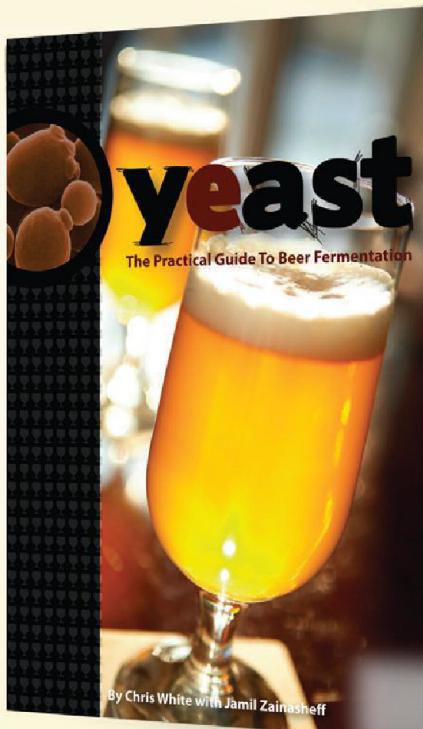
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by Charlie Papazian



Carla's Oat Brown Ale



Decades of my homebrewing have been inspired by people and places. Whether you've been following my column for two years or 30 years, you'll note that my beers and recipes sometimes get personal. Memorable people and circumstances conspire to attach themselves to the names of my beers.

Rogerfest, Claude of Neptune, Christmas Cinderella, Switch & Toggles Porter, Whoop Moffit, Kiera Cherry, Nicolette Weizen, Dilly Dally, Joda's Jolly Lager, Ira's Alt, Asa Porter, Cromacio, Trevor's Violet Ray, Hilma Skinner and several others have made it into my log book.

The most recent addition is now featured on tap at our house. It's pretty special. Named after our newborn daughter, Carla Vitoria Papazian, born March 19, 2010, there is a novel brew called Carla's Oat Brown Ale flowing into our glasses.

The recipe was mutually formulated and brewed by my wife Sandra and me. Something new, different, unique, healthy, and refreshing with hints of dry and satisfying toastiness from English mild malt and a hop character that balances a reassuring bitterness with hop flavor and aroma. A bit of Brazilian dark rapadura for mystery. Oats for smoothness. Aromatic and crystal malts for sweetness of personality. It's a session beer com-

Carla's Oat Brown Ale

All Grain Recipe

Ingredients

for 5.5 U.S. gallons (21 liters)

4.0 lb	(1.82 kg) Maris Otter malt
3.0 lb	(1.36 kg) English mild malt
1.0 lb	(454 g) rolled oats
8.0 oz	(225 g) English crystal malt (10 L)
8.0 oz	(225 g) honey malt
4.0 oz	(113 g) Belgian aromatic
9.0 oz	(250 g) dark rapadura sugar
1.0 oz	(28 g) UK Fuggles hops 4.7% alpha (4.7 HBU/132 MBU) 60 min
1.0 oz	(28 g) UK Kent Golding hops, 5 min
2 drops	Styrian Goldings hop oil
0.25 tsp	(1 g) powdered Irish moss
	English Ale yeast or Cry Havoc yeast
0.75 cup	(175 ml measure) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.048 (12 B)

Target Extraction Efficiency: 75%

Approximate Final Gravity: 1.016 (4 B)

IBUs: about 37

Approximate Color: 10 SRM (20 EBC)

Alcohol: 4.4% by volume

Directions

Reserve 1 cup of crushed pale malt for boil. A step infusion mash is employed to mash the grains. Add 8.5 quarts (8.1 l) of 140° F (60° C) water to the crushed grain (minus the 1 cup of pale malt), stir, stabilize and hold the temperature at 132° F (53° C) for 30 minutes. Add 1 lb of rolled oats and 1 cup of crushed pale malt to 5.5 quarts (4.3 l) cool/warm water and bring to boil for 15 minutes. Add

the boiling water, oats and malt to infused grain mash and add heat if necessary to bring temperature up to 155° F (68° C) and hold for about 30 minutes. Raise temperature to 167° F (75° C), lauter and sparge with 3.5 gallons (13.5 l) of 170° F (77° C) water. Collect about 5.5 gallons (21 l) of runoff. Add 60-minute hops, rapadura sugar and bring to a full and vigorous boil.

The total boil time will be 60 minutes. When 10 minutes remain add the Irish moss. When 5 minute remains add the 5-minute hops. After a total wort boil of 60 minutes turn off the heat and place the pot (with cover on) in a running cold-water bath for 30 minutes. Continue to chill in the immersion or use other methods to chill your wort. Strain and sparge the wort into a sanitized fermenter. Bring the total volume to 5 gallons (19 l) with additional cold water if necessary. Aerate the wort very well.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F (21 C) for about one week or when fermentation shows signs of calm and stopping.

Prepare the hop oil by using a pipette to carefully add 2 drops of oil into a sanitized beer glass into which you've added about 1 tablespoon (about 15 ml) of grain alcohol or 100+ proof vodka/neutral spirits. Swirl and blend oil into alcohol. Add about 4 oz of cheap light lager beer to further disperse oil into mixture. Add dispersed oil/beer/alcohol mixture into your secondary fermenter and then rack beer from primary into the secondary. If you have the capability, "cellar" the beer at about 55° F (12.5° C) for about one week. Prime with sugar and bottle or keg when complete.



memorating the lasting joy, a small token welcoming Carla into our lives and sure to be into the lives of many others.

It's on tap now. There's more, too, not to worry. I anticipated the attention that Carla and Sandra would need. I brewed five weekends in a row through February and March in order to sustain ourselves through the summer thirsts.

Newfound fatherhood—short on time and attention, I need to cut the shuck and jive and hurry on with the recipe or this column won't happen.

Charlie Papazian is founder of the American Homebrewers Association. ☺

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Carla's Oat Brown Ale

Mash/Extract Recipe

Ingredients

for 5 U.S. gallons (19 liters)

3.0 lb	(1.36 kg) amber malt extract syrup or 2.5 lb (1.2 kg) amber dry malt
3.0 lb	(1.36 kg) English mild malt
1.0 lb	(454 g) flaked or quick oats
8.0 oz.	(225 g) English crystal malt (10 L)
8.0 oz.	(225 g) honey malt
4.0 oz.	(113 g) Belgian aromatic
9.0 oz.	(250 g) dark rapadura sugar
1.25 oz.	(35 g) UK Fuggles hops 4.7% alpha (5.9 HBU/165 MBU) 60 min
1.0 oz.	(28 g) UK Kent Golding hops, 5 min
2 drops	Styrian Goldings hop oil
0.25	tsp (1 g) powdered Irish moss
	English Ale yeast or Cry Havoc yeast
0.75 cup	(175 ml measure) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.048 (12 B)

Target Extraction Efficiency: 75%

Approximate Final Gravity: 1.016 (4 B)

IBUs: about 37

Approximate Color: 10 SRM (20 EBC)

Alcohol: 4.4% by volume

Directions

Heat 5.5 quarts (5.2 l) water to 172° F (77.5° C) and add crushed grains and oats to the water. Stir well to distribute heat. Temperature should stabilize at about 155° F (68° C). Wrap a towel around the pot and set aside for about 60 minutes. Have a homebrew.

After 45 minutes add heat to the mini-mash and raise the temperature to 167° F (75° C). Pass the liquid and grains into a strainer and rinse with 170° F (77° C) water. Discard the grains.

Add to the sweet extract you have just produced more water, bringing the volume up to about 2.75 gallons (10.5 l). Add malt extract, rapadura sugar and 60 minute hops and bring to a boil. The total boil time will be 60 minutes. When 10 minutes remain add the Irish moss. When 5 minute remains add the 5-minute hops. After a total wort boil of 60 minutes turn off the heat and place the pot (with cover on) in a running cold-water bath for 30 minutes.

Strain out and sparge hops and direct the hot wort into a sanitized fermenter to which 2.5 gallons (9.5 l) of cold water has been added. If necessary add cold water to achieve a 5.5 gallon (21 l) batch size. Aerate the wort very well.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F (21° C) for about one week or when fermentation shows signs of calm and stopping. Prepare the hop oil by using a pipette to carefully add 2 drops of oil into a sanitized beer glass into which you've added about 1 tablespoon (about 15 ml) of grain alcohol or 100+ proof vodka/neutral spirits. Swirl and blend oil into alcohol. Add about 4 oz of cheap light lager beer to further disperse oil into mixture. Add dispersed oil/beer/alcohol mixture into your secondary fermenter and then rack beer from primary into the secondary. If you have the capability, "cellar" the beer at about 55° F (12.5° C) for about one week. Prime with sugar and bottle or keg when complete.

By Chris Bible

How Cleaners and Sanitizers Work

Proper cleaning and sanitation are keys to the production of good beer. Cleaning and sanitation skills are fundamental to the brewing process, but these skills are often felt to be so mundane that they get little attention by the typical homebrewer. This is unfortunate because no other step in the brewing process can undo the damage that may result from poor attention to detail in the cleaning and sanitation steps of the brewing process.

Bacteria, like yeast, thrive in a warm, moist environment. Your carefully prepared, nutrient-rich wort makes an ideal home for both yeast and bacteria, and if the bacteria get the upper hand within your wort, there is no way to recover. You cannot undo the damage to beer that is infected by bacteria. So, unless you intentionally place bacteria into your wort in order to make a particular style (e.g. Lactobacillus to make a lambic), the goal is to keep your wort as bacteria-free as possible. To be a successful brewer, you must be a successful bacteria killer.

There are three different kinds of activity that are undertaken to control or kill bacteria:

1. Cleaning
2. Sanitizing
3. Sterilizing

Cleaning

Cleaning should always be done before the sanitation step in the brewing process. This is because the presence of dirt, debris and organic matter can interfere with sanitation by deactivating chemicals and can also provide a “hiding spot” for bacteria within your brewing equipment.

Cleaning is simply the act of removing the accumulated dirt and residue from your brewing equipment. Detergents and soaps

are used to assist in this step, removing organic residue that water alone will not. Soap and detergent molecules are composed of long chains of carbon and hydrogen atoms (see Figure 1). At one end of the chain is a configuration of atoms that are soluble in water (hydrophilic). The remainder of the chain is not soluble in water (hydrophobic) but attaches easily to organic matter. The non-water soluble portion of the soap or detergent molecule attaches itself to the organic matter on your brewing equipment. The organic matter is then carried off into the water, attached to many soap or detergent molecules. The organic matter is actually emulsified by the soap or detergent molecules. An illustration of this process is shown in Figure 2.

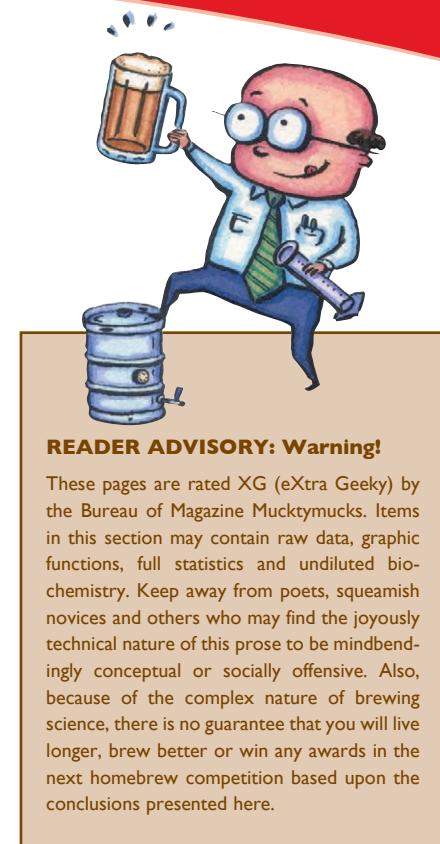


FIGURE 1: A SINGLE MOLECULE OF DETERGENT OR SOAP

Polar, water soluble “head”

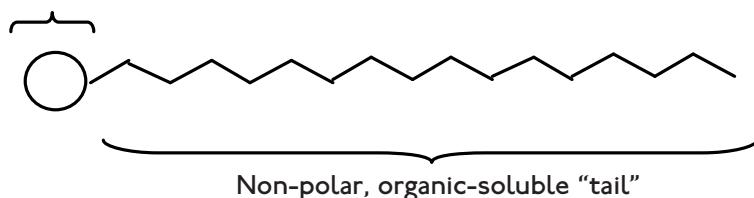
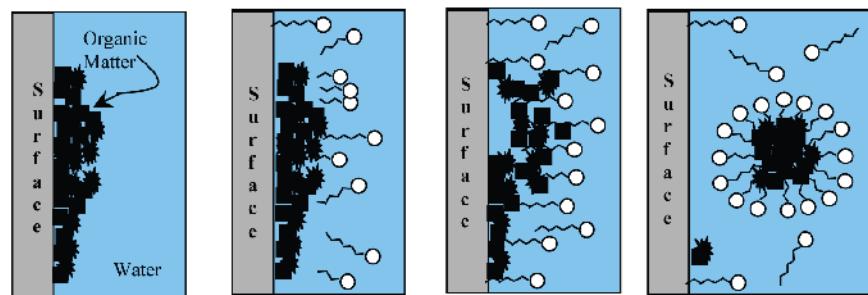


FIGURE 2: ILLUSTRATION OF ACTION OF SOAPS & DETERGENTS ON ORGANIC MATTER



Inorganic contaminants within your homebrewing equipment are less common, but one you might encounter is beerstone. Beerstone is calcium oxylate (CaC_2O_4). It usually looks like a light brown film that adheres to surfaces. Any chemical that is acidic such as food-grade phosphoric acid or acetic acid (vinegar) can be used to remove beerstone. Some acid sanitizers such as Star San may also be effective.

Sanitizing vs. Sterilizing

Sanitizing is the act of applying either chemicals or heat to your equipment to greatly reduce the amount of bacteria. Sterilizing is the complete eradication of

all bacteria and other spoilage organisms. Sterilization is usually not a practical option for homebrewers. It is usually not possible to kill all of the bacteria in our brewing equipment with the tools commonly available to a homebrewer.

Sanitation, however, can be easily achieved. Many different chemicals are readily available to help a homebrewer sanitize brewing equipment. The chemicals are effective only if they are actually able to contact the spoilage organisms. Spoilage organisms can easily "hide" under dirt and organic matter that adheres to brewing equipment, and the presence of organic deposits may actually inacti-

vate or reduce the effectiveness of some types of sanitizers (such as hypochlorites), rendering the sanitization process ineffective. This means that all residual dirt and contamination must be removed from the brewing equipment before using chemicals. First clean, then sanitize.

Sanitizers and Disinfectants

To sanitize means to reduce the number of microorganisms to a safe level¹. One definition of a sanitizer states that it must be capable of killing 99.999 percent of a specific bacterial test population, and to do so within 30 seconds. An alternate definition states that a hard surface sanitizer is a chemical agent that is capable of killing 99.9 percent of the infectious organisms that are present in a bacterial population, within 30 seconds.

By either definition, a sanitizer does kill the vast majority of bacteria present, but it does not kill them all.

A disinfectant is a chemical agent that is capable of destroying disease-causing bacteria or pathogens, but not spores and not all viruses¹. A disinfectant must be capable of reducing the level of pathogenic bacteria by 99.999 percent within five to 10 minutes. The main difference between a sanitizer and a disinfectant is that at a specified use dilution, the disinfectant must have a higher kill capability for pathogenic bacteria compared to that of a sanitizer.

How Sanitizers Work

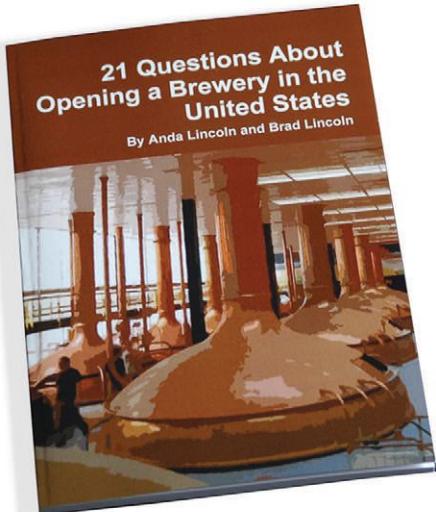
When bacterial cells are exposed to sanitizers (or disinfectants), irreversible damage occurs to the various physical structures within the cell². Sanitizers and disinfectants work by either attacking a specific part of the bacterial cell, or by causing damage to some of the components of the cell. Sanitizers and disinfectants generally disrupt the bacterial cells in one of three different ways:

1. Cell membrane destruction
2. Inhibition of food uptake and waste excretion
3. Inactivation of critical enzymes

Cell Membrane Destruction

Chemicals such as sodium hypochlorite (bleach) or peroxyacetic acid (PAA) are

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strong oxidizing agents and can cause total destruction of the bacterial cell membrane. Without a membrane to hold it together, a cell cannot live. Cellular components will simply leak out into the surrounding environment and the cell is no longer a cell.

Inhibition of Food Uptake and Waste Excretion

Some chemicals such as the quaternary ammonium compounds (quats) have the ability to attach themselves to specific sites on a cell membrane. They can do this because they carry a positive electrical charge when dissolved in solution and are attracted to the negatively charged portions of the cell membrane. By attaching to the cells, the quats effectively block the uptake of nutrients into the cell and prevent the excretion of waste products. These waste products then accumulate within the cell structure. The cell is both starved and internally poisoned from the accumulated wastes.

Inactivation of Critical Enzymes

Some phenolic-based biocides kill cells by actually entering the cell and chemically reacting with certain key enzymes within the cell that either support cell growth or the metabolic activities that supply the bacteria with the energy needed for growth and reproduction.

The Sanitizer Chemicals

Within these major categories of sanitizers are many chemicals that are commonly used by homebrewers to sanitize brewing equipment. A discussion of the specific chemicals is given below¹.

Hypochlorites

Because of their effectiveness and relatively low cost, hypochlorites are widely used in many different sanitization operations, and have become the standard to which other sanitizers are compared. The most commonly encountered hypochlorite is household bleach. Household bleach is a solution of 3-6 percent by weight sodium hypochlorite. Hypochlorites kill bacteria by destroying cell walls and inactivating vital bacterial enzymes.

Hypochlorites have several disadvantages. They are corrosive to metal sur-

faces including stainless steel. They also degrade in strength with time, and their potency is also diminished by the presence of organic matter. Additionally, their effectiveness is somewhat dependent upon the pH of the water in which they are used. Hypochlorites function best within a pH range of 5 to 7. High pH (>9.0) inhibits the sanitization effect of hypochlorites, requiring longer exposure times to achieve the desired results.

Hypochlorites in the form of household bleach have been used for years as a sanitizer by homebrewers. In order to

avoid off-flavors in the finished beer, it is important that the sanitizer solution be well rinsed from the brewing equipment.

Iodophors

Iodophors kill bacteria in a similar manner to that of hypochlorites but do not act as aggressively or as quickly. They attach themselves to proteins that contain sulfur in their molecular structure (e.g. cysteine), and inactivate them. Iodine solutions usually consist of elemental iodine that has been complexed to a carrier such as PVP (polyvinylpyrrolidone) or a non-ionic surfactant. The iodine carrier acts as a sus-

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TABLE I: PROPERTIES OF CHEMICAL SANITIZERS AND DISINFECTANTS

Sanitizer	Optimum pH Range for Sanitization	Recommended Concentration for Use	Effect of Hard Water on Sanitization	Effect of Organics in Water	Germicidal Activity	Contact Time	Comments
Hypochlorite	5 - 7	200 max (50-100 ppm recommended)	Moderate tolerance	Reduced activity	High	3-5 min	Household bleach. Rinse required.
Iodophors	1 - 5	25 ppm	Activity reduced More sanitizer required	Reduced activity; more stable than hypochlorites	Moderate, less effective than hypochlorites	10-15 min	No rinse required. Drain equipment well.
Quats	8 - 11	200 ppm	Activity reduced	Moderately stable	Varied	Varies	Not recommended for homebrewing
Acid Sanitizers	1 - 3	200 ppm	Activity reduced More sanitizer required	Low reactivity	Very Good	5-7 min	Good for brewing applications
Aldehydes	6 - 8	2% for Sterilization	No effect	Activity reduced	High	< 1 min	Not recommended for homebrewing
Alcohols	5 - 8	70%	No effect	Loss of activity	Moderate	5-10 min	Some limited application for homebrewing
Phenolics	10.5 - 11.5	200 – 400 ppm	Moderate tolerance	Moderately stable	Very good	5-7 min	Not recommended for homebrewing
PAA	3.5 - 5.5	150 – 200 ppm	Limited effect	Reacts and loses activity	High, better than hypochlorite	2-3 min	No rinse required. Drain equipment well.
Chlorine Dioxide	2 - 5	5 – 15 ppm	No effect	Little influence	High, better than hypochlorite	2-3 min	Not recommended for homebrewing

tained-release mechanism for the iodine. The main disadvantages of iodophors are that they are highly staining, work only within the acidic pH range, and tend to evaporate away at temperatures greater than 35° C (95° F).

Iodophors are often used as a no-rinse sanitizer by homebrewers. In order to avoid off-flavors in the finished beer, it is important that the sanitizer solution be allowed to fully drain from the brewing equipment.

Quaternary Ammonium Chlorides (QUATS)

Quats have a wide variation in bacterial killing capability and are generally used only in low-level sanitization. The main advantages of quats are that they are odorless, non-staining, non-corrosive to metals and relatively non-toxic at the concentrations ordinarily used for sanita-

tion. They remain effective when used in hard water and are effective over a wide pH range.

A disadvantage of quats is that they can leave a non-volatile residue on surfaces to which they are applied. For this reason they are probably not the best choice for use on brewing equipment.

Acid Sanitizers

Acid sanitizers have a broad-spectrum germicidal activity and are very cost-effective to apply. They are also relatively unaffected by organic matter. Because of their low pH, acid sanitizers have the added advantage of being able to react with hard water deposits and beerstone and for this reason are ideal for use in hard water. Because of their combined acid cleaning, free rinsing and sanitization properties, they can be an excellent choice for use in your home brewery.

Commercially available examples of this type of sanitizer include products like Star San (a mixture of phosphoric acid and dodecylbenzenesulfonic acid) that are widely used by homebrewers.

Aldehydes (Formaldehyde and Glutaraldehyde)

Aldehydes are extremely reactive chemicals that work as sanitizers by irreversibly denaturing proteins in the bacterial cell. Solutions of formaldehyde or glutaraldehyde are such strong anti-bacterial chemicals that a solution comprised of 2 percent by weight of either of these chemicals can exhibit sterilization properties if the solutions are allowed to remain in contact with the bacteria for a sufficient amount of time.

Formaldehyde can leave residual films on the surfaces with which it comes into contact and therefore its use poses

a potential health hazard. Formaldehyde films can also combine with certain food-containing components and create a very undesirable medicinal flavor. Formaldehyde has also been identified as a potential carcinogen. For all of these reasons, aldehydes are not recommended for use on brewing equipment.

Alcohols

Alcohols that are sometimes used to sterilize brewing equipment include isopropanol and ethanol. Alcohols kill bacteria by denaturing cellular proteins. In the absence of water, proteins are not readily denatured by alcohol. Because of this a 70-percent solution of isopropyl alcohol is a much more effective sanitizer than a solution of 99-percent isopropyl alcohol. Isopropyl alcohol is capable of killing most bacteria within five minutes of exposure but it is ineffective against spores and has limited effectiveness on viruses. A main disadvantage of isopropyl alcohol is that it is flammable. It also becomes much less effective if diluted to low concentrations and therefore is relatively expensive to use. Ethanol (ethyl alcohol) is a fairly effective sanitizer and is often used by homebrewers for disinfection of smaller pieces of equipment (e.g. such as equipment used for culturing yeast or small items such as hose fittings, couplings, etc.).

Phenolics

Phenolics are effective sanitizers even in the presence of organic matter. Their main advantage is that they are highly effective in destroying the bacteria causing tuberculosis. The disadvantages of phenolics are that they are expensive to use, and react with certain types of plastic surfaces. They are also difficult to oxidize and this makes disposal of these compounds in an environmentally suitable manner difficult and expensive. Phenolics are not recommended for use by homebrewers.

Peroxyacetic Acid (PAA)

Peroxyacetic acid (also known as peracetic acid or PAA) is manufactured by reacting acetic acid with hydrogen peroxide. PAA is a popular sanitizer because of its effectiveness and environmental compatibility. PAA breaks down to form acetic acid (vinegar), water and oxygen. One of the major advantages in using PAA is that

it also functions extremely well under cold conditions (4° C/39° F), unlike many other sanitizers. PAA solutions are generally used at 150 to 200 ppm and are highly effective against many different kinds of bacteria. A major disadvantage of PAA is that it is more expensive to use than hypochlorite, but still is very popular with homebrewers. It is a good choice for use as a no-rinse sanitizer for homebrewers.

Chlorine Dioxide

Chlorine dioxide is a powerful sanitizer and disinfectant that is produced by reacting sodium chlorite in solution with an acid. The yellowish-green gas produced in this reaction is allowed to remain in a closed system until it dissolves in the solution from which it was generated. The aqueous solution of chlorine dioxide is subsequently used for sanitization. Chlorine dioxide is three to four times as potent as sodium hypochlorite as a sanitizing agent and is generally effective against all bacteria and viruses. It does not have the disadvantages that sodium hypochlorite has with respect to corrosivity

of metal surfaces, but there are still several disadvantages. The extremely reactive nature of sodium chlorite from which chlorine dioxide is generated creates a storage hazard. Additionally, the complex and expensive equipment required to generate and safely handle chlorine dioxide requires a significant capital outlay and therefore its use is unattractive for routine sanitization to the majority of end users (including both commercial and homebrewers).

Summary and Conclusions

Table 1 summarizes some of the properties and characteristics of commercially available sanitizers and disinfectants¹.

Although sanitization is distinct from disinfection, common elements exist between the two. The differences are often related to the concentrations of the chemical used and length of exposure of the product on the surface. Both the required dose of the sanitizer chemical and the required exposure time are very important considerations for homebrew-

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ers. Although there are no-rinse sanitizers available (e.g. Star San and the various iodophors), using a too-high dose of either a no-rinse or a rinse-required sanitizer (e.g. hypochlorite) may result in off-flavors in the finished beer.

So which of the chemicals that are available are best at helping a homebrewer achieve the goal of sanitizing the brewing equipment? As with almost all things, it depends. To achieve success:

Step 1: All brewing equipment needs to be well cleaned before it is sanitized. There are many ordinary and enzyme-enhanced soaps, detergents and cleaning products that are commercially available (PBW, Sparkle-Brite, Pro-Zyme) to help with this chore, but good attention to detail is critical.

Step 2: On brewing day, sanitize all brewing equipment that will contact cooled wort. Sanitize by using one or more of the chemicals previously described. None of them are absolutely perfect for every situation, but there are plenty of options from which to choose. Pick the one that is right for you.

Step 3: Perform "preventive cleaning" on your brewing equipment. It is much easier and less time consuming in the long run to keep your brewing equipment clean rather than working much harder than is necessary to clean off the residue from previous brewing sessions. Less time spent cleaning the gunk from previous brew sessions means that there may even be enough time available to enjoy an extra homebrew on brew day!

Chris Bible is a chemical engineer whose love of beer and science intersected when he became a homebrewer over 12 years ago. He resides in Knoxville, Tenn. with his wife and son and especially enjoys brewing porters and stouts.



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Blogging and Brewing at 6,512

It came as a bit of surprise when an e-mail from Dave Thibodeau, president of Ska Brewing, popped up in my inbox, inviting me to brew a beer of my choosing with the Durango, Colo., brewery.

Really? Me? Brew?

My attitude toward brewing had always been that it's best left to the professionals. I had no brewing experience whatsoever.

What I did have was a beer blog, Beer at 6512, through which I had been praising, criticizing and reporting on Ska and Durango's other breweries for the better part of a year. (The blog's name comes from Durango's official elevation of 6,512 feet).

Thibodeau also invited Jeff Hammett, author of Durango's other beer blog, Beer N Bikes, to brew a beer with Ska.

It was an innovative idea. While breweries often collaborate with homebrewers and each other, blogger-brewer collaborations remain rare. The scarcity of such collaborations makes sense: Why would respectable professional brewers want to open up their breweries to Internet-based amateurs? It takes a certain amount of trust and marketing savvy to let outsiders into a successful brewery.

My first quandary, familiar to any homebrewer, was what to brew. I didn't want to brew any style already produced in Durango, which ruled out most common types.

I settled on an imperial red ale. I had enjoyed some examples of the style, and felt Durango could use its own. Basing the recipe on that of Ska's own Pinstripe Red Ale would give me a head start.

I designed the recipe with Ska's head brewer, Thomas Larsen. Pinstripe uses caramel and crystal malts with moderate hopping and a classic English ale yeast. We essentially took Pinstripe's recipe and cranked it up a few notches.

I didn't know what to expect on our brew day. I showed up in too-small rubber boots purchased from Walmart. Larsen and I cleaned buckets full of equipment.

It struck me how industrial brewing is. It's not office work. It's stainless-steel clamps and rubber hoses. It's chlorine and scrubbing. It's smoke breaks and swearing when something goes wrong.

We brewed on the 10-gallon pilot system that Ska's brewers use to experiment with new recipes. I felt like an alchemist adding hops to the wort, which boiled up with a green film reminiscent of split-pea soup.

I dubbed my creation Soggy Coaster Imperial Red Ale, after my blogging pen name. The name was inspired by generously overfilled happy-hour pints foaming soggly onto cardboard brewery coasters. We tapped my beer February 13 at Ska's tasting room along with Hammett's beer, a Belgian-American IPA.

My imperial red came in at 8.4 percent alcohol by volume and 58 IBUs. A big, floral nose from dry-hopping with



Willamettes nicely introduced the red malt base. Despite my fears that the original gravity was too high, the ale hid its alcohol well and finished exceptionally clean.

Now I will return to opining about other people's beers rather than brewing my own. The end is bittersweet. I miss the thrill of creating my own beer and sharing it with others.

Is it possible, I wonder, that there's a brewing equivalent of postpartum depression?

Chuck Slothower is a journalist and blogger living in Durango, Colo. His blog is at beerat6512.blogspot.com.

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English maltsters Muntons produce a range of specialist kits and brewer's malts to help you make authentic, stylish beers and ales of distinction. Use a kit for ease and speed or select a Muntons grain malt for the ultimate personal touch.

Remember, whatever beerstyle and method you choose, there's always a Muntons product to suit your needs.

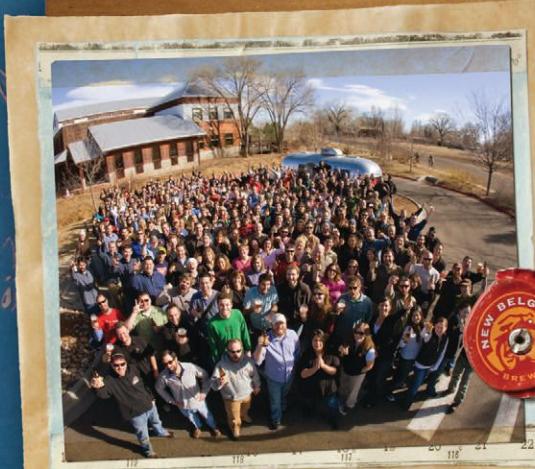
Experience all the taste and style of the world's finest beers. Ask your homebrew store about Muntons.

Muntons pilsner • bitter • lager • stout • ipa • kits • improvers • malts • and more...

Muntons homebrew products are made in England.

For more information contact: Muntons plc, Cedars Maltings, Stowmarket, Suffolk England IP14 2AG. 0044 14 49 61 83 00

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The employee-owners of New Belgium Brewing would like to thank the following for making our folly possible: the inventor of the bike, the Cache la Poudre river, our farmers and maltsters, the energy-stingy Merlin brew kettle, our seven proprietary yeast strains, the Wyoming wind, the Colorado sunshine, the gazillion hard working microbes in our water treatment facility, our bio-generator, anyone who lives like there is a tomorrow, and everyone who enjoys our beer. NewBelgium.com