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by Jill Redding

2011 Beerdrinker of the Year



The fourth time was a charm for Phil Farrell.

For three years, the Cumming, Ga. commercial pilot had made the finals of the Beerdrinker of the Year competition, only to fall just short when the winner was announced. I remember talking to Phil after last year's competition, and he wondered whether he'd be able to stomach a fourth try.

Luckily, Farrell decided to give it one more shot.

In a unanimous decision on February 26 at the Wynkoop Brewing Co. in Denver, Farrell wowed the standing-room-only crowd with his beer knowledge, passion, and humor, winning free beer for life at the Wynkoop, \$250 worth of beer at the brewery of his choice (Five Seasons North in Alpharetta, Ga.), and finally donning the winners' T-shirt proclaiming him the 2011 Beerdrinker of the Year.

"It was a great feeling to finally wear that shirt," Farrell said. "Suzie [Farrell's wife] is going to insist I take it off sometime, though."

Farrell, well known in homebrewing circles as the Chicken Man (if you haven't had your picture taken with The Chicken,

what are you waiting for?), beat finalists James Clark of Springfield, Va. and Mike Dixon of Wake Forest, N.C. Clark and Dixon were both entertaining, top-notch contenders in the competition. The finalists were grilled by a panel of judges that included Wynkoop head brewer Andy Brown and several past champions. Some sample questions:

"If you were to develop a new breed of hops, what would you call it?"

"What was the first brewery to isolate lager yeast?"

"What Colorado beer will Carmelo Anthony and Chauncey Billups miss the most?"

"Who is the best beer drinker of all time?"

They also faced questions posed from their fellow finalists, had to identify two different beers (Duvel and Port Brewing's Shark Attack) in a blind tasting (Farrell clearly had the edge in this one), and all three sang closing songs instead of providing closing statements.

An award-winning homebrewer, the well-traveled Farrell's beer-drinking resume includes having tasted beer in every country in Europe, all 50 states, and every U.S. territory. In May, he will travel to Brazil and Argentina to proctor their first BJCP exams before heading to the National Homebrewers Conference June 16-18 in San Diego.

"I'm so glad to be in this family of beer," said Farrell. "Everyone has so much passion. Beer is great, but beer people are greater."

Jill Redding is editor-in-chief of Zymurgy.

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National Homebrewers Conference Preview

by the Local Committee

To read this special, online-only feature, go to the Zymurgy page on HomebrewersAssociation.org.



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>> GET THERE!

GET THERE: MAUI BREWERS FESTIVAL

The third annual Maui Arts and Cultural Center fundraiser showcases the best in craft beers made in Hawaii and beyond. It features a leisurely day of tasting microbrews from more than two dozen breweries, appetizers and desserts from island restaurants, and rockin' entertainment with local bands. This year's event takes place May 15 in Kahului, Maui.

General admission tickets include eight 4-ounce tastings in a commemorative Pilsner cup, unlimited pupu and desserts, and event parking. A special Happy Hour package is also available. For more, go to www.mauiaarts.org.

May 6-8
16th Annual
St. Louis Microfest
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stlmicrofest.org

May 7
Beer, Bourbon & BBQ Festival
 Charlotte, NC
www.beerandbourbon.com

May 20-22
Brewer's Memorial Ale Fest
 Newport, OR
www.rogue.com

May 21
12th Annual West Coast
Brew Fest
 Sacramento, CA
www.westcoastbrewfest.com

June 3-4
SAVOR: An American Craft Beer
& Food Experience
 Washington, D.C.
www.savorcraftbeer.com

June 8-12
Mondial de la Biere
 Montreal, Quebec.
<http://festivalmondialbiere.qc.ca/>

June 11
2nd Annual Boulder SourFest
 Boulder, CO
www.averybrewing.com

For more craft brewing events,
 go to craftbeer.com.

>> BREW NEWS

THE MOTHER OF ALL BEER WEEKS

Celebrate the flavor and diversity of American craft beer by participating in American Craft Beer Week May 16-22. American Craft Beer Week has been designated as a time for all legal-drinking-age Americans to explore and celebrate the flavorful beverages produced by our small, traditional, and independent brewers.

American Craft Beer Week is a long and established annual celebration of American craft brewers. In 2010, 341 brewery locations and 621 events were part of American Craft Beer Week, which has more than 31,000 "likes" on Facebook.

The Los Angeles Times Daily Dish blog has said of American Craft Beer Week, "If you believe that your inalienable rights include 'life, liberty and the pursuit of hops and malts fermented from the finest of U.S. small and independent craft brewers,' then you need not wait until July 4 to celebrate your independence."

To find an event near you for 2011, go to CraftBeer.com (Events section) and be sure to sign up on the Facebook page if you haven't already.

>> THE LIST

7 BEERS FOR FATHER'S DAY



Here are seven aptly named beers to honor Father's Day (June 19).

1. Russian River Hopfather
2. Rogue Dad's Little Helper
3. Speakeasy Big Daddy IPA
4. Outer Banks Mack Daddy Chocolate Stout
5. Three Rivers Papa Bear's Golden Honey Ale
6. Main Street Hop Daddy IPA
7. Laughing Dog The Dogfather

>> BREW NEWS

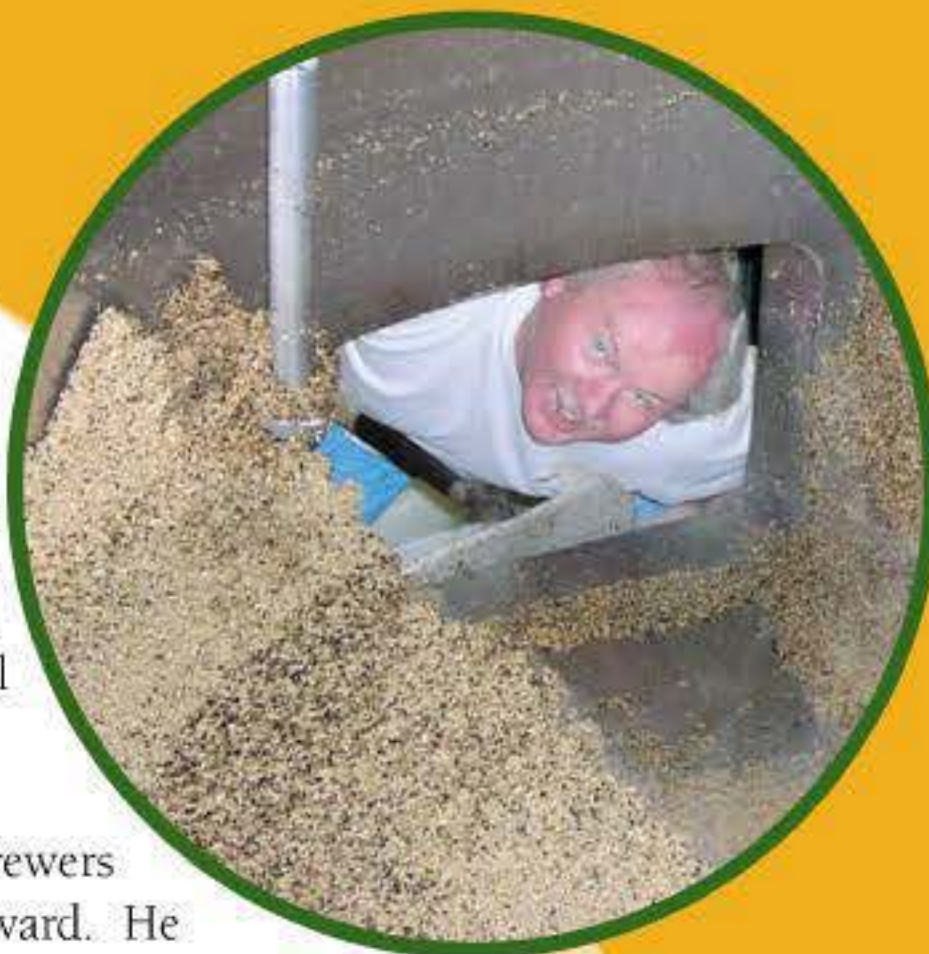
"ROCKET" ROD ROMANAK REMEMBERED

Award-winning homebrewer "Rocket" Rod Romanak of Kailua-Kona, Hawaii passed away on February 4. Rod and his wife, Cheryl, founded the Kona Brewers Festival Homebrew Competition in 1995.

In 2004, Romanak won the American Homebrewers Association's "Homebrewer of the Year" award. He operated Rocket Suds Homebrewing and Winemaking Supplies, personally teaching hundreds of customers how to brew.

As a tribute, Kona Brewing Co. brewed Romanak's award-winning Positively Porter on February 16, said brewmaster Rich Tucciarone. "Rod will be dearly missed," he said. The Positively Porter was served at a special booth dedicated to Rod at the Kona Brewers Festival on March 12. The AHA is honoring "Rocket" Rod by including Positively Porter as one of this year's official Big Brew recipes.

A memorial and celebration of his life took place on April 2.



Rocket Rod Romanak's Positively Porter

(AHA 2004 NHC HOMEBREWER OF THE YEAR)

ROBUST PORTER

INGREDIENTS

for 5.3 U.S. gallons (20 liters)

10.0 lb	(4.5 kg) pale malt (two-row)
1.75 lb	(0.8 kg) Special B malt
1.1 lb	(0.5 kg) light roasted barley
0.5 lb	(227 g) black patent malt
0.5 lb	(227 g) chocolate malt
0.9 oz	(26 g) Nugget whole hops (60 min)
0.9 oz	(26 g) Chinook whole hops (30 min)
0.9 oz	(26 g) Chinook whole hops (steep)
0.75 tsp	(3 g) Irish moss (20 min)
3 packages	Wyeast 1056 American ale yeast or White Labs WLP001 California Ale Yeast

Original Specific Gravity: 1.068

Final Specific Gravity: 1.015

IBU: 73

Boiling Time: 90 minutes

Primary Fermentation: 7 days at 66° F (19° C) in glass

Secondary Fermentation: 21 days at 66° F (19° C) in glass

DIRECTIONS

Mash grains at 154° F (68° C). Sparge with

173° F (78° C) water. Collect enough run-off to end up with 5.3 gallons (20 L) after a 90-minute boil. After the 90-minute boil, chill to 62-66° F (17-19° C), transfer to a fermenter, pitch the yeast, and aerate well. Ferment at 66° F (19° C) for seven days, then transfer to a secondary fermenter for three weeks. Rack to keg, or add bottling sugar and bottle and allow to carbonate at 66-68° F (19-20° C) for two weeks minimum. Force carbonate at approximately 2 to 2.5 volumes of CO₂, or bottle condition using 2.6 to 3.9 oz by weight (73 to 111 g) corn sugar.

Extract version: Substitute 8.5 lb (3.9 kg) light liquid malt extract, or 6.8 lb (3.1 kg) light dry malt extract for the two-row malt. Place 1.4 lb (635 g) Special B malt, 0.75 lb (340 g) light roasted barley, 0.3 lb (136 g) black patent malt, and 0.3 lb (136 g) chocolate malt in a grain bag and steep in 2.5 gallons (9.5 L) of filtered water at 154° F (68° C) for 30 minutes. Stir in malt extract (add water if necessary to bring to 3.5 gallons), and bring to a boil. Increase hop amounts to 1.13 oz (32 g) for each addition. Follow remainder of recipe as shown. (The full extract version of the recipe is available on HomebrewersAssociation.org in the Big Brew section.)

>> BREW NEWS

OREGON SB 444 SIGNED INTO LAW

On March 28, Oregon Gov. John Kitzhaber signed into law Senate Bill 444. It had been nearly a year since the Oregon Department of Justice determined that existing Oregon law did not allow for homebrew to be served outside of the home in which it was brewed. With the signing of SB 444, Oregon homebrewers can once again legally enter homebrew competitions and bring homebrew to homebrew club meetings and events.

Shortly after the 2010 reinterpretation of the state's homebrew law, Oregon homebrewers formed the Oregon Home Brewers Alliance (OHBA) to push for change in the state's alcohol code to allow homebrewers to once again share their brews at club meetings and competitions. The American Homebrewers Association worked with the OHBA leadership throughout the process.

Oregon Sen. Floyd Prozanski introduced SB 444, drafted with input from OHBA and the AHA, at the start of the 2011 legislative session. The bill was unanimously passed in every committee hearing and assembly vote it faced in both the Oregon Senate and House. The bill's successful passage was aided by the many Oregon homebrewers who contacted their state legislators, and particularly by the leadership of the OHBA, including Greg Bolt, Denny Conn, Ted Hausotter, and Chris Hummert, who championed SB 444 from start to finish.



From left to right: Sen. Floyd Prozanski, Chris Hummert, Gov. John Kitzhaber, Denny Conn, Greg Bolt, Ted Hausotter



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Gluten-Reduced Beer Experiments

Dear Zymurgy,

I have a couple of good friends who have celiac disease and one is fairly sensitive. I have been researching making a sorghum beer for them but heard they usually don't taste very good and are fairly expensive to make, if you can find all the ingredients. Charlie Papazian's articles on Clarity-Ferm (November/December 2009 and January/February 2011) really caught my attention and I began to search for some so I could give it a try. I even called John at White Labs and had a good talk with him about Clarex and its possible effects. As it turned out, I was finally able to get two samples.

I brewed a Robust Porter and a Belgian Triple and used one vial (5 ml) in each batch. I gave a bottle of each style to my friend who is fairly sensitive with the warning that "you are the experiment!" She drank a bottle of each style and had no problems, not when she drank it or the next morning. She even had a couple bottles of the porter at our Super Bowl party. My other friend had the triple and also had no effect from it at all, except maybe a little effect from the alcohol. I also gave a bottle of the triple to a friend who gave it to someone they know who is a celiac. No problem! She didn't like the triple style but drank it anyway to see if it had any effect.

I just wanted to share with you the experiences I have had so far with the Clarity-Ferm. These folks love it because now they can have a beer that has flavor and body, and in a variety of styles. It certainly beats sorghum beer.

Thanks for your articles on the Clarity-Ferm and the research Charlie has done. This is a very huge move forward for folks who have celiac disease and love

good beer! And thanks for the "Dancing with Hops" recipe, it looks great. Got to try it soon!

Dave Hrdlicka
Christiansburg, Va.

Charlie Papazian responds: Dave, I appreciate you sharing the report on your "empirical" findings. The USDA and the makers of the enzyme will probably take a decade to go through all their testing. Meanwhile it remains approved as a clarifying agent.

As you can imagine, this product is quite revolutionary and the political, business, and medical issues are quite complex. We've got to keep our findings in perspective. We can't purport to have thoroughly tested this and all of its effects. We have to be careful and not claim any medical benefits or findings. All we can do is report on what we observe and know and be careful not to extrapolate too far.

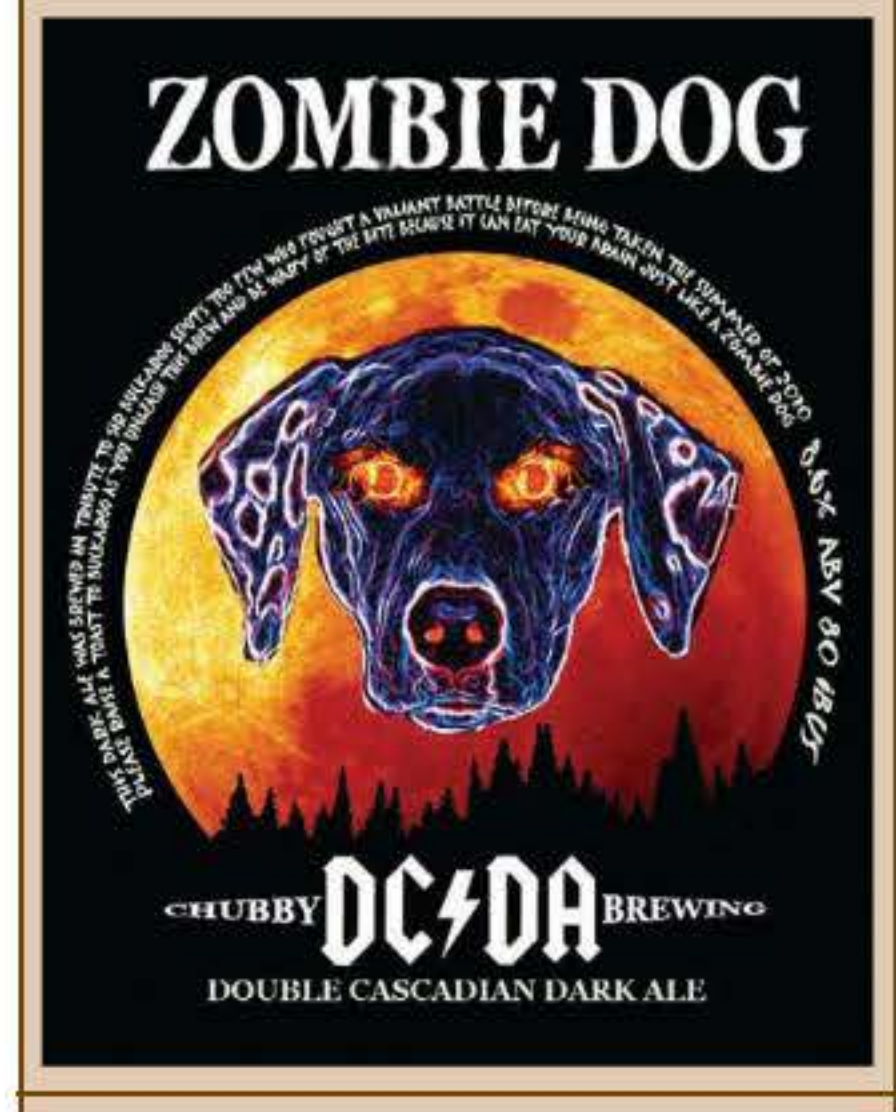
Send your Dear Zymurgy letters to jill@brewersassociation.org. Hey homebrewers! If you have a homebrew

label that you would like to see in our magazine, send it to art director Allison Seymour at allison@brewersassociation.org.



FROM OUR READERS

Jason Hall submitted his homebrew label created for an ale he brewed as a tribute to his 14.5-year-old Dalmatian, who passed away last summer.



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NATIONAL HOMEBREWERS CONFERENCE COMMEMORATIVE BEER RECIPES

Three beers are being brewed to commemorate the National Homebrewers Conference in San Diego June 14-16. Two of those recipes are presented here; the third appears with the Conference Preview (Online Extra) on HomebrewersAssociation.org.

San Diego Dark Session Ale

Brewed in collaboration with San Diego Brewing Co. and AleSmith Brewing Co.

This beer is a collaboration by two of San Diego's great breweries to create a unique session ale that reflects San Diego's creative brewing tradition and innovative use of ingredients. It pays respect to San Diego's hoppy roots while still maintaining drinkability. The brewers involved with this project, Dean Rouleau, Ryan Crisp, and Peter Zien, all began as homebrewers before going pro

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

5.0 lb	(2.26 kg) British Two-Row Pale Ale Malt
9.0 oz	(255 g) British Crystal Malt 45
4.5 oz	(127 g) Biscuit Malt
4.5 oz	(127 g) British Crystal 120 Malt
4.5 oz	(127 g) British Crystal 77
4.5 oz	(127 g) Melanoidin Malt
2.0 oz	(56 g) Chocolate Malt
0.2 oz	(5 g) Simcoe pellets 12% a.a. (60 min)
0.2 oz	(5 g) Warrior pellets 17% a.a. (60 min)
0.2 oz	(5 g) Simcoe pellets 12% a.a. (15 min)
0.1 oz	(3 g) Amarillo pellets 8.0% a.a. (10 min)
0.1 oz	(3 g) Cascade pellets 5.5% a.a. (5 min)
0.35 oz	(10 g) Cascade pellets 5.5% a.a. (dry hop)
0.2 oz	(5 g) Amarillo pellets 8.0% a.a. (dry hop)
0.2 oz	(5 g) Simcoe pellets 12% a.a. (dry hop)

WLP 002 English Ale or Wyeast equivalent or SafAle 04

Original Gravity: 1.040

Final Gravity: 1.012

SRM: 16.9

IBUs: 28

Brewhouse Efficiency: 80%

Boil time: 60 min

Directions

Single infusion mash with 9.5 qts (9L) of 162 °F (72 °C) water and settle at 152 °F (67 °C) for 45 min. Sparge with 16 qts (15L) of 170 °F (77 °C) water. Ferment at 68 °F (20 °C) for 5 to 7 days, transfer to secondary, dry hop for 1 week, fine and transfer to serving kegs or bottle.

Extract version: Substitute 4.2 lbs (1.9 kg) liquid malt extract (preferably UK) for pale ale malt. Steep remaining grains in 158 °F (70 °C) water for 30 minutes. Strain. Add malt extract and bring to a boil. Proceed with remaining recipe as written.

La Cruda Porter

Brewed by Port Brewing in collaboration with Skip Virgilio and brewmaster Troy Hojel of Cervercerias La Cruda.

Port's Tomme Arthur says the recipe "was originally brewed by Cervercerias La Cruda, a brewpub that opened in the Gaslamp Quarter of downtown San Diego in April 1996. We are celebrating this recipe by brewing it 15 years after it won a gold medal at the Great American Beer Festival in 1996. The beer was known back then as Makanudo Porter. Cervercerias La Cruda was the place where I got my first brewing gig (assistant brewer) and launched my career. The original La Cruda batches were brewed by Skip Virgilio [founder of AleSmith Brewing Company], as La Cruda had some delays at opening."

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

10.0 lb	(4.5 kg) Two-Row Pale Ale Malt
0.5 lb	(226 g) British Crystal 75 Malt
1.0 lb	(454 g) British Crystal 150 Malt
10.0 oz	(283 g) British Chocolate Malt
2.0 oz	(56 g) Roasted Barley
0.7 oz	(20 g) Cascade pellets 5.4% a.a. (90 min)
0.8 oz	(23 g) Mt. Hood pellets 4.4% a.a. (30 min)
1.33 oz	(38 g) Tettnanger pellets 4.5% a.a. (1 min)

WLP028 Edinburgh Scottish Ale or Wyeast equivalent

Original Gravity: 1.068

Final Gravity: 1.012

SRM: 35.7

IBUs: 22

Brewhouse Efficiency: 75%

Boil time: 90 min

Directions

Single infusion mash with 17qts (16 L) of 162 °F (72 °C) water and settle at 152 °F (67 °C) for 45 min. Sparge with 16 qts (15 L) of 170 °F (77 °C) water.

Ferment at 68 °F (20 °C) for 5 to 7 days, transfer to secondary and lower temp slowly to 36 °F (2 °C) prior to packaging.

Extract version: Substitute 7.9 lb (3.6 kg) liquid malt extract for the pale ale malt. Steep crystal, chocolate, and roast in 158 °F (70 °C) water for 30 minutes. Strain. Add malt extract and bring to a boil. Proceed with the recipe as shown.

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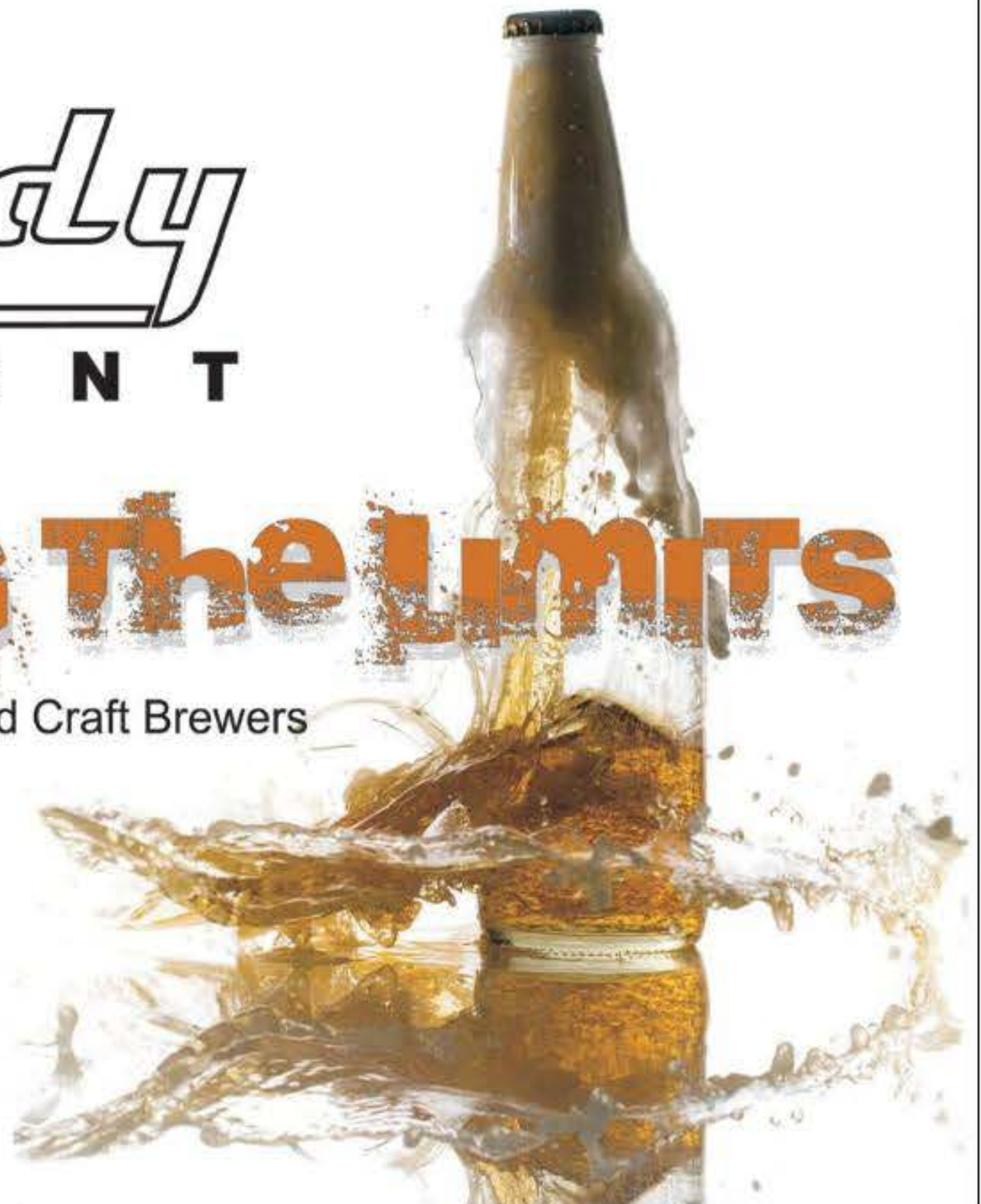
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Boston.com May 9, 2010



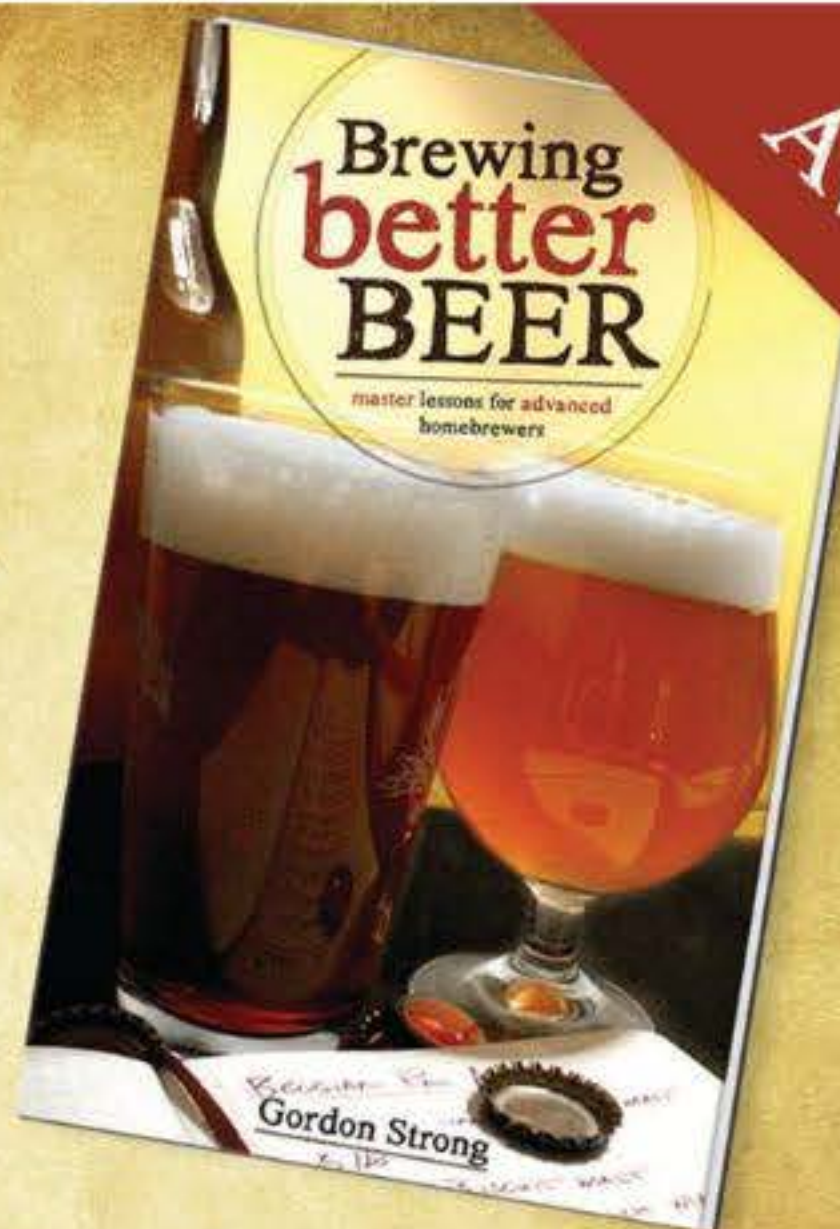
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The Perils of Homegrown Hops

Dear Professor,

It is that time of year when I look for the perfect place in the yard to start a hop-growing endeavor. Every year I refrain from doing so because I am concerned with the issue of sanitation.

Is there any difference with homegrown hops as compared to commercially purchased hops when it comes to introducing contaminants to my brew? In North Carolina, we have plenty of bugs that I am sure would want to feast on these new plants. As such I see myself applying chemicals in the war to preserve the crop. Do I need to be concerned with these chemicals in my brew pot?

Additionally, are there concerns with using homegrown hops in dry hopping? I cannot understand why you can dry hop and just place them into the fermenter without them being boiled. Is there something that is done to commercial hops that kill any microorganism and if so, are my homegrown hops OK to just put in the fermenter since I do not have a method to sanitize them before placing them in?

Thanks,
Dennis Pirkle

Dear Dennis,

Dennis, the menace you have anxiety over is relevant to many home hop growers. When I'm in a crowd of home hop growers, I always see these question marks floating menacingly above their heads and sometimes it makes any beer they are drinking a bit of a task to enjoy.

The short answer is microorganisms that love to spoil beer don't hang out on hop plants. That's what I've been told. And from the experience of enjoying many dry hopped beers all over the world, the critter threat is



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not something to worry about, so relax and have a homebrew.

Now about those chemicals you want to put on your hops to deter transient and observable armies of hop-eating critters. Yes, of course that is something to be very concerned about. Always read the instructions on the chemicals you plan on applying. Some are to be used before the "fruit" (hop cones) develop. Others will never go away and are to be washed off the harvest. Of course you can't "wash" hops before using them.

Try using natural defenses against hop attacks. Ladybugs love to eat aphids. Be careful; just because a "pesticide" might be organic doesn't mean at all that it is safe to ingest. If you absolutely must use chemicals to deter hop infestation of critters, grow your hops for ornamental reasons only.



Of note: Depending on the weather in any given summer growing season, I may or may not have insect infestations. Sometimes 80 percent of my leaves will be eaten, but the hop harvest is still bountiful. Sometimes I have small insects in the cones themselves, but when I put them on a screen to dry (Colorado has dry enough air to naturally air-dry hops) the insects quickly and literally abandon the hop cones. Not exactly commercial and sellable grade hops, but they work well in homebrewed batches of beer.

So go natural and see what you can get. Try it for a few summers. There may be differences.

Mr. Natural, some of the time,
 The Professor, Hb.D.

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by Amahl Turczyn Scheppach

Wood-Aged Beer

There was a time when beer was fermented, aged, and served in wooden barrels exclusively, simply because they were the best watertight vessels available. Modern craft breweries and homebrewers have taken up an interest in the practice for the purpose of recreating historical beers, and specialty beers that benefit from wood-imparted character.

Given the expense and labor of maintaining barrels for brewing, however, the practice is still relatively uncommon. But for those willing to take on the challenge, the rewards can be impressive. Master cellarmen have devoted years to barrel upkeep, repair, and use, and there are volumes of information on the subject, but a brief review of the basics may come in handy for homebrewers.

Perhaps the largest concern is sanitation. Barrels must be cleaned rigorously between uses if used only for low-alcohol beverages like beer. Filling with sanitizing solution between uses is critical for keeping the bugs out. Once infection has taken hold, there are few options, short of superheating with steam or re-charring the inside, and even these drastic measures aren't guaranteed to work. Barrels used to age spirits are fairly safe; those used for port, sherry and wine, less so. Each of these liquids will impart their own character to beers that are aged in the barrels immediately afterwards, as well as the characteristic tannins, vanillin, and other wood flavors. There are of course brewers who intentionally infect (perhaps *inoculate* is a kinder term) barrels with various bacteria and wild yeast like *Lactobacillus* and *Brettanomyces* in order to impart a sour or barnyard character in keeping with select Belgian styles, but this must always be done with great care to avoid cross-contamination. Once



a barrel is inoculated, it's almost certain the brewer will not be able to use it for anything else.

Another basic concern is keeping the barrel filled. Since the staves tend to shrink if the barrel is left dry for several days, they should be kept topped off with sanitizing solution anytime they are not filled with beer. If stored for an extended time, the

sanitizing solution should be changed periodically. Just remember that as a barrel is used, the wood character it imparts tends to fade with time. The inside can be re-torched periodically, but there is a limit to the amount of wood that can be charred, and eventually the barrel will need to be discarded or made into a planter. Smaller volume barrels impart greater amounts of wood character since

the liquid-to-surface area ratio is higher. Contact time is also a factor, and as mentioned, the age of the barrel itself plays a part. Newly charred wood may contribute an undesirable harshness to beer, so new barrels are often mellowed with several charges of an alkaline solution, usually soda ash (sodium carbonate). An "over-oaked" beer may also be blended down to tolerable levels with un-oaked beer.

Bourbon barrels are a great choice for aging beer, particularly strong, dark beers

that complement and stand up to both bourbon and wood character. By law, bourbon barrels can only be used once to age bourbon—so Scotch distilleries and wine producers are keen to buy them up and use them for their own products. They are certainly available for hobbyist brewers as well, though price and availability varies enormously depending on supply and demand. Just be sure that before purchasing a full-size, 53-gallon bourbon barrel (for comparison, standard beer barrels are 31 gallons in the U.S.),

you have enough beer on hand to fill it—a half-filled barrel will not only dry out where it isn't in contact with liquid, causing leaks, but it will also be more prone to infection. Also, the headspace will heavily oxidize the beer.

The smaller-sized barrels that cooperages often make for hobbyists can solve many of these problems, so that whiskey oak imperial nut brown ale may be perfectly feasible without shelling out for a full-sized Jack Daniels barrel. Ease of cleaning and transportation, lower price, and quicker aging time are all advantages of smaller barrels, but there are still some considerations.

One scenario might be for a brewer to purchase a relatively small charred barrel of 2 or 3 liters capacity, fill it with inexpensive whiskey, bourbon or white rum, and store it. When the beer is fermented and ready for aging, siphon the liquor back into jugs, age part of the beer until it obtains the correct level of wood character, then empty, rinse and refill the barrel with reserved spirits. (This would be a particularly effective method for homebrewers who also home distill, but of course home distillation is illegal in many countries, including the U.S.) The wood-aged beer can then be blended into a full-sized batch, and the process repeated. The spirit stored in the barrel can itself be blended into other spirits and topped off with un-aged liquor, or even added to beer to make a fortified beer with extra oak character. With occasional topping off, the same spirit should be able to remain in the barrel for quite some time, but with all that contact time, it will eventually take on a strong oak character.

Why will it require topping off if none of it is used for another purpose? Because about 10 percent per year of the barrel-aged spirits will eventually breathe out of the porous wood—this is known as the "angel's share." Interestingly enough, the angel's share may be more alcohol than water if the barrel is aged in a humid climate, or it may be more water than alcohol, if humidity is relatively low. So in humid locales, barrel-aged spirits tend to lose strength as they age, whereas spirits aged in drier climates may actually grow

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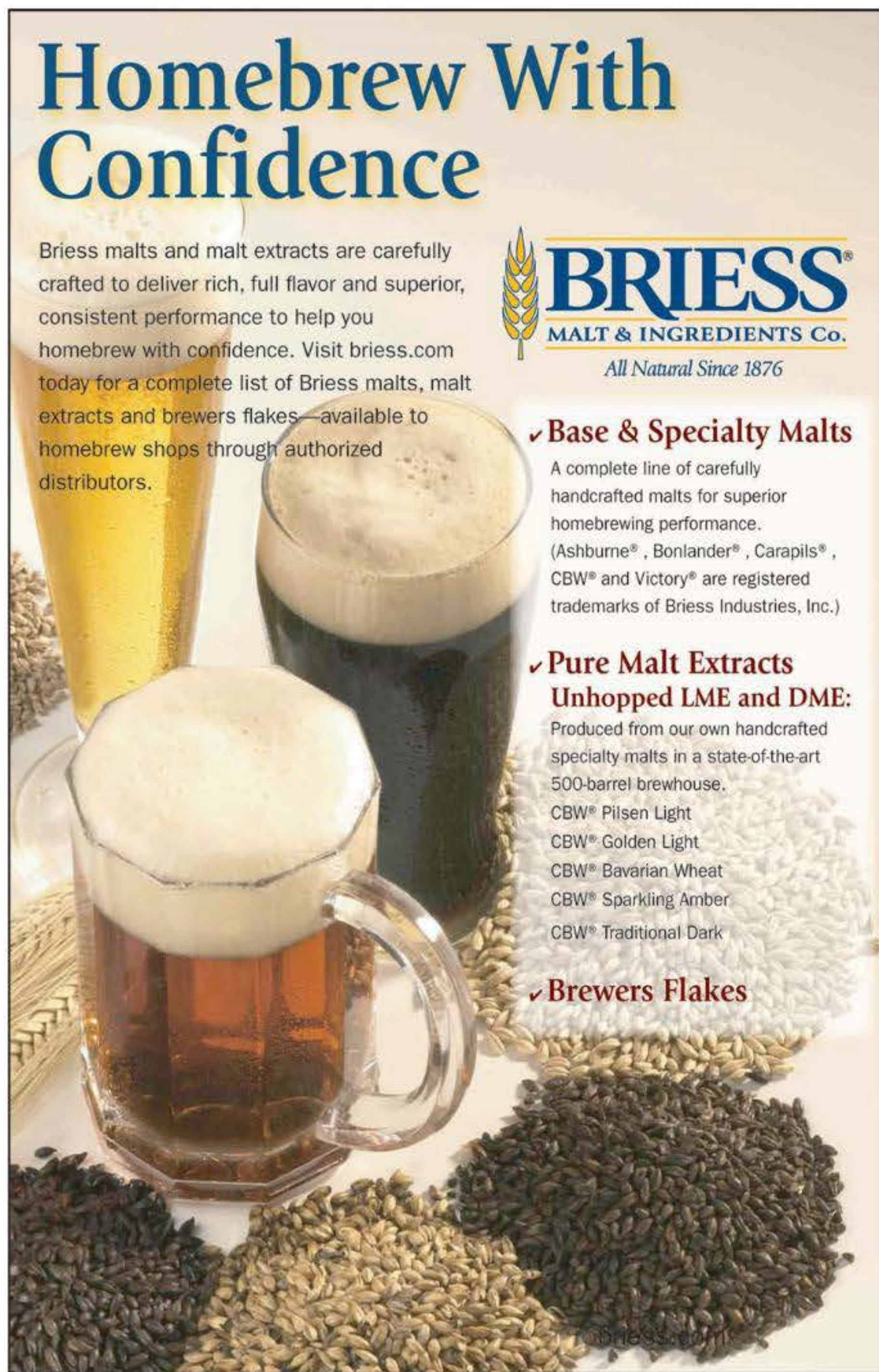
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stronger. Dry-climate aging also tends to extract more vanillin from the wood, resulting in a sweeter finished product.

Temperature also impacts the aging process in barrels. Higher temperatures increase oxidation, which is usually desirable in spirits, but may not be for lower-alcohol beverages like beer. But high temperatures also cause higher rates of evaporation, so more than the average 10-percent annual “angel’s share” may be experienced. Perhaps the ideal climate for aging full- or cask-strength liquor is one that fluctuates from hot summers to cold winters. This forces liquid in and out of the charred wood, maximizing flavor and character. Of course for beer, angel’s share evaporation from the barrel will take place as well, but high-temperature aging is not recommended due to sanitation and oxidation concerns.

With all these variables, barrel aging may still seem a daunting prospect, even on a small scale. Fortunately, there are still alternatives. Toasted oak chips, oak flavorings, and oak spirals can all be purchased to impart a bit of barrel character without actually using a barrel. Barrels are made from different wood varieties and are charred to different levels, depending upon their use. Luckily, oak chips and spirals are now available with a similar variety of toast levels and oak types. So what kind of oak should you use?

Generally there are three oak varieties available, each with its own level of char. American oak is commonly used for whiskey and red wines, is in pretty good supply in North America, and is generally the least expensive. It tends to infuse stronger flavors faster than other varieties, and will impart sugary vanillin aromatics, toasty, coffee-like flavors, and is the “oakiest” and woodiest of the three. Hungarian oak tends to grow slower than the other varieties, has a tighter, finer grain to its wood, and therefore imparts a softer, smoother oak character. A vanilla and caramel sweetness can be expected. Hungarian oak is priced between American and French. French oak is supposed to have the most refined, “noblest” character of the three, and that’s reflected in its high price. It is more porous than the other types though,

Wood-Aged Baltic Porter

(Based on Zek’s Porter from *Brewing Classic Styles* by Jamil Zainasheff and John Palmer)

INGREDIENTS

for 5.3 U.S. gallons (20 liters) using a 3.5 gallon (13.2 liter) boil

2 cans	(6.6 lb, or 3.0 kg) Coopers Light Malt Extract
4.0 lb	(1.81 kg) Munich Malt Extract
1.0 lb	(0.45 kg) Coopers Light Dry Malt Extract
0.44 lb	(0.2 kg) Crystal Malt (60 °L)
0.44 lb	(0.2 kg) Special B Malt (120 °L)
0.25 lb	(113 g) Carafa® Special Malt (600 °L)
0.13 lb	(59 g) Chocolate Malt (350 °L)
3.5 oz	(99 g) *Lubelski or Lublin hops, 4% alpha acid (60 min) (33 IBU)
0.75 oz	(21 g) *Lubelski or Lublin hops, 4% alpha acid (15 min) (4 IBU)
0.75 tsp	(3 g) Irish moss (15 min)
1.0 to 2.0 oz	(28 to 57 g) sterilized French medium-toast wood chips (add in secondary)
Use 33 g properly rehydrated dry yeast, or 6.5 packages of either Wyeast 2206 Bavarian Lager Yeast or White Labs WLP885 Zurich Lager Yeast, or White Labs WLP830 German Lager Yeast, or a sufficient lager yeast starter	
Coopers Brewery Carbonation Drops for bottling to attain 2 to 2.5 volumes of CO ₂	

Original Specific Gravity: 1.088

Final Specific Gravity: 1.018

IBU: 37

ABV: 9.4%

DIRECTIONS

Start with 1.5 gallons (5.7 L) of filtered water. Place the 1.26 lb (572 g) grains in a grain bag and steep the grains at 150 °F (66 °C) for 30 minutes. Remove the grains, strain the liquid from them and sparge with 2/3 gallons (2.5 L) hot water. Stir in malt extract and bring to a boil. Add bittering hops and boil for 45 minutes. Add second hops and rehydrated Irish moss and continue boiling for 15 minutes. Cool the wort to 55-60 °F (13-16 °C), then pour into fermenter with enough cold water to make 5.3 gallons (20 L). Aerate and pitch yeast when temperature drops to 50-55 °F (10-13 °C). Ferment at 53 °F (12 °C) for one to two weeks or until fermentation is complete. Add sterilized French medium-toast wood chips to secondary and rack beer on top. Age in secondary for 4 to 12 weeks at 53 °F (12 °C) or lager at 34 °F (1 °C) if possible. Be sure to taste the beer during the extended lagering stage. When you think the wood character is right, rack the beer to your bottling bucket leaving the wood chips behind. Prime with Coopers Brewery carbonation drops at bottling for a carbonation of 2 to 2.5 volumes of CO₂.

*Use Saaz or similar hops if Lubelski (Lublin) hops are unavailable.

and more compounds are extracted from the wood, so it can overpower a beer or wine more quickly. However, it is favored by the wine industry for its classic spice, clove character, and dry, tannic finish.

Regarding char levels, a light toast will impart fresh fruit aromatics and a tropi-

cal, coconut character. It also has the highest tannin level, however. Medium toast will provide a better bouquet and less dryness, with lots of vanilla sweetness. “Medium Plus” is a bit darker, and incorporates honey, roasted nuts, and spices, plus a commensurate increase in color. Heavy toast is the darkest, and



AMERICAN HOMEBREWERS ASSOCIATION CLUB ONLY COMPETITION

Angel's Share – Wood Aged Beer

Entries are due May 5. Judging will be held May 14. Entry fee is \$7. Make checks payable to American Homebrewers Association.

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Hosted by Steve Kinsey and the Crown of the Valley Brewing Society of Pasadena, Calif., this competition covers BJCP Sub-Category 22C. Do not enter this competition with base styles where barrel-aging is a fundamental requirement for the style (e.g., Flanders Red, Lambic, etc.). If your beer is based on a classic style (e.g., Robust Porter) the specific style must be specified. Classic styles do not have to be cited (e.g., "porter" or "brown ale" is acceptable). The type of wood must be specified if a "varietal" character is noticeable (e.g., English IPA with Oak Chips, Bourbon Barrel-aged Imperial Stout, American Barleywine in an Oak Whiskey Cask). For more information, contact Steve Kinsey at youcanreachsh-ven@yahoo.com.

adds a pronounced toasty, coffee, and cocoa character.

Two to 2.5 ounces of toasted oak chips added to 5 gallons and kept in the liquid for a month or two is typical for red wine, but for beer, depending on the style being made, it's better to use less. Those amounts, for example, might be appropriate for an imperial stout, but using less or keeping them in contact with beer for only a week or so is probably wise. There are so many variables, even beyond the ones stated, that tasting the beer every week, or even every couple of days, to monitor oak character is a wise policy. Many brewers report that aging on chips will ramp up the perceived oak character in beer within days, but that after the chips are removed, that character will moderate, blend with the beer, and become more subtle with further aging. Sanitize oak chips with boiling water before use, or soak in a cup of liquor for a few days. Many choose to add the soaking liquor as well.

Oak spirals are intended to be submerged in the beverage, but can be snapped down to a smaller length (and again, it is recommended that brewers go light at first—over-oaked beer can be blended down, but not always with the best result). The even surface area means extraction happens more predictably, but because surface area is high, extraction can happen quickly. Full flavor is generally extracted within six months, but frequent sampling is a good policy within the first week or two.

Judges generally look for a smooth integration of oak character into the base beer. Oxidation is usually a part of the barrel aging process, as is the uptake of low levels of tannins, but these should not detract. Sherry-like character is therefore OK, but wet paper or cardboard isn't. Choose a style that can stand up to a bit of tannic dryness, and try to avoid too much overt astringency. Judges want to taste the base style, not just the wood.

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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MASTERING MALT: selecting the best base for your beer



[Editor's Note: The following is an excerpt from *Brewing Better Beer*, recently released from Brewers Publications].

Just as a chef must understand the products he or she works with in order to get the best results, a brewer needs to have a solid understanding of the brewing ingredients to be able to control the profile of the finished beer.

The goal is to be able to choose ingredients that allow you to brew what you want, to be able to understand cause-and-effect and how ingredient choices affect the finished beer, and to be able to evaluate new products as they are released.

Assessing Ingredients

When it comes to understanding and remembering the taste and aroma of foods, there is no substitute for actually experiencing them. When trying to pick the right ingredients to achieve a certain

target beer profile, it's hard to imagine the end product without firsthand knowledge of their character.

To learn the flavor contribution from malt, first taste and chew it. This will give a general impression. However, there's no substitute for actually brewing with it. I've made single malt beers to learn their flavor and aroma contributions. Keep the hops on the low side and don't use a yeast with an aggressive flavor profile. Once when I made a Vienna lager with 100 percent Durst Vienna malt, I overshot my gravity target (1.062 instead of 1.050, probably by boiling it down too far) so I called it a maibock instead. To try this recipe, do a single decoction, use 22 IBUs of Sterling hops in the boil, and Wyeast 2206 yeast. I've also made various pale ales with Crisp Maris Otter, Dingeman pale ale malt, and Briess two-row.

The Properties of Malt

Malt in brewing terms specifically refers to germinated and kilned barley. The process by which the malt is handled during kilning, the temperatures used, and

moisture conditions affect the final flavor profile and performance of the malt. Malt provides the primary sugar source in wort once its starches have been converted in the mash.

Malt can be identified and described with several terms. The major classification is based on the type of grain: two-row barley, six-row barley, or another malted grain (wheat, oats, rye). The next classification is the type of malt, such as two-row brewer's malt, Pilsner, pale ale, Vienna, etc. This is essentially the role the malt will play in your recipe. The next (optional) classification is the variety of the grain, such as Maris Otter, Golden Promise, Harrington, or Metcalfe; this is like breed of dog. The next identification is the maltster, such as Crisp, Simpsons, Weyermann, or Briess. You also should know the country or region of origin of the malt, such as the United States, United Kingdom, Germany, Canada, Belgium, or Moravia. Finally, you should know the color of the malt, usually measured in Lovibond (°L) or EBC, an indication of how highly it was kilned.

By Gordon Strong

The variety of the malt may not always be specified. The malt you buy could very well be a blend of several varieties, or the predominant variety might not be considered interesting enough to publicize. Varieties tend to be specified if they are considered particularly desirable, or would command a premium price when compared to common malt. You should expect to pay more for Maris Otter malt than pale ale malt (similar to expecting to pay more for a Cabernet Sauvignon than a red table wine). Some other U.K. varieties currently available are Pipkin, Halcyon, Optic, Chariot, and Pearl. North American two-row varieties of note are Harrington, Copeland, and Metcalfe.

The availability of malt varieties can change if growers decide they want to sow a different crop. New strains are developed all the time, and those with superior attributes will quickly take over production. When I first started brewing, Klages was the most common two-row variety; now it can't be found. Be willing to try substitutes if your favorite variety is replaced.

Modification, Diastatic Power, and Protein Levels

Different types of malt have different diastatic power (DP), modification, and protein levels. This information is commonly listed on the malt analysis sheet, the maltster's website, or seller's website, although not always in a directly usable form. These factors can affect your recipe formulation and brewing process.

The diastatic power is the enzymatic power of the malt, or the ability of the grain to convert itself and other starches. It is measured in either degrees Lintner ($^{\circ}\text{L}$ or sometimes $^{\circ}\text{Lintner}$, so as not to be confused with degrees Lovibond for color) or in Windisch-Kolbach units (WK)—you may see either depending on the country of origin of the malt. The conversion formula is $\text{WK} = (\text{L} \times 3.5) - 16$.

The DP of malt is always listed on the malt analysis sheet. Generally, 35-40 Lintner (106-124 WK) is needed for malt to be able to self-convert (i.e., you can use 100 percent of the malt in the grist and be able to get full extract from the grain

without any additional enzymes). Munich malt can self-convert, although it might take longer-than-normal mashes. Munich has a DP of about 40-50 L, compared to six-row, which might be 160 L or higher.

The lower the DP, the longer the malt takes to convert. Mash longer and test for conversion, or blend the malt with another grain with a higher DP. Consider a decoction mash, since the malt will pass through saccharification temperatures more often, giving more time for α -amylase to work. If you use a higher enzyme malt (large DP) than is typical for a known recipe, you may need to raise the mash temperature slightly to get similar results (and vice versa).

Modification is basically the degree to which malt is "mealy" or fully soluble and ready for saccharification. The degree of modification is sometimes described as the ratio of the length of the acrospire to the length of the barley kernel in germinated barley, expressed as a percentage; this is only a proxy, however, for the actual modification. It is the nature of the starch in the endosperm that matters.

The malt analysis sheet again can provide clues to this information. The Grind Difference (% FG/CG) is a measure of modification on malt analysis sheets. (FG and CG refer to fine grind and coarse grind, methods of measuring extract.) Well-modified malt is 1 percent FG/CG or less, while protein rests are likely needed for undermodified malts (1.8-2 percent and higher).

In today's brewing, most malt you buy will be highly modified and suitable for a single infusion mash regime. Some malt is specifically marketed as undermodified, and thus intended for decoction mashing. But those are quite rare. The maltster has done much of the work that traditionally was done by the brewer.

If you brew with some malts and find that your beers aren't clearing properly, then you may need to add a short protein rest to your mash schedule. I find that a short rest at 131° F (55° C) improves the clarity of my beers when I use continental Pilsner malts (Durst, Dingeman,

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Gunn Clan Scotch Ale

STRONG SCOTCH ALE

Ingredients

for 5.5 gallons (20.8 liters)

15.0 lb (6.8 kg) Pauls Mild malt
 15.0 lb (6.8 kg) Crisp Maris Otter malt
 6.0 oz. (170 g) roasted barley
 1.5 oz. (42 g) Northern Brewer whole hops,
 8.5% (60 min)
 0.5 oz. (14 g) Northern Brewer whole hops,
 8.5% (30 min)
 White Labs WLP028 Edinburgh ale yeast

Original Gravity: 1.130
 IBU: 32

Directions

Mash at 158° F (70° C) for two hours. Using a no-sparge technique, collect 9 gallons (34.1 liters). Boil first gallon or so of first runnings hard in the kettle. 2½-hour boil. Ferment at 60° F (16° C).

The King

BELGIAN PALE ALE

Ingredients

for 5.25 gallons (19.9 liters)

7.0 lb (3.2 kg) Belgian pale ale malt
 3.0 lb (1.4 kg) Vienna malt
 6.0 oz (170 g) Biscuit malt
 10.0 oz (283 g) CaraMunich® malt
 8.0 oz (340 g) Aromatic malt
 0.4 oz (11 g) Debittered black malt
 1.0 oz (28 g) Saaz 4% whole (60 min)
 0.5 oz (14 g) Saaz 5.8% whole (15 min)
 0.5 oz (14 g) Saaz 5.8% whole (5 min)
 WLP515 Antwerp Ale yeast

Original Gravity: 1.048
 IBU: 25

Directions

Use RO water with ½ tsp CaSO₄ and ½ tsp CaCl₂. Mash 151 °F (66 °C). Collect 7.5 gallons (28.4L). Add ¼ tsp CaSO₄ and ¼ tsp CaCl₂ to the boil. Boil 90 minutes, final volume 5.5 gallons (20.8L). Pitch at 60 °F (16 °C) and ferment at 64 °F (18 °C).

Weyermann, Best), for instance. I've also had problems with Munton's Maris Otter clearing, which is odd since Crisp Maris Otter always clears for me. Malts can vary from lot to lot, so check the malt analysis sheet. However, if you find that a certain malt from a specific maltster always acts a certain way, take that into account when planning your brewing schedule.

Choosing a Base Malt

While there are many kinds of malt that brewers might use, I find it easier to think of them in larger groups that share common attributes. I break malts into four categories: base malts, specialty malts, crystal malts, and roasted malts. They are either separated because of the process used to create them or because they are used differently in beer.

Base malts are any malts that contain sufficient enzymes to self-convert in the mash, and that you would use in up to 100 percent of the grist. The types of malt I include in this group are two-row malt, Pilsner (Pils) malt, pale ale malt, Vienna malt, Munich malt, and

rauchmalz (smoked malt), as well as the pale types of other malted cereal grains (wheat, rye, oats).

"Base malts are any malts that contain sufficient enzymes to self-convert in the mash, and that you would use in up to 100 percent of the grist."

When selecting a type of malt to use, consider its flavor profile and color as part of your recipe formulation, and also its impact on your brewing. How does it respond to mashing? Does it impact your efficiency? Does it create beers with good clarity? Are there any problems milling it? Do you notice any issues with beers made from it not being stable? How stable is the raw grain in storage? These are all questions that can impact your selection of a type of malt, a specific version of the malt, or a maltster, as well as the brewing processes and techniques you use.

As you taste different malts, think about their flavor contribution. Are they doughy, grainy, crackery, cookie-like, bready, bread crust-like, biscuity, malty-rich, toasty, roasty, or burnt? Do they have any dried or dark fruit character (raisins, plums, cherries)? How sweet are they? How rich are they? Do they have multiple layered flavors? Does the malt remind you of any foods?

You can read descriptions of malts, but it's best to taste them for yourself. Taste can be somewhat subjective, so make sure you agree with a description before adopting it. Once you understand the flavor profile of your ingredients, you can determine how well those ingredients can be used to formulate recipes for specific beer styles. Compare the descriptions in the style guidelines with your own observations about the ingredient flavors.

The goal should be to develop an understanding of a workable set of malts that allow you to brew a wide range of styles. Keep notes as to which malts and malt-

sters you prefer. If you have problems with storage, stability, milling, clarity, or efficiency, make special note of it. Try to isolate the problem, and avoid malts that you don't like or don't work well on your system. You don't have to understand every malt, but you want to be able to make reliable selections of ingredients to get the end product you desire.

For base malts, I generally try to select malts from the same country or region as the beer style I'm making. I strongly believe that using indigenous ingredients makes authentic products. I like using American and Canadian malts (two-row brewer's malt, usually) for styles that have a neutral or grainy malt profile. When I need a pale ale malt, I typically pick English or Belgian, depending on how much of a bready, biscuit flavor I want (the U.K. malts have more of this). For Pils malt, I typically go with German or Belgian sources; sometimes the Belgian types have a slightly estery quality, so I pick German malts when I want it to be totally clean. Pils adds some sweetness and a more elegant, rounded flavor than two-row.

I often mix base malts, like pale and Pils, two-row and Pils, Vienna and Maris Otter, two-row and Maris Otter. You can do this to dilute strong flavors in malt that may be inappropriate for some styles, to add malty complexity or increase richness. If you discover a custom blend you like, it might become part of the house character of your beers.

Malt really does vary widely by the maltster. Get to know the flavor profiles of the malts you typically use. You can substitute, but you might get different results—pay closer attention when you are substituting. Check the specs for crystal and roast malts; the color can be different, impacting the expected flavor profile. Some malts come in different grades or intensities (Weyermann in particular, with its CaraMunich® and Carafa® malts), so make sure you know which one you need; they have different colors and flavors.

Preparing Malt

Typically, all a brewer must do to prepare



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malt for brewing is to crush it. However, before you do that, do a little quality control checking. Take a look at your malt, and look for signs of insects (weevils and beetles, usually); they might come out as flies, or just leave a telltale fluffiness or dusty webs in the grain. A few here and there won't cause problems except for perhaps a lower extract from your malt. More than a few, and you should dump the malt.

Malt should be stored dry, since many insects won't thrive in a low-moisture environment. Storing cool will also help keep any insects from being too active. I also like to keep as much air out of my grain as possible. Most grain sacks are lined with a thick plastic; leave that in place. Squeeze excess air out and twist the liner closed tightly, then keep it closed with a rubber band or twine. If the liner is attached to the sack, twist the whole thing closed and tie it well.

Taste the malt to make sure it still has the right flavor profile, and hasn't gotten stale or damp. Both won't make good beer. If you don't know the correct flavor profile, start tasting your malt when you first get it. Understand the taste of your ingredients so you can tell if something has gone wrong before you've started.


When crushing grain, your goal is break the starch into tiny pieces while leaving the husks as intact as possible. The best efficiency could be gained if the starch was turned entirely into flour, and the husks were not shredded at all. That's hard to do on a home system, so you have to make do with what you can. Adjust the mill so that it is crushing the starches in the endosperm without pulverizing the husks. Take a close look at the output of the mill after you make an adjustment; if you aren't happy, keep adjusting and sampling.

Gordon Strong is a Grand Master V BCJP judge who lives in Beavercreek, Ohio. He is a three-time Ninkasi Award winner at the National Homebrew Competition and is the technical editor for *Zymurgy* as well as a contributor to the Commercial Calibration department in each issue.


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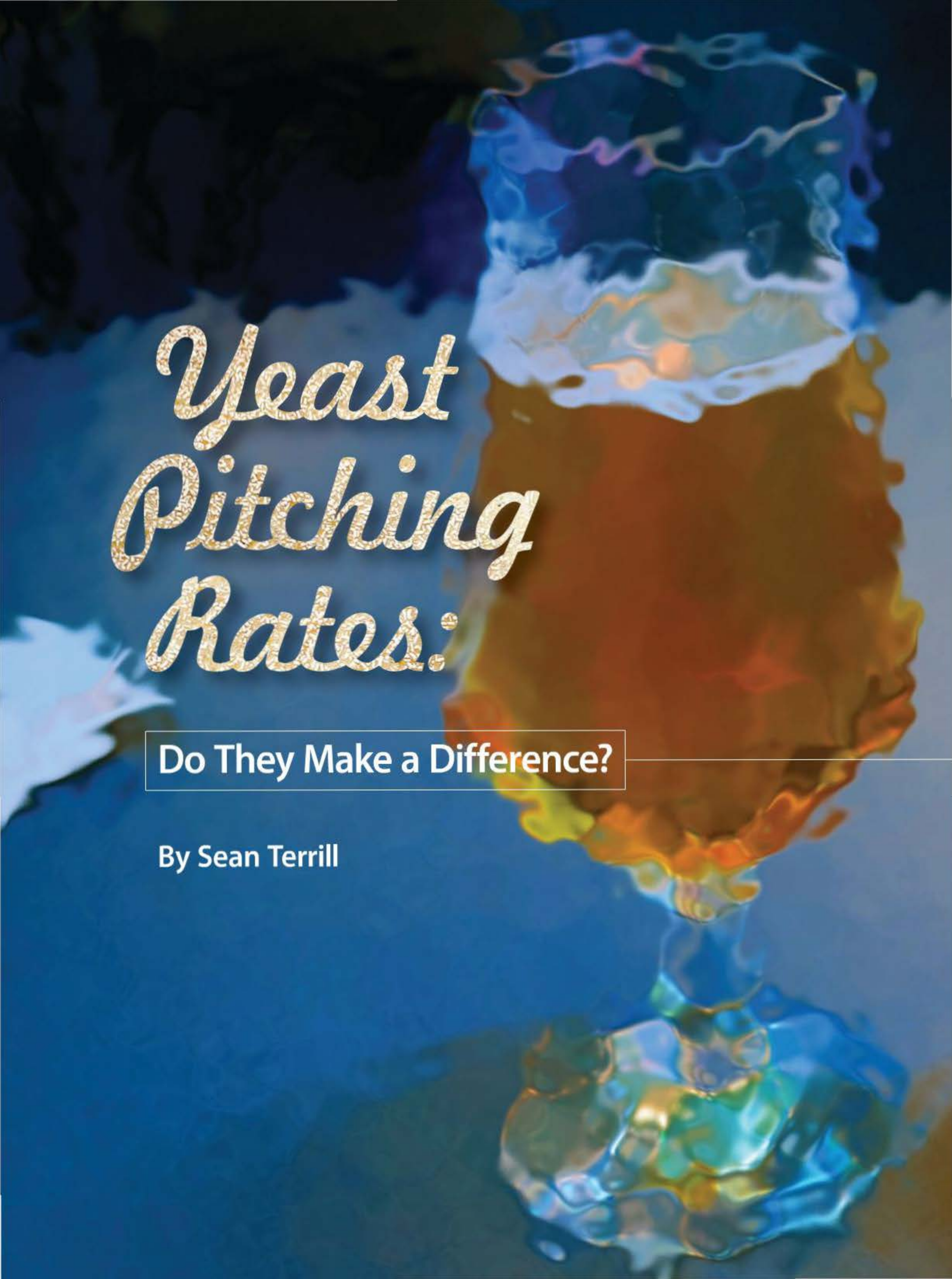
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Yeast Pitching Rates:

Do They Make a Difference?

By Sean Terrill



It's been observed many times that "brewers make wort, but yeast make beer." It would be hard to overemphasize the role that yeast play in fermentation and beer flavor.

Selection of a yeast strain is one important aspect. Some are "good flocculators" or "fast starters." One may be cleaner or fruitier than another, or more tolerant of high alcohol levels. Often, the performance and flavor of a particular strain can be controlled by the brewer. These techniques are well established in professional breweries, many of which use a single "house strain" to ferment all their beers. There are at least as many fermentation schemes as there are brewers, but most come down to changes in two variables: temperature and pitching rate.

Most homebrewers understand temperatures, and are comfortable measuring them. Even outside of brewing, thermometers are familiar tools. Determining the yeast pitching rate is more mysterious. Even at its most basic level, it involves doing a cell count with a microscope and hemocytometer, and is outside the scope of this article. Fortunately for homebrewers, experts in the field have established empirical formulas that allow us to accurately predict the number of cells pitched, and free calculators are available online to make use of them. In order to use them correctly, however, the brewer must have a target pitching rate in mind. To allow for comparisons, we need to introduce what I'll refer to as the "standard ale pitching rate" of 0.75 million cells/mL-°P. Pitching rates substantially lower than this are generally believed to increase esters, diacetyl, fusel alcohols, final gravities, and the risk of contamination.

The commercial yeast products available to homebrewers, when fresh, contain about 100 billion cells. In a typical ale (5 gallons/18.9 L of 1.060 wort), using one of these products would result in a pitching rate of about 0.3 million/mL-°P, or less than half the standard rate. To double the pitching rate, one could simply brew half as much beer; or inversely, pitch two yeast products. A less compromising, but more difficult, method involves sequential wort feedings, where a portion of the wort is inoculated with a yeast culture and allowed to begin active fermentation before the remainder of the wort is added.

>>>

The most common approach is to make a yeast starter prior to brewing. Much has been written in *Zymurgy* and elsewhere about making starters [Editor's Note: See "The Secret to Healthy Yeast" by Jamil Zainasheff in the *Zymurgy* Free Downloads section on HomebrewersAssociation.org]. While there are many benefits, the one of concern here is increasing the population of yeast cells, and therefore the pitching rate.

As homebrewers, is making a starter, and increasing the pitching rate, worth

the effort? Does it make better beer? To answer in any meaningful way, a controlled experiment was needed.

Experimental Setup

In order to evaluate the impact of the pitching rate, I brewed 6 gallons (22.7 liters) of basic American amber ale with an original gravity of 1.059. The malt and hops were both fairly restrained, in order to allow the yeast flavors to dominate. The yeast I chose was Anchor Brewing's house ale strain, available commercially as Wyeast

1272. From prior experience, I know that this yeast's ester production changes significantly with variations in temperature, so I hypothesized that it would also respond well to variations in the pitching rate. After boiling and chilling, the wort was split into two identical plastic bucket fermenters and aerated using an aquarium pump and stone. One fermenter was then pitched with 0.3 million cells/mL-°P, and the other 0.75 million/mL-°P. The two fermenters were sealed and placed in a thermostatically controlled room at 62° F (17° C). Every 24 hours after pitching, the progress of each beer was checked with a refractometer. After 14 days, final gravity readings were taken and the two beers were bottled.

After two weeks of bottle conditioning, 17 sets of three bottles each were prepared and distributed to homebrewers from Florida to Oregon. Aside from being homebrewers, no credentials were required to participate, so the panel likely represents a reasonable cross-section of the online brewing community in terms of both brewing and tasting experience. Each set contained either two standard- and one under-pitched beer, or vice versa. The volunteers were therefore participating in a blind triangle test, in which they were asked to identify each beer and express their preference. Many of the participants were able to share their samples, so a total of 30 individuals responded. The uneven distribution of sets means that more samples using the standard pitching rate were tasted. Wherever percentages are reported, they have been weighted accordingly.


My own personal tasting of the two beers was not performed blind, so I'll leave subjective evaluations to the members of the tasting panel. There are some noteworthy objective data, however. First, the fermentation rates of the two beers differed substantially, with the control beer having reached terminal gravity after three days and the under-pitched beer taking six (Figure 1). The control was also slightly darker than the under-pitched beer, and had substantially more pronounced head formation, retention, and lacing. Fusel alcohols are widely believed to contribute to problems with beer foam, and the dif-


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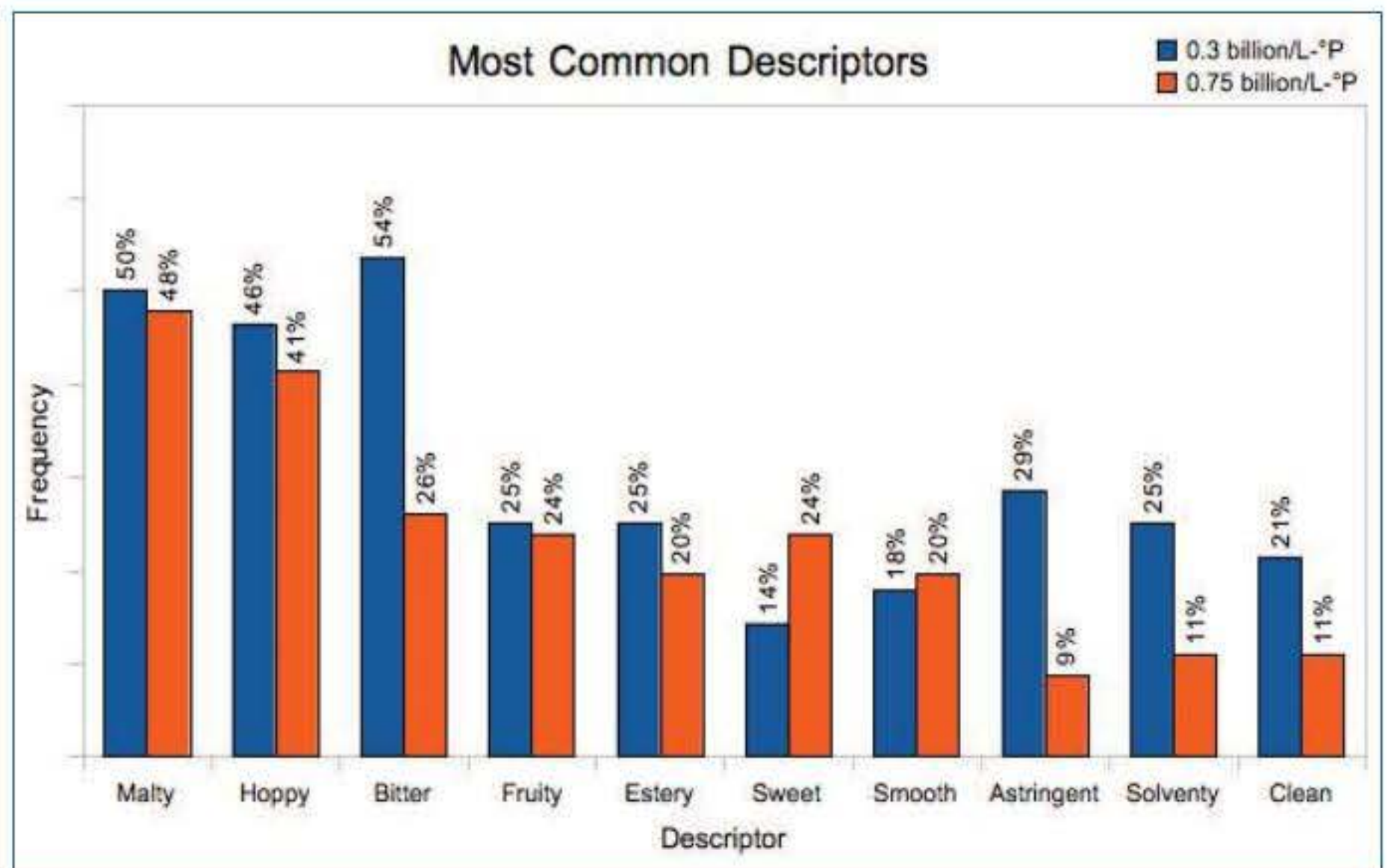
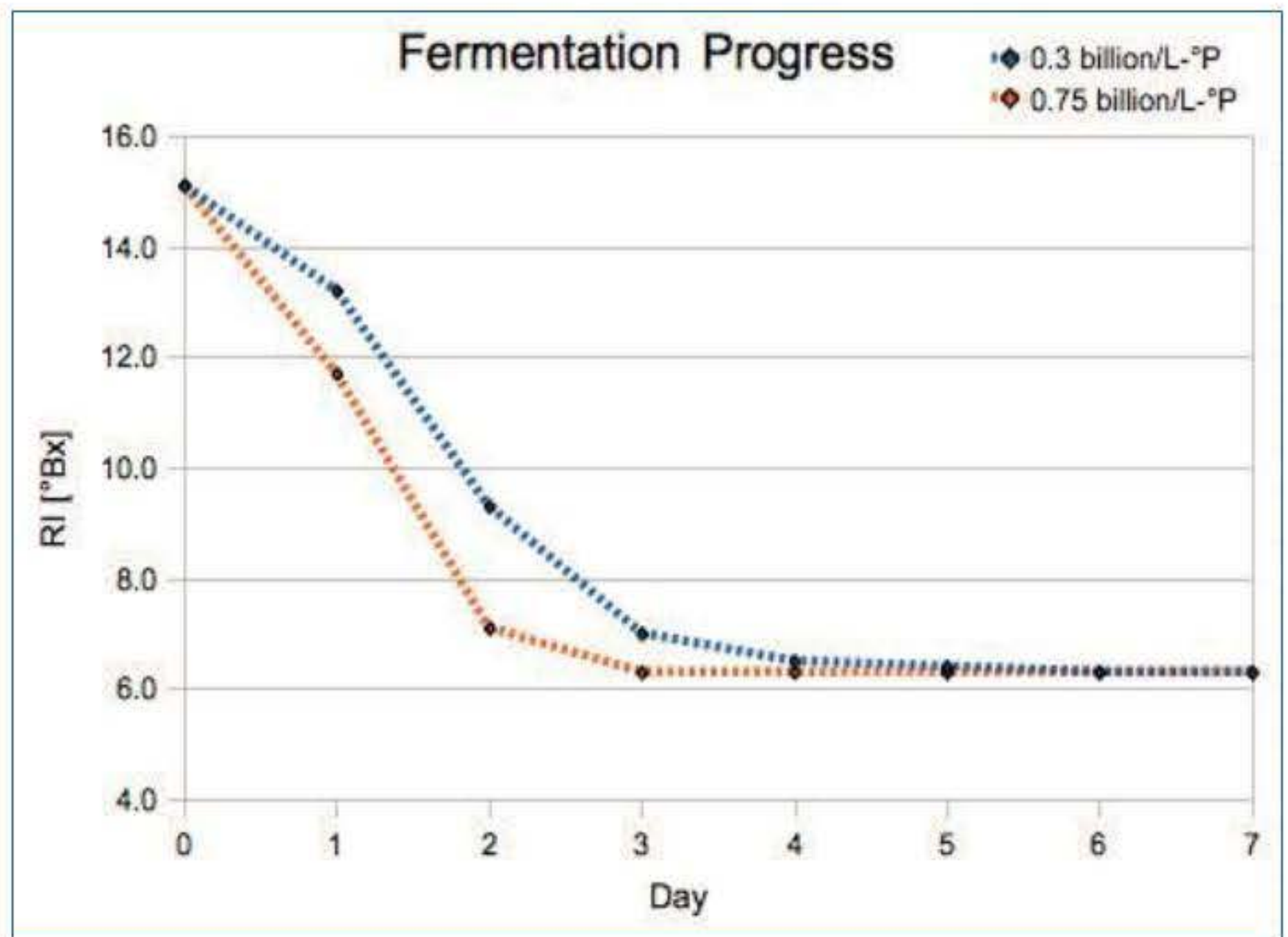
ference seen in these two beers does suggest that under-pitching could produce elevated levels.

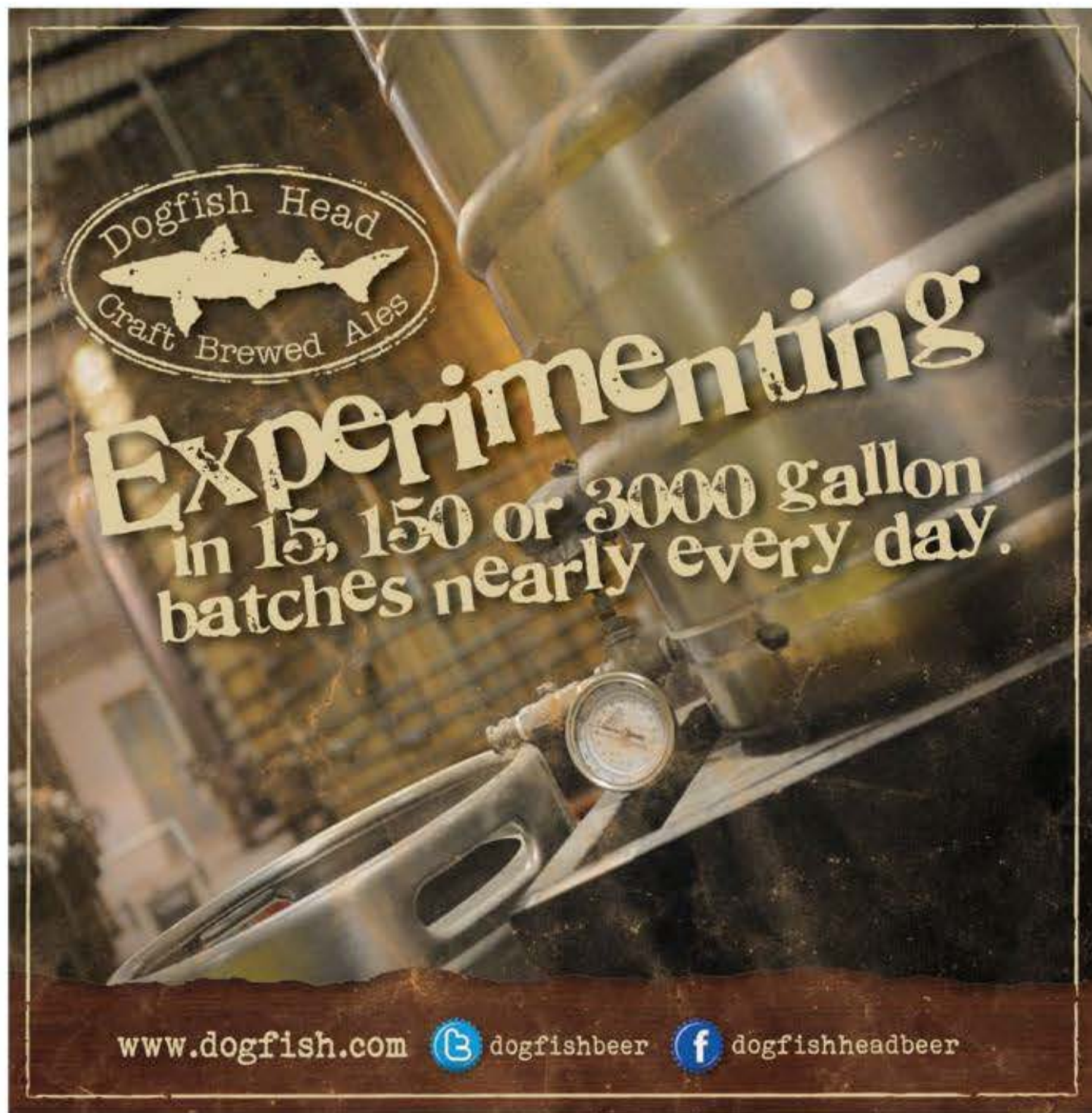
Tasting Panel Results

Thirteen of the 30 tasters were able to differentiate the samples, and nine identified the beers correctly. Sixty-six percent preferred the standard (higher) pitching rate. Since the results conform to a binomial distribution (each sample is either correctly identified, or not) the probability that these results would arise due to chance can be calculated. From a purely statistical perspective, there is an 83-percent probability that the two beers do in fact taste different. Furthermore, if the beers tasted different, but those differences were not helpful in identifying them, one would expect only half of the thirteen to identify them correctly. The fact that nine were able to do so suggests (with 87 percent confidence) that they were in fact tasting what they expected to find in an under-pitched beer: esters, diacetyl, higher alcohols, etc.

In addition to identity and preference, the participants were also asked to fill out a short form describing each beer's appearance, aroma, flavor, and mouthfeel.



In both photos, the glass with the underpitched beer is on the left.





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By performing a frequency count on the adjectives used, the opinions of the entire tasting panel about the two beers can be compared numerically. In all, 23 descriptive words were used, and the 10 most common are presented in Figure 2. There were significant differences in several areas, with the under-pitched beer being described as more bitter, less sweet, more astringent, and having more “hot” or “solventy” alcohol character. Surprisingly, it was also reported to be cleaner. Contrary to conventional wisdom, the ester levels of the two beers were similar.

Conclusion

It's notoriously difficult to draw conclusions from sensory evaluations, especially when the sample sizes are smaller than we'd like. Nevertheless, this experiment demonstrates that changing the pitching rate can have a significant effect on both fermentation performance and beer flavor. Nearly half of the tasting panel was able to distinguish between the two beers, and about two-thirds preferred the higher pitching rate. The ability to pick out these differences may come down



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to genetics, or training, or some combination of both. Regardless, in order for your beers to be as well-received as possible, pitching at the standard rate would seem to be advisable. I would think twice before entering an under-pitched beer in competition, for example.

As homebrewers, we have almost unlimited license to experiment with our ingredients, free from the commercial brewer's concerns for scheduling or expense. Yet I find that the majority of my recipes come down to the four basic ingredients: malt, hops, water, and yeast. To ignore the impact of any one of these is to give up control of an essential element of the beer's flavor. If nothing else, the results of this experiment demonstrate that there is no "right" pitching rate for every brewer, let alone every beer. As always, your own tastes should be your guide. And if your latest effort is missing that something special—or if you just like to play with your beer—experimenting with the pitching rate could be for you.

A nuclear engineer by trade, Sean Terrill has been homebrewing for seven years and is the assistant brewer at Silverton Brewing Co. in Silverton, Colo. He can be contacted at sean@seanterrill.com. He would like to thank the members of the tasting panel, without whom this experiment would not have been possible.

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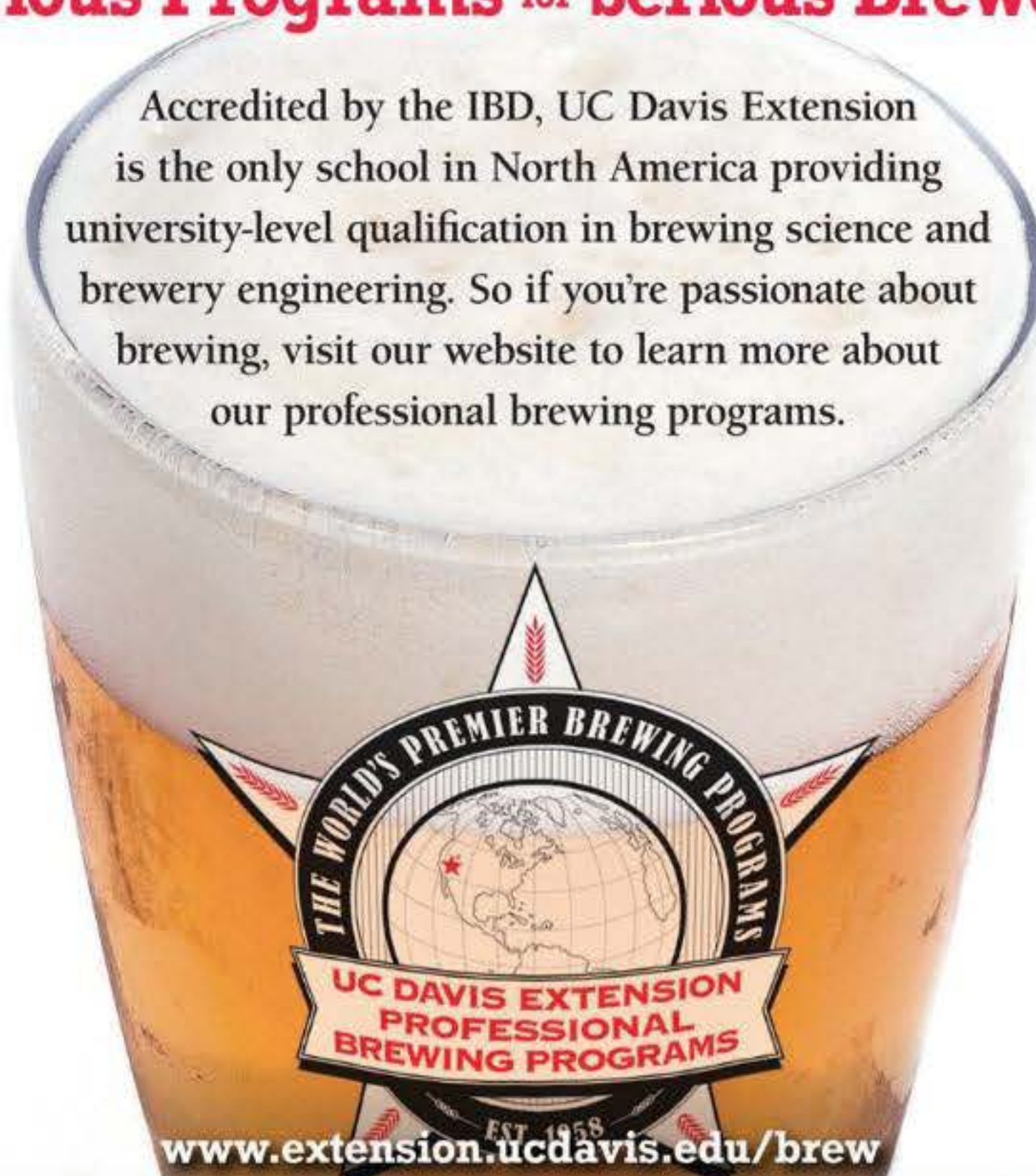
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By Amber DeGrace



NEW LIFE
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Go green with your homebrew! We don't pour perfectly good beer down the drain, so why should we waste our spent grains? It's a shame to throw away grains when they have so many practical uses. Spent grains are wonderful to compost with and to use in baking.

When freezing for future use, I recommend storing grains in quart-sized freezer bags with the brew date on them. Rotate your stock and pull a bag out to thaw when you're ready to whip up a batch of dog treats or pizza dough. Storing in quart-sized bags will allow you to use what you're thawing instead of having excess that you end up throwing away. I've learned from experience that I don't use up all the grains from a gallon-sized bag before the grains sour.

One of the most common uses of spent grain is for agriculture. Spent grains are

high in nutritive properties and wonderful to feed to farm animals such as cattle, horses, pigs, and chickens. Dogs will love it mixed in with their bowls of boring kibbles, but make sure there are no hops mixed in with the grains because as delightful as they are to us, ***hops are poisonous to dogs.***

Spent grains are useful in compost. Some homebrewers scatter the spent grains directly over their yard, claiming it helps the health of their lawn. Composting is easy and you will reap the benefits in your garden. Just imagine the accomplishment you'll feel when you use spent grain compost on your new hop vines!

HOW TO COMPOST

1. Choose your container. An easy way for first-time composters to set up their own compost is to purchase a large garbage container with a lid and drill $\frac{1}{2}$ " holes into the lid and the bottom of the container, 6" apart. These holes allow your compost to breathe.
2. Layer with one-third "green" nitrogen-rich material (fruit and vegetable scraps, grass clippings, spent grains, coffee grounds) and two-thirds "brown" carbon-rich material (pine needles, shredded cardboard, shredded newspaper, leaves).
3. Sprinkle the top layer with water until it is damp but not soggy. Keep the top layer damp, sprinkling when necessary.



4. The goal is to keep the temperature fairly high because that means the organic material is breaking down and the energy is creating heat. Use a thermometer to take the temperature of the pile every now and then and stir the compost when it gets below 130° F (54° C). This will encourage new activity. Do this every couple of weeks.
5. Continue to grow the compost. Add more layers and continue with the other steps. If it starts to smell obnoxious and the neighbors are beginning to complain, it probably means there is too much nitrogen-rich material and you should add more carbon-rich material like straw.
6. Your compost is ready when the material in the bin no longer looks like what it used to be. Cardboard pieces? Don't see any. Banana peel? Nope. The volume will also be less than what you started with because the contents have broken down.
7. Spread this compost on your herbs, vegetables, fruits, and flowers. You are completing a wonderful circle of homebrew life.

RECIPES

When baking with spent grains, a good rule of thumb to convert any recipe to use with spent grains is to take the amount of flour and convert no more than 25 percent of it to spent grains (with the exception of dog treats). For example, if your recipe for bread calls for 4 cups of flour, it can be converted to 3 cups of flour and 1 cup of spent grains. Keep in mind that each of these recipes may need to be adjusted depending on how moist your spent grains are. If the dough feels too sticky, add flour by the tablespoon until it is no longer clinging to your fingers or spoon like glue.

NO-KNEAD PIZZA DOUGH

Yield: 2 pizzas

1½ cups warm water
1 tsp. yeast
3 cups flour
1/3 cup oil
¾ cup spent grains

In a bowl, sprinkle yeast over the warm water and set aside. In a large mixing

Make sure there are no hops mixed in with the grains because as delightful as they are to us, ***hops are poisonous to dogs.***



bowl or stand mixer, add the flour and drizzle oil over. Work oil through flour with your hands or dough hook attachment until it resembles crumbs or small pebbles. Add the spent grains to the flour mixture and combine.

Gently stir the yeast and water mixture until combined. Add the yeast mixture to the bowl containing the spent grain mixture. Stir or mix with a dough hook until combined and a ball is formed. You may need to add flour, one tablespoon at a time. You'll know it's ready when the dough comes together and no longer sticks to the sides of the bowl.

In a clean bowl, add a bit of oil to the bottom, put the ball of dough in, flip it over and cover. You can let it rise, covered with a dish towel, in a warm place until it has doubled in volume, or you can cover with plastic wrap and put in the refrigerator overnight. I personally prefer to let it do a slow rise overnight because it is convenient and I like the texture of slow-fermented dough better.

Once the dough has risen, punch it down. This recipe will make enough dough for two pizza crusts so I always halve it and put the second portion in a sealed freezer bag and toss in the freezer for an easy throw-together meal (breakfast or din-

ner!). Just pull it out of the freezer, allow to thaw, and it'll be ready for toppings and the oven.

Preheat the oven to 500° F (260° C) while you're preparing the pizza. Stretch the dough out on a pizza stone using your fingers until it is relatively round and thin. I like using my fingers because it gives it a nice rustic look and also gives the sauce and toppings little nooks to hang out in.

Top with whatever you like. The sky's the limit, especially for creative homebrewers. Some of my favorites are prosciutto, egg, goat cheese, and shrimp. Don't pile the toppings on too thickly or the crust will remain a bit soft and soggy in the middle. Keep the toppings even and once your masterpiece is ready, pop it in the oven for 8-10 minutes. You'll know it's ready when the crust has gotten crisp and the cheese is melted and bubbly.

You'll never buy pre-made pizza dough again.

CHOCOLATE CINNAMON MINI-BUNS WITH CARAMEL- STOUT GLAZE

Buns:

1 No-Knead Pizza Dough recipe (see above)

8 T (1 stick) butter, melted (split)

1 tsp ground cinnamon (split)
 2 T cocoa powder (split)
 ½ cup brown sugar (split)
 ½ cup white sugar (split)

Preheat oven to 375° F (190° C). You'll be using the entire batch of dough from the spent grain pizza recipe above, but it will still need to be halved to make it easier to work with. All the other ingredients will also be halved for use with both portions of dough.

Once the dough has risen and has been punched down, flour your work surface and begin rolling out half the dough into a roughly rectangular shape with the longer length running from left to right. You'll want it to be pretty thin, but not so thin that you start seeing through the dough because then it will tear as you roll it up. Once the rectangle has been made, spread half the butter over the entire surface. Sprinkle half the cinnamon, cocoa, brown sugar, and white sugar evenly over the surface.

Begin rolling the entire dough rectangle toward you from the top, keeping it tight

as you roll. Once it has been rolled into a log, pinch the ends together and even it out if thicker in places. Have a baking dish ready and sprayed with non-stick spray. I always use disposable round aluminum cake pans with plastic lids because it makes it easy to take to surprise friends with a fresh-baked treat. Cut the log into 1½" slices and lay in the prepared baking dish with the beautifully swirled pattern facing up. Continue placing them around the baking dish, leaving a bit of space in between for them to rise before baking.

Repeat with the second portion of dough. When all the buns are in place, cover and allow to rise until the buns are touching each other and looking plump again, about 20 minutes. I usually let them rise directly on the warm stovetop, as the heat encourages the rising process. Depending on the temperature in your house, they may take longer to rise.

Once they have risen, bake for 11-14 minutes or until nicely browned on top. While they are baking, prepare the glaze to go on top.

Glaze:

1 cup coffee stout (or mocha stout)
 1 cup brown sugar
 8 T (1 stick) butter
 ¼ tsp. salt

Heat all ingredients on stovetop over medium heat until bubbling. Continue to cook, stirring, until mixture thickens, about 4 minutes. Remove from heat and pour over warm cinnamon buns when they are pulled from the oven.

These cinnamon buns are easy to make ahead and freeze for a party or gift. Cover the tray first with plastic wrap, then aluminum foil to keep them fresh and just pull out of the freezer when ready to use. Allow it to thaw and pop in a 350° F (176° C) oven until heated through.

PEANUT BUTTER-BANANA DOG TREATS

Just another friendly reminder that *you never want to feed your dog any spent grains containing hops*. This recipe is basic and easy to adjust according to your dog's tastes. Feel free to substitute all

or part of the specialty ingredients with applesauce, grated carrots, or cheese. This particular recipe is good for medium and large dogs if spread and baked on one cookie sheet, or can be made for small and medium dogs if split and baked on two cookie sheets. The drying time in the oven will be less if you use two cookie sheets, so make sure you monitor the dryness every hour or so.

6 cups spent grains
 6 cups flour
 1½ cups peanut butter
 3 eggs
 1 banana, cut into small pieces

Mix all ingredients well in a large bowl (I usually mix in my stock kettle because the quantity is so great). The dough will be thick and sticky. Lightly spray one or two cookie sheets with baking spray and press the mixture into them. Score treats however you like; I usually create three rows length-wise and many columns along the width. If your dog likes her treats fancy, you can use cookie cutters to create shapes. Make sure you score it now so they can be broken when baking is complete.

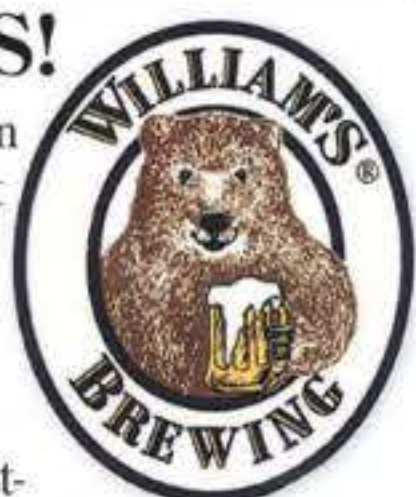
Bake in a 350° F (176° C) oven for 30 minutes or until beginning to harden. Remove the trays and finish cutting the treats where you scored them earlier. Put the trays back in the oven, turn down to 200° F (93° C) and bake for 5 to 10 hours. The treats will be done when they are completely dry in the center. If you are unsure whether the treats are ready, break one in half. It should not be gooey inside because this will cause it to mold quickly. Store treats in a sealed bag in the refrigerator and reward your canine friends generously for all the good work they do.

These are just a few examples of the many uses of spent grains. I encourage you to make use of the byproduct of your brewing!

Amber DeGrace is a mother and freelance writer who enjoys traveling, cooking, and brewing with her husband. She regularly writes for AOL Travel News and blogs at <http://disgracefulbrewing.wordpress.com>. 🍷

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Above, left To right:

A sugar-cane press is used to brew tepache, a Spanish word for sugar cane nectar.

Day laborers take a break from cutting sugar cane

A layer of dead wasps and larvae covers the tepache.

A Mazatec native brewer serves his tepache to some local men.



MENTACIÓN!



ANCIENT HOMEBREWING IN MODERN-DAY MEXICO

BY DAVID J. SCHMIDT

When the first prehistoric humans stumbled across the miracle of fermentation, it was viewed as a sacred process—a gift from the gods. For most of human history, beer has been intimately intertwined with the religious and social lives of the communities that produced it; only in recent years has it been disconnected from this context and transformed into a sterile, impersonal commodity.

To this day, however, Mexico is home to a diversity of people that still brew folk libations the ancient way. Venturing into the most remote corners of rural Mexico, I have found myself transported back in

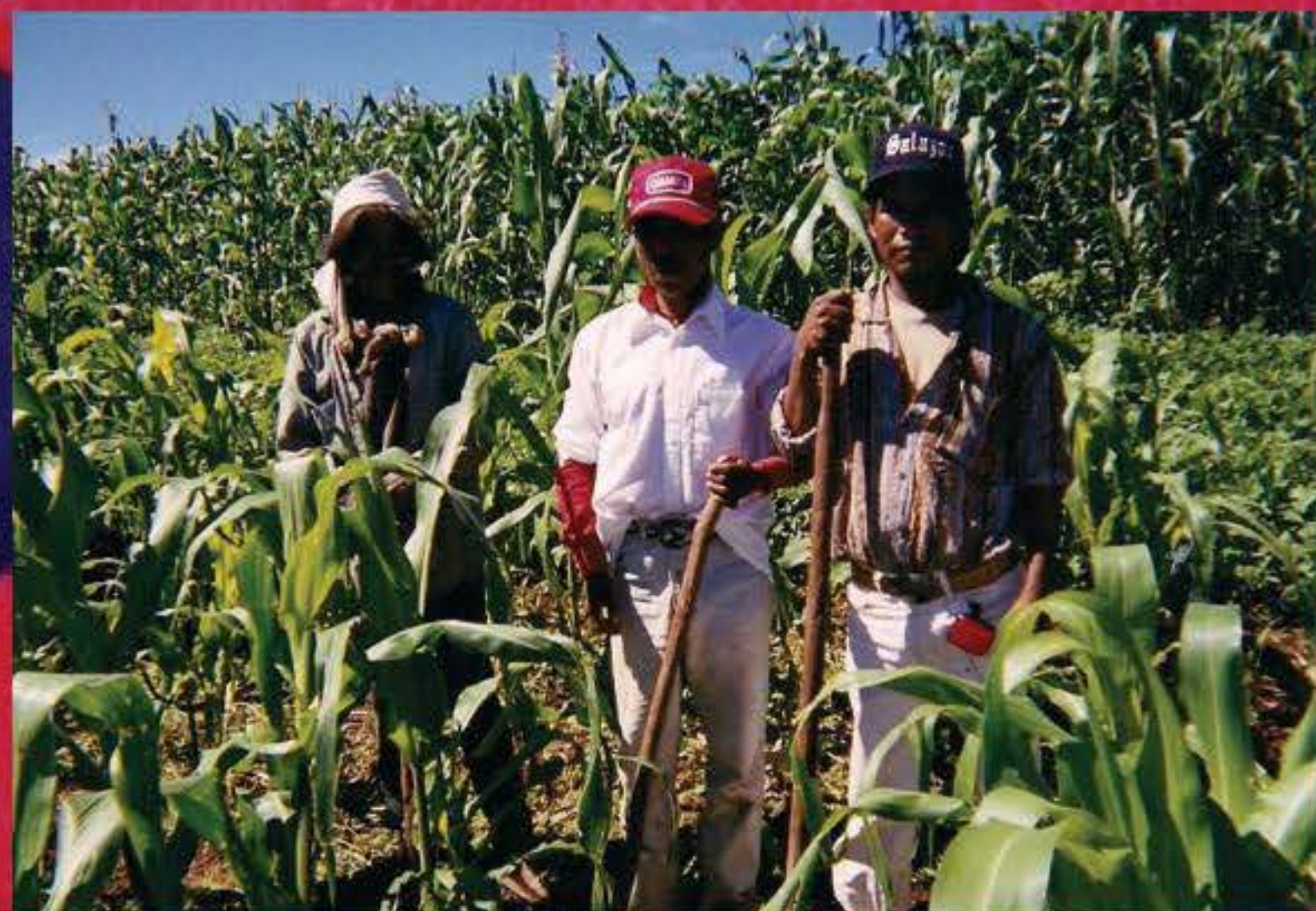
time to the days when brewing was far more than a commercial enterprise—it was a sacramental act of social cohesion and connection with the sacred.

TESGÜINO: CORN BEER OF THE TARAHUMARA NATIVES

The Tarahumara people (also known as the *Rarámuri*) are one of the most reclusive native groups in Mexico. Inhabiting the canyons and mountains of the Sierra Madre Occidental, they remain relatively isolated from modern society. When I visited Rancho Repohuéachi in 2002, the Tarahumara I met didn't even recognize Mexico's national anthem. None of the

children had ever seen a white man before (they were terrified), and many of the families still lived in the caves that dotted the hillsides.

Of course, their remote location also means that the Tarahumara's culture has remained largely untouched: they speak their own language, grow their own food, and wear clothing that is a mix of ancient loin cloths and garments from medieval Spain. The Tarahumara religion is a syncretistic mix of Catholic Christianity and native beliefs in which God is referred to by the indigenous name *Onorúame*. He is invoked through a series of elaborate ceremonies—and the



corn beer known as *tesgüino* occupies a central place in these rituals.

Tradition teaches that *tesgüino* (tess-GWEE-no) was given to man by Onorúame to bring happiness and comfort. It is used by shamans to christen newborn infants, initiate young men into adulthood, and bless fields of crops—holy water and sacramental wine wrapped into one. As I walked the mountain trails with non-Tarahumara friends, I noticed several clearings along the roadside marked with simple wooden crosses. My companions explained matter-of-factly, “Oh...that’s where the Indians drink with God.”

In addition to its ceremonial use, *tesgüino* serves as the crux of Tarahumara social interactions, in the form of gatherings

known as *tesgüinadas*. On a regular basis, the community gathers to plow or plant a family’s field; in exchange for this labor, the host provides astronomical amounts of corn beer. The *tesgüinada* is a forum for elders to give speeches and make rulings on disagreements between individuals. It is also the place that young people meet their future spouses.

As the drinking of *tesgüino* begins, a gourd is dipped into the barrel and the corn beer is thrown toward the four cardinal directions, dedicated to Onorúame to drink. A sense of the sacred is wrapped up in this commonplace secular event. In fact, the Tarahumara concept of the afterlife is similar to the *Valhalla* of the Vikings: men and women spend eternity drinking *tesgüino* together.

Above: Tarahumara community members will often plow or plant a family’s corn field in exchange for astronomical amounts of corn beer.

Tesgüino (corn beer) serves as the crux of Tarahumara social interaction, as the author (above) discovered.

Opposite page: A woman extracts agave nectar for making pulque (below), which is rich in vitamins, calcium and protein.

Seated on the roof of a log cabin during one such gathering, I played a battered guitar with the young men of the community while rain drizzled around us. The smoke from a dozen fires filled the air,

The following recipes are creative, *avant garde* reinterpretations of the traditional brews of *tesgüino*, tepache, and pulque. For adventurous purists interested in attempting to recreate the original “rough-around-the-edges” drinks, I recommend the recipes printed in Stephen Harrod Buhner’s fantastic book, *Sacred and Herbal Healing Beers*.

Most ingredients are available in Latin American specialty markets and/or organic grocery stores.

ICED TEJUINO

An urban take on the Tarahumara brew, this refreshing cocktail is served by street vendors in cities all over Mexico. The corn beer used for this *tejuino* can be served one day after brewing for a sweeter, less alcoholic drink, or left to fully ferment, creating a drier *tejuino* with higher alcohol content.

DIRECTIONS FOR 3 GALLONS OF CORN BEER: Use 2 kilograms (4.4 lb) of dry large-kernel corn. (Yellow, white or purple corn, or a combination.) Grind the corn and boil with 2-3 gallons (7.6-11.3 liters) of water and 11 cones of *piloncillo* cane sugar (approximately 4 oz/113 g per cone), stirring so that the sugar dissolves. Add a few pieces of whole cinnamon. Cook the ingredients over low heat for one hour; remove from heat, add 2-4 more sticks of cinnamon, and let sit in pot for 20 minutes. Ferment with California Ale yeast.

TEJUINO MIX: After the corn beer has finished fermenting, mix the following ingredients in a martini shaker:

1 cup (237 ml) corn beer
Juice from one fresh lime
2-3 pinches of rock salt
Ice

Mix lightly in the shaker and pour into a large glass. Add a scoop of lime sherbet on top and drink.

Recipe courtesy of Paz Acarahuí Macías Lizardi of Ensenada, Mexico.

mixing with the fragrance of pine forests. Vast canyons stretched into the distance; dark clouds gathered over the remote mountain ranges and assaulted the horizon with lightning. I had to agree...there was something distinctly holy about this moment and place.

And it wasn't just the *tesguino* talking.

PULQUE: THE GRANDFATHER OF TEQUILA

Of all the folk brews consumed in Mexico today, perhaps none is as tied to national identity as *pulque* (POOL-kay), the fermented nectar of the agave cactus. When it is distilled, pulque is transformed into tequila or mezcal—yet the undistilled pulque goes back much further in Mexican history than either of the hard liquors do.

Archaeological evidence shows that the agave plant was consumed as food at least nine thousand years ago in Mesoamerica. The Aztec goddess Mayahuel was associated with the agave plant and occupied a central place in native cosmology; pulque was used in numerous rituals by the ancient civilizations of pre-Hispanic Mexico.

Similar to the Greco-Roman goddess Artemis-Diana, Mayahuel was associated with the moon as well as fertility and nutrition. Beyond theology, there is a practical element to this belief—pulque has historically been known to be highly nutritious. The drink is rich in vitamins, calcium and protein, as testified by the Mexican proverb, "*solo le falta un grado para ser carne*": pulque is just a hair away from being meat.

When infused with the plant "*malva*" (*malva silvestre*), pulque is used as a remedy for fever, indigestion, and aggressiveness. The unfermented agave nectar is used to treat diabetics.

TEPACHE: NECTAR FROM THE MOUNTAINS OF OAXACA

My Mixtec Indian friends and I followed the thin trail down the mountainside, venturing from the village of San Juan Coatzacoapam into the Mazatec-speaking region of San Isidro. The path snaked through a vast field of sugar cane that



TEPACHE MEAD

The Spanish term for sugar cane nectar, which literally means “honey of the cane” (*miel de caña*), inspired this recipe for spiced mead, using cane sugar in place of honey. Unless you have access to fresh sugar cane, I suggest using the next best thing, *piloncillo* cane sugar, or any other type of raw cane sugar.

DIRECTIONS FOR 3 GALLONS: Dissolve 8 lbs (3.6 kg) of sugar (about 32 cones of *piloncillo*) in 3½ gallons (13.25 liters) of water, along with three sticks of cinnamon. Cook for 15 minutes at 160° F (71° C). Ferment with champagne yeast.

After primary fermentation, rack to secondary fermenter, adding two cinnamon sticks, 15 whole cloves, 15 allspice berries, 1 teaspoon nutmeg, and 4 vanilla beans. For an extra kick, add a few fresh jalapeño peppers to the secondary fermentation. Store for at least two months before consuming.

“PULQUEZA”: HYBRID AGAVE BEER

This recipe is based loosely on 16th century Spanish documents from Fray Diego Durán. Durán described a pulque brewed by the Aztecs which, in addition to agave and yeast, contained malted barley and *ocpactli*, a bitter plant used to add flavor and ward off undesirable microbes—similar to hops in Europe.

INGREDIENTS FOR 5 GALLONS:

4.0 lb (1.8 kg) liquid malt extract
4.0 lb (1.8 kg) agave nectar (light or amber will do)
2.0 oz (56 g) Cascade hops
Steeping grains: 1.0 lb (454 g) Carapils® Dextrin Malt

DIRECTIONS: Steep grains for 30 minutes at 160° F (71° C). Remove grains, add agave nectar and malt extract, and bring to full boil. Add hops. Keep at rolling boil for 30 minutes. Remove from heat, let sit for 5 minutes. Ferment with California Ale yeast.

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towered above us, blocking our view of the surrounding mountains. As we drew closer to our destination, I caught the unmistakable smell of fresh yeast working its magic.

We emerged into a clearing where several local men sat on the ground, drinking from plastic cups. The backdrop was breathtaking: we could see for miles around, counting dozens of villages of various indigenous ethnicities on the hill-sides. Local day laborers walked back and forth cutting sugar cane and feeding it into a motor-run press that squeezed its nectar; the juice flowed through a tube into one of two enormous tanks that stood nearby. This was where *tepache* (tay-PAH-chay) was born.

My reverie was broken as the tepache brewer, Domingo Daza Núñez, walked up to greet us. “I’ve been in this business since I was about 10 years old,” the middle-aged Mazatec native told me. “I learned how to assemble the sugar cane press when I was a little boy. My father made tepache, and his father did before him, back when a horse-drawn mill was used to grind the cane.” Domingo explained that one of the tanks contained fully-fermented tepache, at approximately 12-percent alcohol, and the other was in the process of fermenting.

The yeast itself had been used and reused to make tepache for as long as Domingo could remember. I thought of how closely some commercial brewers guard their yeasts, and wondered how long the Mazatecs of these mountains had been

using this particular strain. It was at least as old as Domingo's now-deceased grandfather; I relished the thought that this yeast may even be centuries old, dating back to the pre-Colombian civilizations of ancient Mexico.

"Want to try some?" Domingo asked me. I peered into the tank and noticed a thick layer of dead wasps and larvae that had collected on the surface of the liquid. "Wasps really like this stuff," he told me. This was a test of my faith in ancient yeast's power to triumph over evil: I said a quick prayer, brushed the drunken insects aside with my cup, and dipped it into the foaming mess below.

My first sample was from the tepache that was in mid-fermentation. I found it naturally sweet and yeasty. The second glass I drank was from the fully fermented tank; it had a much more well-rounded and balanced taste. The tepache reminded me of a very dry cider. Domingo pointed out its dark, opaque honey coloration: "That's the color that tells you it's finished fermenting."

I chatted with the local men who had come down for a drink, and found that tepache was used as a home remedy for a number of ailments, including stomach pains and dysentery. Tepache is also distilled into homemade rum called *aguardiente*; the distilled version is applied to the joints of those suffering rheumatism, and rubbed on the bodies of feverish infants. Simply breathing in the vapors from the moonshine will clear up a stuffy nose; the liquor is even recommended as a cure for sexual impotence.

I disclosed that brewing ran in my family as well: my ancestors used to make beer back in Russia, and my grandfather had kept the tradition alive in suburban California. As Domingo and I discussed the common concerns of homebrewing—variables in fermentation time, difficulties cultivating yeast, sediment sticking to the fermentation tank—we momentarily transcended the boundaries of space and culture, connecting with the first Mesopotamian brewers on some timeless, universal plane of existence.


David J. Schmidt is a freelance writer and translator in San Diego, Calif. He speaks seven languages, has been to 25 countries, and has spent the last 10 years exploring rural Mexico and experiencing folk brews, making him a veritable Indiana Jones of homebrewing. (Think Harrison Ford with a beer gut.)

RESOURCES

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2. Torrentera, Ulises. "Serie Mezcolatria". *Miscella Mezcalacea*. Oaxaca, México. Febrero 2004.
3. Kennedy, John G. *Tarahumara of the Sierra Madre: Survivors on the Canyon's Edge*. Pacific Grove, CA: Asilomar Press, 1996.
4. Buhner, Stephen Harrod. *Sacred and Herbal Healing Beers: The Secrets of Ancient Fermentation*. Boulder, CO: Siris Books, an imprint of Brewers Publications, 1998.


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By Amahl Turczyn Scheppach

2011 Doug King Memorial Competition



Dortmunder [Untitled]

Best of Show, 2011 Doug King Memorial Competition

Brewed by Jeff Crowell, Crown of the Valley Brewing Society

INGREDIENTS

for 11 gallons (41.64 liters)

18.0 lb	(8.16 kg) German Pilsner malt
12.0 oz	(340 g) Munich malt
1.0 oz	(28 g) Horizon pellet hops, 11.4% a.a. (60 min)
1.0 oz	(28 g) Vanguard pellet hops, 5% a.a. (15 min)
0.5 oz	(14 g) Liberty pellet hops, 4.5% a.a. (0 min)
0.5 oz	(14 g) Vanguard pellet hops, 5% a.a. (0 min)

White Labs WLP830 German lager yeast
Whirlfloc (15 min)

Boil Time: 90 min

Original Gravity: 1.048

Final Gravity: 1.010

SRM 3.5

Brewhouse Efficiency: 78%

DIRECTIONS

Mash with 1.5 qt. per pound of grain. Use a decoction schedule, pulling a 30-minute decoction with half of the Pilsner malt while the main mash rests at 130° F (54° C). Mash at 149° F (65° C) for 90 minutes. After the boil, add oxygen for 1 minute and pitch yeast at 70° F (21° C). Fermentation temp should be kept between 50 and 52° F (10 to 11° C) for two weeks before beer is racked to secondary. Raise to 65° F (18° C) for a two-day diacetyl rest, then lager at 34° F (1° C).

Extract version: Substitute 14.6 lb (6.6 kg) liquid Pilsner malt extract for the Pilsner and Munich malts. Add malt extract to water, bring to a boil, stirring, and proceed with the recipe as indicated.

Above: Drew Beechum has been the competition organizer for seven of the eight memorial competitions.

Longtime Maltose Falcon and author Drew Beechum gave us the low-down on the 2011 Doug King Memorial Competition, held at Eagle Rock Brewing Company on January 22 in Los Angeles.

“The DKM started eight years ago by the Maltose Falcons to memorialize our fallen member, Doug King,” explained Beechum. “Doug was that core go-to guy that every club needs. Any event, any brew session, anytime we needed help, Doug was there to lend a hand. Add that to the fact that he was an awesome brewer (he won the 1996 California State Fair with his “Dougweiser” American Light Lager) and he was always up for teaching people how to brew—in fact he was the guy who taught me to brew all-grain.”

King also had a knack for brewing creativity, especially with experimental fermentables. “Doug was infamous for being goofy with his beer—anything was fair game for the mash tun. Rye bread, leftover tortillas, even cake—right into the mash.”

In 1999, King died in a crash while traveling to Napa for the Northern California Homebrewers Festival. “Since that time, members of the club held a memorial party around his late January birthday where we served his remaining beers and meads,” said Beechum. “As the supply ran short, we decided to hold a competition that honored his free-spirited brewing ways.” Beechum has been competition organizer for seven of the eight memorial competitions.

To keep things flexible and fun, the competition offers a new category every year. It first started with the “Imperial Anything” category (now a staple) and progressed to things like the “Homemade Smoked Malt Challenge” (see the March/April 2010



AHA SPECIAL EVENTS

Visit HomebrewersAssociation.org/pages/events for more American Homebrewers Association Event Information.

May 7

AHA Big Brew: A Celebration of National Homebrew Day
HomebrewersAssociation.org

May 16-22

American Craft Beer Week
AmericanCraftBeerWeek.org

June 15-17

AHA National Homebrew Competition
Final Round Judging
San Diego, CA
AHAConference.org

June 16-18

AHA National Homebrewers Conference
San Diego, CA
AHAConference.org

June 18

AHA National Homebrew Competition
Award Ceremony
San Diego, CA
AHAConference.org

August 6

AHA Mead Day
HomebrewersAssociation.org

September 29-October 1

Great American Beer Festival
Denver, CO
GreatAmericanBeerFestival.com

November 5

AHA Learn To Homebrew Day
HomebrewersAssociation.org

Zymurgy). In 2011, the competition offered a "Session Beer Challenge."

The club is particularly flexible when it comes to competition entry packaging. "It doesn't matter the container—if you bring your beer to the competition in a teacup and are comfortable with it, so be it," said Beechum.

This year saw 85 entries, including a record 23 kegged entries. Eagle Rock Brewing Company, the competition's only sponsor, provided the judging venue again in 2011 as well as the primary prize—a chance to brew on their system and be entered into the Great American Beer Festival Pro-Am. (The 2010 Eagle Rock entry, Red Velvet by homebrewer Donny Hummel, won a gold medal at the GABF).

This year's competition proved especially tricky to judge due to the overall quality of the entries. Beechum noted, "I was really proud to see the diverse collection of beers that popped up during this year's BOS (Best Of Show) round. I think it provided quite a challenge to the BOS judges (one grand master, one master, one national and one pro) because it took them nearly an hour to pick a winner from seven beers!"

Jeff Crowell, from LA's Crown of the Valley homebrew club, emerged the champion with his Dortmunder. Crowell's interest in homebrewing started 12 years ago, when he would make frequent trips to the Sierra Madre Brewing Company, which at the time also sold homebrew supplies. When his grandparents bought him a homebrew starter kit for a wedding gift, the brewing journey began.

These days, Crowell prefers brewing 10-gallon batches on his MoreBeer brew sculpture, which he won in a raffle at the 2007 Southern California Home Brew Festival. Crowell mixes it up with his brewing schedule, but with this recipe, the more traditional method paid off. "I mainly mash doing a single infusion, but for this brew, I slowed things down a bit and went with a decoction."

Another impressive effort at the Best of Show judging table was Steve Cook's

Golden Goblet Gruit Ale – Batch #123

Best of Show Runner-Up, 2011 Doug King Memorial Competition
Brewed by Steve Cook, Maltose Falcons, with Cookie Kaplan and Nicolai Abramson

INGREDIENTS

for 6.5 U.S. gallons (24.61 liters)

16.0 lb	(7.26 kg) Pilsner two-row malt
8.0 oz	(227 g) Belgian Caramel Pils malt
1.0 g	sweet gale (in mash, 90 min)
1.0 oz	(28 g) marsh rosemary (in mash, 90 min)
1.0 oz	(28 g) yarrow (in mash, 90 min)
1.0 g	sweet gale (60 min)
1.0 oz	(28 g) marsh rosemary (60 min)
1.0 oz	(28 g) yarrow (60 min)
1.5 tablets	WhirlFloc (20 min)
3.5 tsp	SuperFood yeast nutrient (20 min)
0.5 tsp	coriander seed (15 min)
1.0 tsp	lemon peel (15 min)
14 g	sweet orange peel (15 min)
14 g	sweet orange peel (10 min)
1.0 lb	turbinado sugar (10 min)
Reverse osmosis water	
Wyeast Labs No. 1338 Belgian Strong Ale yeast (2L starter)	
2.4 vol	forced CO ₂ to carbonate

Boil Time: 90 min

Original Gravity: 1.074

Final Gravity: 1.010

ABV: 8.37

IBUs: 0

SRM: 5.7

Brewhouse Efficiency: 75%

DIRECTIONS

Mash grains for 90 minutes at 148° F (64° C). Remember that half the herbs go into the mash, and half are added during the boil. Mash out at 168° F (76° C) for 10 minutes.

Extract version: Substitute 12 lb (5.4 kg) liquid Pilsner malt extract for the Pilsner malt. Steep the CaraPils malt in 158° F (70° C) water for 30 minutes, remove and strain, add the malt extract, bring to a boil, stirring, and continue with the recipe as indicated. Steep half the herbs in a mesh bag along with the CaraPils and put the other half in the boil, as the recipe states.



AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

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

May 1

15th Annual Chico Homebrew Competition
Chico, CA. Entry Deadline: 4/25/2011. Contact: John Abbott, 530-345-9656, JABREW@aol.com, www.chicohomebrewclub.com

May 1

FOAM's Battle of the Bubbles
Frederick, MD. Entry Deadline: 4/30/2011. Contact: Michael Lamb, 301-676-2053, MLamb1212@comcast.net, F-O-A-M.org

May 1

Organic Brewing Challenge Pro Am Competition
Santa Cruz, CA. Entry Deadline: 4/16/2011. Contact: Amelia Slayton, 831-454-9665, 7bridges@breworganic.com, www.breworganic.com/Competition/Bison-proam.html

May 1

Siciliano's Market 8th Annual Homebrew Competition
Grand Rapids, MI. Contact: Greg Johnson, 313-409-1191, johnsgre@gmail.com, sicilianosmkt.com/index.htm

May 7

Goblets of Gold V-Mead Only Comp.
Homer, AK. Entry Deadline: 5/06/2011. Contact: Laurence Livingston, 907-235-2656, brewkahuna@hotmail.com

May 7

IE Brew Pro Am Competition
Riverside, CA. Entry Fee: \$5. Entry Deadline: 4/30/2011. Contact: David Hiebert, 951-643-7687, staff@iebrew.com, www.iebrew.com

May 7

The Home Brew Festival - Carrboro
Carrboro, NC. Entry Fee: Free. Contact: Caleb Rudow, 828-545-3119, calebrudow@gmail.com, www.homebrewfestival.com

May 7

Mayfaire Competition
Woodland Hills, CA. Entry Deadline: 4/22/2011. Contact: Steve Cook, 818-563-5211, SCook4208@msn.com, www.maltosefalcons.com

May 14

AHA Club-Only Competition, "Angel's Share" Wood-Aged Beer
Los Angeles, CA. Entry Deadline: 5/5/2011. Contact: Steve Kinsey, 661-965-5783, youcanreachsven@yahoo.com, bit.ly/AHAClubOnly

May 14

Brew Bubbas Session Beer Challenge
Plymouth, MI. Entry Deadline: 5/07/2011. Contact: Craig Belanger, 586-945-8629, craig@brewbubbas.com, www.brewbubbas.com/Site/Session_Beer_Challenge.html

May 14

Calif State Fair 2011 Commercial Craft Brewing Competition
Sacramento, CA. Entry Deadline: 4/27/2011. Contact: JJ Jackson, 916-348-6322, jjjaxon@cwnet.com, www.calbrewers.com, www.bigfun.org

May 14

Sacramento County Fair 2011 Homebrew Competition
Sacramento, CA. Entry Deadline: 4/29/2011. Contact: JJ Jackson, 916-348-6322, jjjaxon@cwnet.com, www.calbrewers.com

May 14

20th Annual Spirit of Free Beer Competition
Fall Church, VA. Entry Deadline: 5/07/2011. Contact: Wendy Aaronson, 301-762-6523, aaronridge@comcast.net, www.burp.org

May 14

U.S. Open Homebrew Competition
Charlotte, NC. Entry Deadline: 5/4/2011. Contact: Bill Lynch, 704-905-9098, brewcnc@yahoo.com, www.carolinabrewmasters.com

May 14

BrewFest at Mount Hope 3rd Annual Homebrew Competition
Manheim, PA. Entry Deadline: 5/07/2011. Contact: Teresa Centini, 717-665-7021, Teresa@parenfaire.com, www.PaRenFaire.com/Brewfest.html

May 14

SCABS 2nd Annual Homebrew Competition
Owosso, MI. Entry Deadline: 4/30/2011. Contact: Greg Gerding, 989-277-7356, gerdinglg@gmail.com, www.scabshomebrew.com

May 14

Greg Noonan Memorial Homebrew Competition
South Burlington, VT. Entry Deadline: 4/29/2011. Contact: Lewis Greitzer, 802-598-9972, gnmhc2011@gmail.com, www.mashers.org/comp_2011/home.html

May 14

The Hogtown Brew-Off
Gainesville, FL. Entry Deadline: 4/30/2011. Contact: James Schilling, 352-278-3274, tellusallaboutit@gmail.com, www.hogtownbrewers.org/Brewoff/BrewoffFrames.html

May 14

15th Annual Brew-Off Homebrew Competition
Saint James, NY. Entry Deadline: 5/07/2011. Contact: Renee Irizarry, 631-751-0720, beerhb-comp@gmail.com, www.beerhb.org

May 15

Calif State Fair 2011 Homebrew Competition
Sacramento, CA. Entry Deadline: 4/27/2011. Contact: JJ Jackson, 916-348-6322, jjjaxon@cwnet.com, www.calbrewers.com, www.bigfun.org

May 15

16th Annual Big Batch Brew Bash
Houston, TX. Entry Fee: Free. Entry Deadline: 5/07/2011. Contact: Donald Sajda, 281-351-7541, rodon@flash.net, www.thekgb.org

May 21

Upland Brewing Co. UpCup Competition
Bloomington, IN. Entry Deadline: 5/14/2011. Contact: Caleb Staton, 812-336-2337, caleb@uplandbeer.com, www.uplandbeer.com

May 21

2011 BUZZ OFF
West Chester, PA. Entry Deadline: 5/07/2011. Contact: Brian Pylant, 856-397-0417, brian@brewdrinkrepeat.com, www.buzzhomebrewclub.com/BUZZ_OFF_pages/buzz_off.html

May 21

Hangar 24 Craft Brewery 2nd Annual Homebrew Competition
Redlands, CA. Entry Deadline: 5/15/2011. Contact: Kevin Wright, 909-389-1400, kwright@hangar24brewery.com, www.hangar24brewery.com/homebrew.htm

May 22

Ranger Creek Sippy Cup Pro-Am Competition
San Antonio, TX. Entry Deadline: 5/13/2011. Contact: Rob Landerman, 512-736-6047, rob@drinkrangercreek.com, www.drinkranger-creek.com

May 27

19th Annual Great Alaska Craftbeer and Homebrew Competition
Haines, AK. Entry Deadline: 5/25/2011. Contact: Rachael Juzeler, 907-780-5932, rjuzeler@alaskan-beer.com, seakfair.org

May 28

Aurora Brewing Challenge
Edmonton, AB, CA. Entry Deadline: 5/20/2011. Contact: Sean Cormican, 780-469-8300, seancormican@gmail.com, www.ehg.ca/abc

May 28

Meadlennium
Sanford, FL. Entry Deadline: 5/06/2011. Contact: Josh Brengle, 407-463-6350, jtbrengle@gmail.com, CFHB.ORG

June 4

17th Annual Eight Seconds of Froth
Cheyenne, WY. Entry Deadline: 5/21/2011. Contact: Brian Mertz, 307-220-7035, windywy@aol.com, www.bbriggs.vcn.com/8seconds.html

June 4

15th Annual Celtic Brew-Off
Arlington, TX. Entry Deadline: 5/12/2011. Contact: Dave Girard, 817-925-5327, dgtracking@yahoo.com, CelticBrewOff.com

June 4

16th Annual Boneyard Brew-Off
Champaign, IL. Entry Deadline: 5/30/2011. Contact: Marco Boscolo, 217-721-9200, marco75boscolo@gmail.com, buzzbrewclub.org/wp/brew-off/

June 4

Hops, Drop and Roll Home Brew Competition/Festival
Boise, ID. Entry Deadline: 6/03/2011. Contact: John Lindberg, 208-899-3567, johnlindberg1@msn.com, www.idahoff.org

June 5

San Mateo County Fair Homebrew Competition
San Mateo, CA. Entry Deadline: 5/18/2011. Contact: Brad Strutner, 650-995-6255, bradstrutner@gmail.com, www.sanmateocountyfair.com/competitive-exhibits/departments/culinary-arts

June 12

Liquid Poetry Slam
Fort Collins, CO. Entry Deadline: 6/03/2011. Contact: Kyle Byerly, 319-431-7413, events@liquidpoets.com, slam.liquidpoets.com/

June 16

AHA National Homebrew Competition Final Round
San Diego, CA. Entry Deadline: 6/07/2011. Contact: Harold Gulbransen, 619-463-1255, hgulbransen@sbcglobal.net, bit.ly/AHANationalHomebrewCompetition

gruit ale, an ancient, unhopped style that doesn't often see final judging rounds.

Cook has been brewing for about 10 years, beginning with extract recipes for about a year-and-a-half, then moving on to all-grain brewing. Cook first became interested in homebrewing in 1974 when a co-worker gave him a homebrewed lager. Twenty-six years later, when a friend asked him over to brew, he was officially hooked.

Cook has long been a fan of gruits, as the "Batch #123" on the recipe attests. He has also had much success brewing Bavarian hefeweizens and Belgian golden strong ales. "Most notably I won Best of Show for my Bavarian hefeweizen at the 2010 Mayfaire Competition that is put on by the Maltose Falcons."

There are some special considerations when brewing gruit ales, and Cook's knowledge of and enthusiasm for the style are evident. "Gruit ales are the most unusual beers I brew and they have a specific effect when consumed," he explained. "Unlike hops that can have sedative effects, gruit herbs are generally stimulants. The method of introducing the herbs into the wort is also a bit different than hops. You still put the herbs in the boil, but you can also add them to the mash and in the primary."

Batch #123 was a hybrid of two of Cook's favorite beers; the grain bill is from a Belgian golden strong recipe he's brewed several times, but rather than hop additions, classic gruit herbs like yarrow, marsh rosemary, and myrica (sweet) gale were used for flavor and aroma.

"I started brewing gruit because most commercial breweries don't make it, and only a handful of homebrewers do," he explained. "I was also inspired by Stephen Buhner's *Sacred and Herbal Healing Beers*—it is the definitive text on ancient recipes and has a wealth of history on brewing."

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



KUDOS—BEST OF SHOW

AHA/BJCP Sanctioned Competition Program

August 2010

AHA Club-Only Competition, Mead, 64 entries—*Jim & Jen Jakopak, Iron Station, NC.*

September 2010

State Amateur Brewers Show of South Australia, 205 entries—*Brenton Rehn, Barossa Valley, South Australia.*

October 2010

1st Annual Nederland Homebrew Competition, 24 entries—*Shane Verheyen, Colorado Springs, CO.*

16th Commander SAAZ Interplanetary Homebrew Blastoff, 316 entries—*Aaron Guittar and Mike Ellis, Cocoa, FL.*

December 2010

Humpy's Big Fish Homebrew Competition, 103 entries—*Don Lewellyn and Tim Strayer - BOS Beer, Anchorage, AK.*

January 2011

Big Beers, Belgians & Barleywines Homebrew Competition, 319 entries—*Ted Manahan, Ft. Collins, CO.*

Great Alaska Beer and Barley Wine Festival, 64 entries—*Black Raven Brewing Co., Old Birdbrain Barley Wine, Redmond, WA.*

DRAFT New Year's Open, 43 entries—*Caleb Hill, Dayton, OH.*

Wizard of SAAZ IV, 272 entries—*Scott Thompson, Pittsburgh PA.*

Doug King Memorial, 85 entries—*Jeff Crowell, Glendora, CA.*

Upper Mississippi Mash-Out, 930 entries—*Jim DeVoss, Bloomington, MN.*

Homebrew Alley 5, 460 entries—*Ben Maeso, Rochester, NY.*

February 2011

GEBL IPA Hop Madness Challenge, 135 entries—*Mike Ritzer, Newcastle, WA.*

AHA Club-Only Competition, "Battle of the Bitters" (English Pale Ales), 70 entries—*Brent Zomerlei, Jenison, MI.*

Fur Rondy Homebrew Competition, 91 entries—*Aaron Christ, Anchorage, AK.*

Bert Grant Competition, 16 entries—*Tim Hayner, Kent, WA.*

GBS/O'Fallon Brewery GABF Pro-Am Homebrew Competition and Chili Cookoff, 40 entries—*Jim Leabig, St. Peters, MO.*

Las Vegas Winterfest 2011, 62 entries—*Christopher Reiten, Albuquerque, NM.*

1st Annual Napa Homebrew Challenge, 294 entries—*Stewart Mehrens and Mike Riddle, Napa, CA.*

Great Northern Brew-Ha-Ha!, 268 entries—*Chip Lewis, Elkhart, IN.*

Peterson AFB Homebrew Competition, 421 entries—*Kyle Campbell, Rick Bobbitt, Brandon Stratton, Chris Kennedy, Rick Hagerbaumer, John Allison, and Ryan Thomas, Broomfield, CO.*

Kansas City Bier Meisters 28th Annual Homebrew Competition, 426 entries—*David Darity and Michele Darity, Atoka, OK.*

America's Finest City (AFC) Homebrew Competition, 502 entries—*Paul Sangster, Carlsbad, CA.*

For the Love of Beer, 48 entries—*Gunnar Emilsson, Helena, MT.*

Winter Carnival Beer Dabbler Beer Contest, 70 entries—*Paul Illa, Hastings, MN.*

The Bruery - Batch 300, 176 entries—*Grant Phillips, Redlands, CA.*

Amber Waves of Grain XV, 462 entries—*Dan Cassetta, East Amherst, NY.*

SODZ British Beerfest, 150 entries—*Kyle Bullock, Columbus, OH.*



ON THE WEB

Smuttynose Brewing Co.
www.smuttynose.com

Summit Brewing Co.
www.summitbrewing.com

BJCP Style Guidelines
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 lagers were on the menu for our Calibration judges this issue.

First up was Smuttynose Baltic Porter, which is fermented and bottle-conditioned with lager yeast in the Eastern European tradition. It undergoes a full cold-conditioning program, which goes longer than most as Smuttynose doesn't filter any of its beers.

Part of the Big Beer Series, it is brewed with two-row, Munich 20L, Carahell®, Crisp C-120, Baird's Carastan, Crisp chocolate and Crisp black malts; hopped with Sterling; and fermented with White Labs Old Bavarian Lager yeast. It is 9 percent alcohol by volume and 40 IBU.

Smuttynose's JT Thompson reports that

the beer ages nicely and that the brewery just transferred some that had been aging for about two years in Sam Adams Utopias barrels.

In January, our judges received perhaps one of the first shipments of this year's Summit Maibock, a spring seasonal. This malty, pale beer is brewed using Moravian and Munich malts, Czech Saaz and Mt. Hood hops, and German lager yeast. It checks in at 6.5 percent ABV.

Summit Maibock is offered from February through May. “This is a very well-made lager that would support an appetizer such as brie en croute where the slight sweetness, dry finish and alcohol would complement well,” commented judge David Houseman.

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THE JUDGES' SCORES FOR SMUTTYNOSSE BALTIC PORTER



Aroma: Chocolate malt, alcohol and moderate floral hops blend to produce a very inviting aroma. Very low fruity esters of dark fruits (currants, plums). No DMS. No diacetyl. Very clean fermentation. No out-of-place coffee-like notes of roasted barley. The hopping is high for a traditional Baltic Porter but it's a very nice American interpretation, nicely balanced and fairly complex. (10/12)

Appearance: Black. Opaque. Dense, brown, long-lasting head. Only the garnet highlights were difficult to assess due to color and opaqueness. Yummy looking. (3/3)

Flavor: Rich chocolate and caramel malts, high hop bitterness, medium hop flavor, noticeable alcohol (without excessive heat or fusels). No DMS. No diacetyl. Clean fermentation. Very low fruity esters. Well balanced and complex. Sweet up front, finishes sweet but balanced with high hop bitterness. Again hopping high for a traditional Baltic Porter but an enjoyable interpretation nonetheless. (17/20)

Mouthfeel: Full bodied. Chewy. No astringency. Smooth, almost creamy, with noticeable alcohol warming. A beer that feels as big as it tastes. (5/5)

Overall Impression: An American interpretation of the Baltic Porter style, more like an Imperial Robust Porter, with an emphasis on hops, similar to the American Barleywine and Imperial Stouts. Very clean, lagered beer that could benefit from a bit of specialty malt, like Special B, to raise the presence of currants and dark pit fruits and add to complexity. Still very nice and eminently drinkable on a cold December night, chewy as a fudge brownie and enjoyable with one as dessert or snack. (8/10)

Total Score: (43/50)

Aroma: Rich caramel maltiness hits the nose before the beer hits the glass; lots of dried currants and coffee with a hint of dried cherries. No hop aroma, very clean fermentation. (10/12)

Appearance: Visible viscosity; bubbles swirl and cascade to form a thick, dense, persistent tan head. Nearly opaque deep brown; garnet highlights reveal brilliant clarity at the edges of the glass. (3/3)

Flavor: Initial caramel malty sweetness up front with significant currant and ripe dried prunes giving way to creamy coffee, then lightly roasted notes of Italian roast coffee beans in the background. No hop flavor, but moderately high hop bitterness is present, providing balance but still accentuated by the alcohol. Subtle roastiness emerges mid-palate into the finish. Fermentation and finish are clean, no diacetyl or other off flavors. (17/20)

Mouthfeel: Full-bodied silky texture with smooth, soft carbonation. Alcohol warmth gives way to a clean, not-quite-dry finish that transforms to an all-over warming sensation. (5/5)

Overall Impression: Caramel and crystal malts carry the alcohol, with sweetness up front, a rich, complex fruitiness of dried prune and currant, with a clean roast coffee finish. Surprisingly significantly hopped. Richness is something between a hydraulic sandwich and a dessert, sort of like coffee and doughnuts and schnapps all together, but better because it's constructed that way. Definitely a social beer, one to share with friends over weekend brunch or for dessert. (8/10)

Total Score: (43/50)

Aroma: Stone fruits come through first, with notes of dates and prunes. Licorice and molasses in the background, along with some roasted malt and coffee. There is a slight graininess underneath that grows in intensity as the beer warms. The alcohol strength is evident, but there is a touch of solvent. (10/12)

Appearance: Very dark brown color, almost opaque with a long-lasting beige head. The clarity is very good. (3/3)

Flavor: Starts with chewy malt and a complex blend of baker's chocolate, treacle and licorice. The dark fruits from the aroma are evident here as well. The front end is all about malt, but the hop bitterness and alcohol bring up the rear and keep the beer from being cloying. Fermentation esters add complexity, but a low level of solvents impairs the balance. Roasted malts also help dry out the finish and add some smokiness, but stop just short of adding burnt flavors. (17/20)

Mouthfeel: The chewy, creamy malt character floats on the palate. The alcohol warmth is evident, but not as harsh as expected from the aroma. (5/5)

Overall Impression: A very nice example of the style with a great balance of roasted/dark malts, alcohol and hop bitterness. It would be a notch better if the solvent character was more subdued, but this may mellow out as the beer ages. I will have to find a second bottle to enjoy in 2011. (8/10)

Total Score: (43/50)

Aroma: Modest alcohol mixed with moderate coffee and roasted grain with a light bit of dark/dried fruit. Slight hop nose. The alcohol and roast are most prominent; both could settle down a bit. Fruity/sweet malty notes are subdued; more would be welcome. Sharp nose. (8/12)

Appearance: Huge tan head, tiny bubbles, tight foam, persisted very well. The foam settled into a dense, rocky head—very pretty. Very dark brown color, almost black. Opaque. (3/3)

Flavor: Roasted notes starting out, giving a burnt taste that lasts throughout. Alcohol is sharp. Moderate hop flavor. Bitterness a touch high, probably enhanced by the alcohol—it's at the medium level. Coffee and dark chocolate with some malty sweetness that has a background flavor of deep bread crusts and dark caramel. However, the hops, roast and alcohol mask most of the malty richness. Clean fermentation character—smooth lager. (13/20)

Mouthfeel: Full body, creamy—very nice. Warming, hot—too prominent—needs age. High carbonation lends a silkiness when combined with the body. All very nice except for the alcohol heat. (4/5)

Overall Impression: Roast character is too aggressive—the black malt flavor dominates and isn't part of the traditional examples. The alcohol is dominating at this point. However, it's a bottle-conditioned beer, so it should age well. With the alcohol, bitterness, and roast smoothing out, this should have a lot of complexity. Right now, it's like an imperial stout done as a lager. Maybe use some Carafa® Special instead of black malt—the black is bringing out the wrong flavors. (7/10)

Total Score: (35/50)



THE JUDGES' SCORES FOR SUMMIT MAIBOCK



Aroma: Pils malt with noticeable toasty character is up-front but does not hide appreciable alcohol or the hint of spicy/floral hops. There's no diacetyl or DMS. Very clean, with no fruity esters. Very inviting, like a big, rich toasty Helles or Dortmunder. (10/12)

Appearance: Fairly deep golden color with bright clarity; thin, with lingering head. Well carbonated. Very pretty beer. (3/3)

Flavor: Pils malt and toasty/roasted malt character up-front. High hop bitterness is a bit over the top. Very light spicy hop flavor. Noticeable alcohol but not hot. No fruity esters. No DMS. No diacetyl. Toastiness in malt, high hop bitterness, alcohol, and full attenuation lead to a very dry but balanced finish. (16/20)

Mouthfeel: Medium bodied, medium-high carbonation. Smooth without astringency. Alcohol warming without being hot. Bitterness lingers in the mouthfeel. (4/5)

Overall Impression: The toasty/roasty maltiness, the noticeable but clean alcohol and the low hop aroma and flavor are all very nice and appropriate to style. The high hop bitterness and dryness remind me of an imperial Dortmunder rather than a Helles Bock which exhibits the malt character and is supported by hop bitterness. I would like to have had more malt in the finish, a slightly higher final gravity, and lower hop bitterness in order to not be quite as dry and to better represent the Maibock/Helles Bock style. (7/10)

Total Score: (40/50)



Aroma: Toasted bread with graham cracker melanoidin malt aroma, followed by cinnamon spicy hops and notes of lightly fruity alcohol; has a rose and pear quality. Otherwise clean fermentation. No DMS noted. (9/12)

Appearance: Brilliantly golden clear. A light layer of palest yellow foam rises, but does not fully come to a head; nor does it linger beyond a light layer on the surface of the glass. Rouses nicely, but does not persist. More bubbly than moussey. (2/3)

Flavor: Graham cracker bready melanoidin malt richness comes on strong, with moderate spicy hop flavor reminiscent of cinnamon providing complexity and balance. Malt is pleasantly sweet. Malt backbone gives way, taking a back seat to a fairly pronounced hop bitterness that accentuates a moderately dry, crisp finish. Light pear-like esters are present, lightly accentuating a background alcohol note that gets stronger as the sample warms a bit. Hop bitterness lingers at the finish. (17/20)

Mouthfeel: Medium bodied with moderate carbonation. Low alcohol warmth lingers with a light astringency. Somewhat dry finish. (4/5)

Overall Impression: The malt character is quite pleasant, rich and complex, accented with the cinnamon spicy Noble hop flavor. Midway, the hop bitterness seems a little more than the 30 IBUs described for the high end of the style. This was quite enjoyable for a hophead like myself, though the beer seems to walk a tightrope over Pils and Helles Bock. I think it might take a glass or two, just to make up my mind which it fits better. (8/10)

Total Score: (40/50)



Aroma: Breedy malt up front with some underlying graininess and a low level of DMS. Malt is not as intense as many examples and would be enhanced with more complex toasted melanoidins. The fruity esters are a little elevated for a German lager and contribute pear and tropical fruit notes. I pick up some alcohol in the background but it is appropriately restrained. (9/12)

Appearance: Golden color with brilliant clarity. Carbonation level is appropriate, but head retention falls a little short of expectations. (2/3)

Flavor: The flavor begins with pleasant breedy malt, with light toast and cracker notes underneath. The caramel character is a little intense, adding sweetness but not complexity. Fruity esters are low to moderate, with pear notes accented by the sweet malt. The finish dries out quickly and has a moderately high bitterness accented by mineral notes. A softer finish would bring the focus back on the malt. (15/20)

Mouthfeel: The beer has some desirable mouthfeel components that do not quite coalesce. The caramel malt adds sweetness and body, but hangs on the palate until it yields to the grainy astringency that lingers in the finish. (3/5)

Overall Impression: This is a good example of the Maibock style but the malt character misses the mark in terms of complexity and smoothness. The continental malt character is not as intense as it could be in the aroma and flavor, and the graininess makes the finish a little harsh. It seems like caramel malts were used to boost the sweetness, but it might be worth looking at alternatives such as a more intensive decoction malt or a longer boil. (7/10)

Total Score: (36/50)



Aroma: Moderately intense mix of spicy hops and breedy malt. Light hint of sulfur. Malt has a grainy-sweet Pils malt character. Some alcohol adds to the spiciness. Fairly clean, but the alcohol is a bit rough. The spiciness masks some of the malt aroma. Some toasty malt character emerges as it warms. (9/12)

Appearance: Beautiful deep golden color. Crystal clear. Tall, persistent off-white head. (3/3)

Flavor: Strong malt flavor initially, grainy and Pils-like. Moderate to moderately-high spicy hop flavor (alcohol is enhancing the spiciness). Moderately high bitterness, some coming from alcohol. Finish is dry and a bit sharp. Some of the grainy flavors come out more in the finish. Clean fermentation, smooth lager character, very fresh. As it warms, some toasty notes become evident, and the Pils malt gets a slight DMS flavor (at acceptable levels). Malty palate but not sweet; aftertaste is almost all hops and minerals. (15/20)

Mouthfeel: Medium-full body. Moderate carbonation. Alcohol heat is a bit rough, and merges with the grainy malt flavors and mineral gypsum-like water flavor to give a slightly astringent character. Creamy palate but dry, flinty finish. (3/5)

Overall Impression: Seems a bit young—could benefit from more conditioning. The alcohol is a little too rough. The hop bitterness and flavor are a touch high, and tend to mask the malt. The water profile could be a bit softer; seems like it has a gypsum character, which makes the finish dry and mineral. A little more malt richness and complexity would help, although that may be there if the hops and water salts weren't getting in the way. I like the flavors; this is clearly a well-crafted beer. (8/10)

Total Score: (38/50)

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Pairing Beer and Umami



the pleasure created by the enhancement or triggering of umami sensations, but are unaware of what is really happening.

Most individuals can identify four of the basic five taste sensations we experience in our mouth and with our tongue: salt, sweet, bitter, and sour. Umami is the fifth and is a dynamic taste sensation that we all experience but usually fail to acknowledge with anything other than an elevation of silent or expressed pleasure.

What is umami? It is not a single flavor; rather it is a range of flavors often insufficiently described as brothy or savory with a particular associated mouthfeel. There

Most discussions regarding food and beer pairing emphasize the perfect marriage. It is remarkable to beginning beer enthusiasts how well beer pairs with certain foods. In my preparation in presenting an October workshop at Slow Food's Salone del Gusto in Italy, I discovered the fascinating dynamics of a fundamental taste called umami.

Ryouji Oda (of the Japan Craft Beer Association), one of my Japanese mentors in this endeavor, emphasized that food and beer pairings are not about the marriage of the two, but the emergence of the pleasure of tastes that are neither about the independent character of the food nor the beer. As he summarized, "It is about the child. This is the final result. Keep it simple—bring out umami."

At my hour-and-a-half workshop, I revealed the fundamentals of why beer and food often pair well. Umami, its origins, identity, influence, and impact in beer and with beer determines much of what we experience in "great combinations of food and beer." Most people experience



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are different kinds of proteins in food. It's the triggering and intensification of certain protein flavors that result in the umami "flavors and mouthfeel." Chemically, the principal umami characters originate from glutamate: seaweed, certain vegetables such as tomatoes, inosinate (meat and fish), and guanylate (certain mushrooms) proteins.

Combining different elements of umami creates intensified flavor experiences. Combining acidic food and beverages with umami proteins also intensifies flavor experiences.

Oysters and stout are a great combination, but it is the child, the emergence of a separate sensual flavor, that is the joy of this "marriage." The acidity from the beer fermentation and especially the contribution from roast malt and roast barley in stout trigger the emergence of umami proteins in oysters, resulting in a "wow" experience.

For those who have had the pleasure of miso soup in a Japanese restaurant or at home, it is the brothy elevation of umami that is the experience. Dried bonito flakes contain fish-derived umami, but boiled in

water alone, the taste is flat and not that interesting. Kombu seaweed contains a high level of glutamate protein and is also quite boring when boiled in water and tasted alone. But when these two elements are combined along with the acidity of fermented miso, the taste experience is highly elevated.

What are some foods that are particularly high in umami?

- Soy sauce
- Fish sauce
- Parmesan cheese (the more aged, the more umami)
- Slow-cured meat; prosciutto and other (the longer cured, the more umami)
- Anchovies, sardines, mackerel
- Scallops and oysters
- Ripe tomatoes
- Chinese cabbage
- Shiitake and porcini mushrooms
- Seaweed, particularly kombu
- Slow and long-cooked chicken and meat broths developed from cooking meat and bone

When enjoying beer with meals, it is worthwhile to understand:

- Umami often subdues sour/acidity, bitter and sweet
- Umami is elevated by sour/acidity, salt and bitterness
- Umami intensifies the taste of salt
- Umami balances bitter and sour/acidity

Often Americans think umami is sweet. People might say scallops are sweet, but they aren't actually "sweet"—it is the umami proteins that have been accented in skillful preparation.

Cheese is naturally a great pairing with beer. Cheese has protein umami (some as noted above as aged more than others) and is accented by salt in the cheese and the acidity in beer. The complex acidity of roasted grains in dark beers goes a long way in elevating the pleasurable taste experience. We say beer "pairs" well with cheese. But actually what is happening is that beer is elevating the umami of cheese and beer. The child is the experience.

Let's talk about some generalizations and misperceptions that have developed. People say Belgian beer goes well with food. Yes it does, but are all Belgian beers suited to elevate taste experiences? If so, how? It could be generalized that many Belgian beers with their fruitiness and high alcohol tend to mimic wine, and coincidentally the culture of wine and food is well established. Also Belgian beers were on the frontier of "sour" sensations and we know that this acidity elevates umami. But what about the sensation of "sweet" and less bitter that can generally characterize many types of Belgian brews? This trend doesn't necessarily move toward elevating beer and food experiences. Or does it?

I think sweet beers can be good aperitifs, served before a meal. Why? Enjoying a mildly sweet beverage creates an environment in the mouth that elevates an umami trigger. Residual sugars in the mouth are acted upon by naturally occurring bacteria, producing acidity. That is why after enjoying a sweet and fruity aperitif such as champagne or sweet-tasting beer, acidity develops. Now then, sitting down to your first bite of umami-rich food such as seafood or meat creates a "wow" experience with that first mouth-



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Carla Vitoria's BarleyWheatWine Ale

ALL GRAIN/MASH EXTRACT RECIPE

INGREDIENTS

for 5.5 U.S. gallons (21 liters)

6.5 lb	(3 kg) Maris Otter two-row English pale malt
3.0 lb	(1.36 kg) English mild malt
2.5 lb	(1.15 kg) wheat malt
8.0 oz	(225 g) Belgian aromatic malt
4.0 oz	(113 g) Belgian Special-B malt
3.0 lb	(1.36 kg) light malt extract syrup or 2.4 lb (1.1 kg) very light DRIED malt extract
8.0 oz	(225 g) dark rapadura (Brazilian unrefined sugar cane juice crystals or cake)
2.0 oz	(56 g) Liberty hops 4.5% a.a. (9 HBU/252 MBU) 60 min
1.0 oz	(28 g) Vanguard hops 5.4% a.a. (5.4 HBU/151 MBU) 30 min
1.25 oz	(35 g) Mt. Hood hops 4.2% a.a. (5.25 HBU/147 MBU) 10 min
2.0 oz	(56 g) Cascade hops, 1 min
1.0 oz	(28 g) Crystal hop pellets, dry hopping
0.25 tsp	(1 g) powdered Irish moss
Cry Havoc lager/ale yeast or other malt emphasizing lager type yeast	
0.75 cup	(175 ml measure) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.085 (20.4 B)

Target Extraction Efficiency: 71%

Approximate Final Gravity: 1.024 (6 B)

IBUs: about 51

Approximate Color: 15 SRM (30 EBC)

Alcohol: 8% by volume

DIRECTIONS

A step infusion mash is employed to mash the grains. Add 13 quarts (12.4 l) of 140° F (60° C) water to the crushed grain, stir, stabilize and hold the temperature at 132° F (53° C) for 30 minutes. Add 6.5 quarts (6.2 l) of boiling water and add heat to bring temperature up to 155° F (68° C) and hold for about 30 minutes. Raise temperature to 167° F (75° C), laut 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 malt extract, rapadura and 60-minute hops and bring to a full and vigorous boil.

The total boil time will be 60 minutes. When 30 minutes remain, add the 30-minute hops. When 10 minutes remain, add the 10-minute hops and Irish moss. When 1 minute remains, add the 1-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 to 45 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 5.5 gallons (21 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 two weeks or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary and add the hop pellets for dry hopping. "Cellar" the beer at about 55° F (12.5° C) for about one month or when fermentation is finished. Prime with sugar and bottle or keg when complete.

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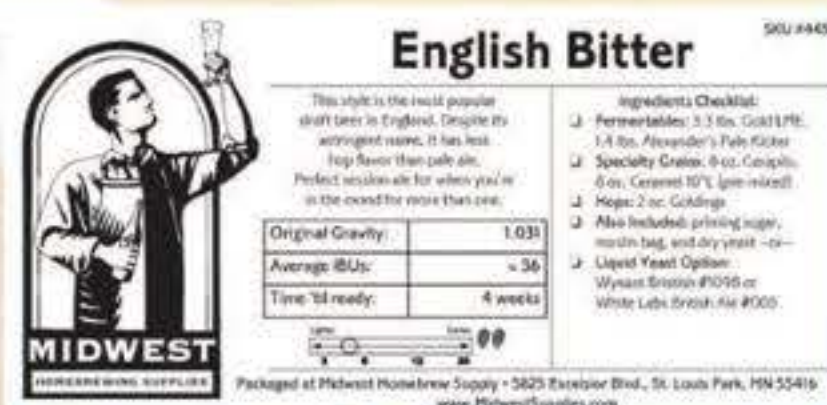


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ful. Sweet beers throughout the meal, I would conclude, depress sensitivity to food and their flavor potential. Personally I enjoy the bitter and natural fermented acidity of pale ales, Pilseners, and bitters as my choice of aperitif, but then taste is always a personal preference.

All beers are acidic and can react with food having umami proteins. Fermented and aged food also develops umami, triggering and enhancing character. Rich, robust beers and hoppy beers can have umami themselves and thus interact with food through their contribution of umami synergy. Wines contribute to umami experience, but the variety and flavors of wine are limited compared to beer. Roasted, caramelized, torrefied, and toasted malts in beer contribute significantly in elevating umami. Does yeast have umami? I believe so, though I did not come across any references to this since beer is not generally studied among culinary schools of thought when it comes to this topic. But there is protein in yeast, and who can deny the rich texture, mouthfeel, and flavor-enhancing properties of yeast-infused beer. Hefeweizen, kellerbier, real ale, wit? Absolutely umami in my book.

Simply speaking for those who enjoy meat, seafood, and mushrooms, we accent their flavor with salt, sour, and bitter. Beer offers acidity and bitterness.

In the Salone workshop, I demonstrated umami character with the following food and beer demonstrations:

* Side-by-side comparison of two different presentations of fresh, high quality raw beef as beef tartare. Both had a touch of sea salt and newly pressed Italian olive oil. The difference in one was that it had 12 ounces of Allagash White beer blended into it. The taste of the beer was not evident in the tartare, but participants all noted that the serving of tartare with added beer had an elevated taste sensation. This came from the acidity and (I think) yeast protein (umami) that the beer offered as a flavor enhancer. After the comparison, participants were asked to enjoy The Bruery's Oude Tart with the tartare and discover how flavors were even more enhanced

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Carla Vitoria's BarleyWheatWine Ale

EXTRACT WITH MINI MASH RECIPE

INGREDIENTS

for 5.5 gallons (21 liters)

7.0 lb	(3.2 kg) light malt extract syrup or 5.6 lb (2.5 kg) light DRIED malt extract
2.5 lb	(1.15 kg) wheat malt extract syrup or 2 lb (0.9 kg) DRIED wheat malt extract
3.0 lb	(1.36 kg) English mild malt
8.0 oz	(225 g) Belgian aromatic malt
4.0 oz	(113 g) Belgian Special-B malt
8.0 oz	(225 g) dark rapadura (Brazilian unrefined sugar cane juice crystals or cake)
3.0 oz	(84 g) Liberty hops 4.5% a.a. (13.5 HBU/378 MBU) 60 min
1.0 oz	(28 g) Vanguard hops 5.4% a.a. (5.4 HBU/151 MBU) 30 min
1.25 oz	(35 g) Mt. Hood hops 4.2% a.a. (5.25 HBU/147 MBU) 10 min
2.0 oz	(56 g) Cascade hops, 1 min
1.0 oz	(28 g) Crystal hop pellets, dry hop
0.25 tsp	(1 g) powdered Irish moss
	Cry Havoc lager/ale yeast or other malt emphasizing lager type yeast
0.75 cup	(175 ml measure) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.085 (20.4 B)

Target Extraction Efficiency: 71%

Approximate Final Gravity: 1.024 (6 B)

IBUs: about 51

Approximate Color: 15 SRM (30 EBC)

Alcohol: 8% by volume

DIRECTIONS

Heat 1 gallon (3.8 l) water to 172° F (77.5° C) and add 3.75 lb of crushed grains 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 45 minutes. Have a homebrew.

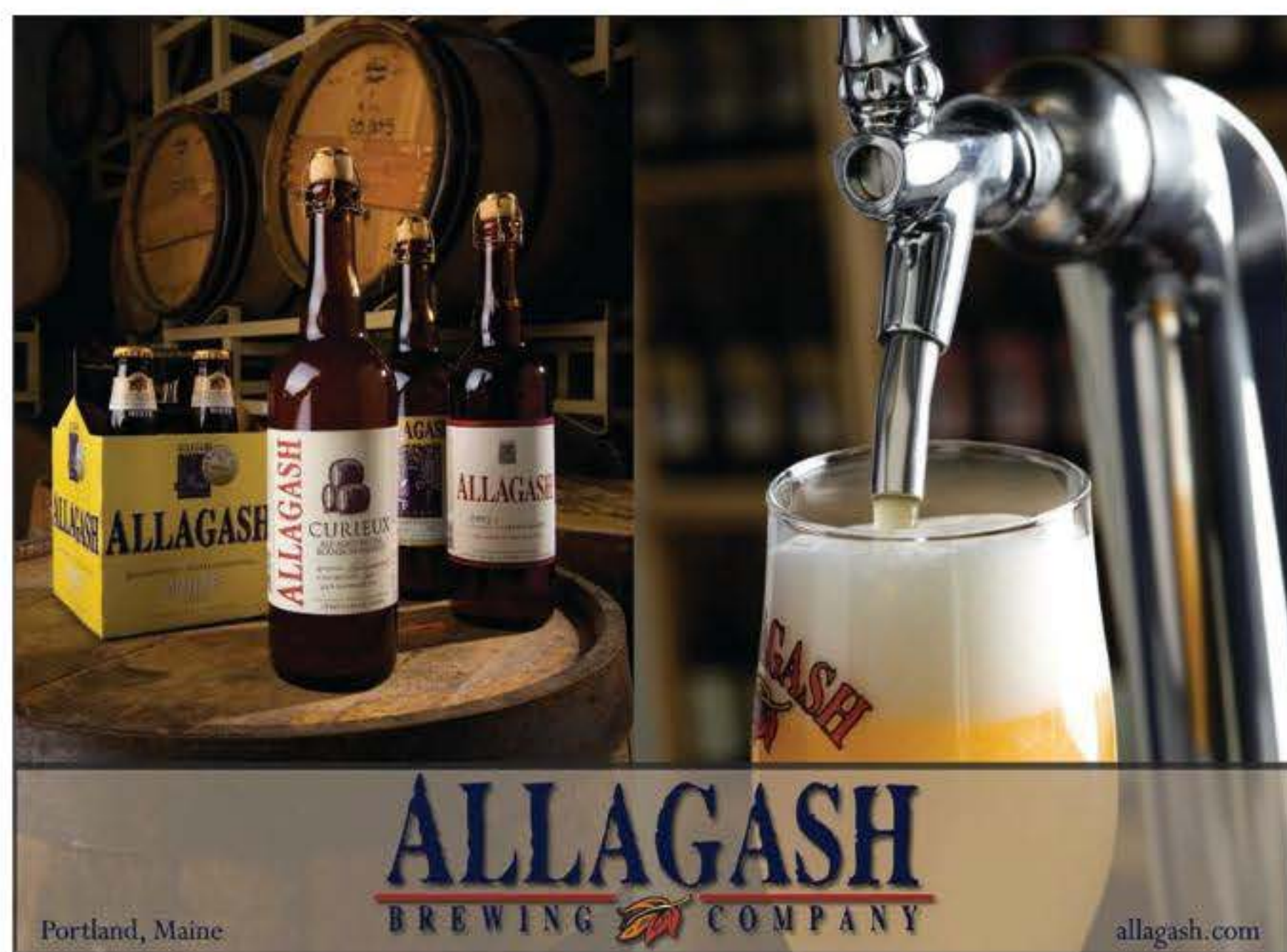
After 45 minutes, add heat to the mini-mash and raise the temperature to 167° F (75° C). Pass the liquid and grains into a strainer and rinse with 170° F (77° C) water. Discard the grains.

Add more water to the sweet extract you have just produced, bringing the volume up to about 2.5 gallons (9.5 l). Add malt extracts, rapadura sugar and 60 minute hops, and bring to a boil.

The total boil time will be 60 minutes. When 30 minutes remain, add the 30-minute hops. When 10 minutes remain, add the 10-minute hops and Irish moss. When 1 minute remains, add the 1-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 to 45 minutes. Continue to chill in the immersion or use other methods to chill your wort. Strain

out and sparge hops and direct the hot wort into a sanitized fermenter to which 2 gallons (9 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 two weeks or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary and add the hop pellets for dry hopping. "Cellar" the beer at about 55° F (12.5° C) for about one month or when fermentation is finished. Prime with sugar and bottle or keg when complete.



with this Belgian-style sour red Flemish beer. Allagash White was also served, noting the protein character of the yeast and light, refreshing fruitiness.

- Side-by-side comparisons of two aged Parmigiano Reggiano cheeses, one 18 months and the other 24 months. Over time, umami protein character develops as was demonstrated with this tasting. Then participants were asked to enjoy Deschutes Black Butte Porter, a beer rich in roasted malt character, whose pleasant acidity greatly elevated the flavor experience of the Parmesan cheeses.

The salt of the cheese was suppressed by the porter.

- A fresh, not so flavorful tomato was presented as only a visual reminder that tomatoes offer umami synergy. Why does a roast beef sandwich taste better with a slice of tomato? Umami. With tomato-accented foods such as pizza, it is no wonder that beer contributes wonderfully to elevating the experience of pleasure.
- A small serving of Spanish sardines packed in olive oil was paired with

Maui Big Swell IPA, a hoppy, floral, and complex beer. Participants were asked to taste beer and note the flavors, then taste the sardine and note the flavor of sardine. Another taste of sardine and then back to beer. How were the flavors changed and enhanced? Were participants beginning to recognize and understand the character of umami—both flavor and mouthfeel?

- Aged prosciutto was presented with Victory Prima Pils, a hoppy and refreshingly bitter lager with the typical acidic undertone of beer fermentation. The salt of the meat was suppressed by the Pilsener, and back-and-forth tasting revealed umami elevation and a separate “child” taste borne of the marriage.
- Finally, 80-percent cacao chocolate was paired with Rogue Hazelnut Brown Nectar, a malty brew with roast and nutty character. The process of creating quality chocolate involves fermentation of the cacao bean, slow roasting, and managing humidity, temperature, mechanical processing, and time. I strongly suspect that umami potential can be carefully developed with chocolate and that is exactly what results, especially with artisanal chocolate producers. That it goes so well with beer in creating its own childlike experience speaks for itself.

Food and beer is not the marriage; it is about the child. Keep it simple—bring out umami. Elevate pleasure.

Our daughter Carla is now one year old. A commemorative barleywheatwine was brewed in February 2010, a month before she was born. Brewers Association programs manager Pete Johnson helped with this, his first homebrewing experience. It was bottled in October 2010. Brewed with a touch of roasted and toasted malts—mild malt, aromatic malt, Special B malt—this brew will age slowly and patiently as a beer to be savored years from now. Will it elevate umami experiences? I believe so. I hope to report back in a decade or two.

Charlie Papazian is founder of the American Homebrewers Association. 



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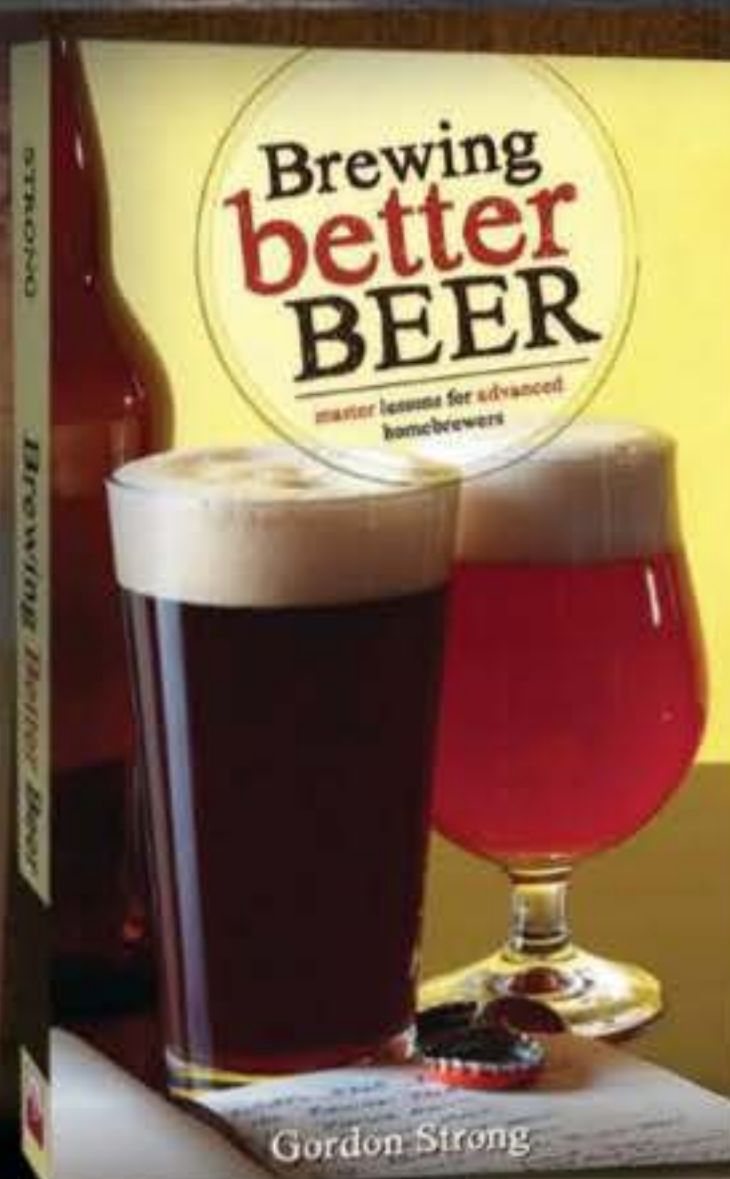
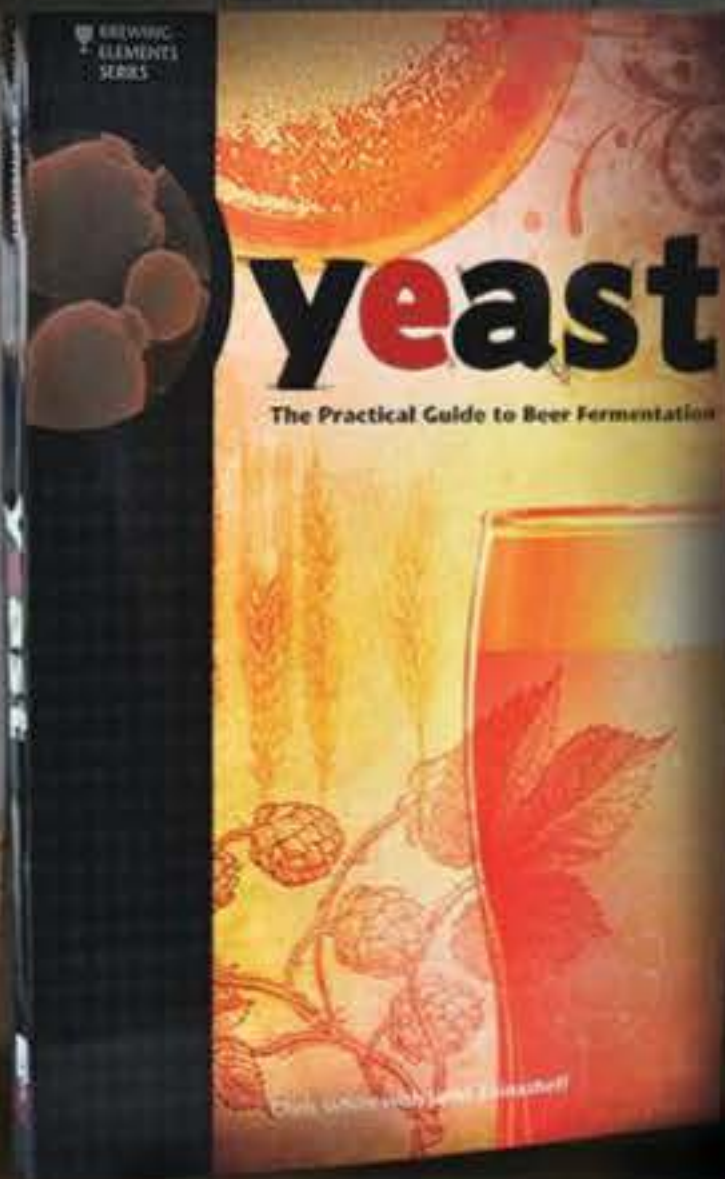
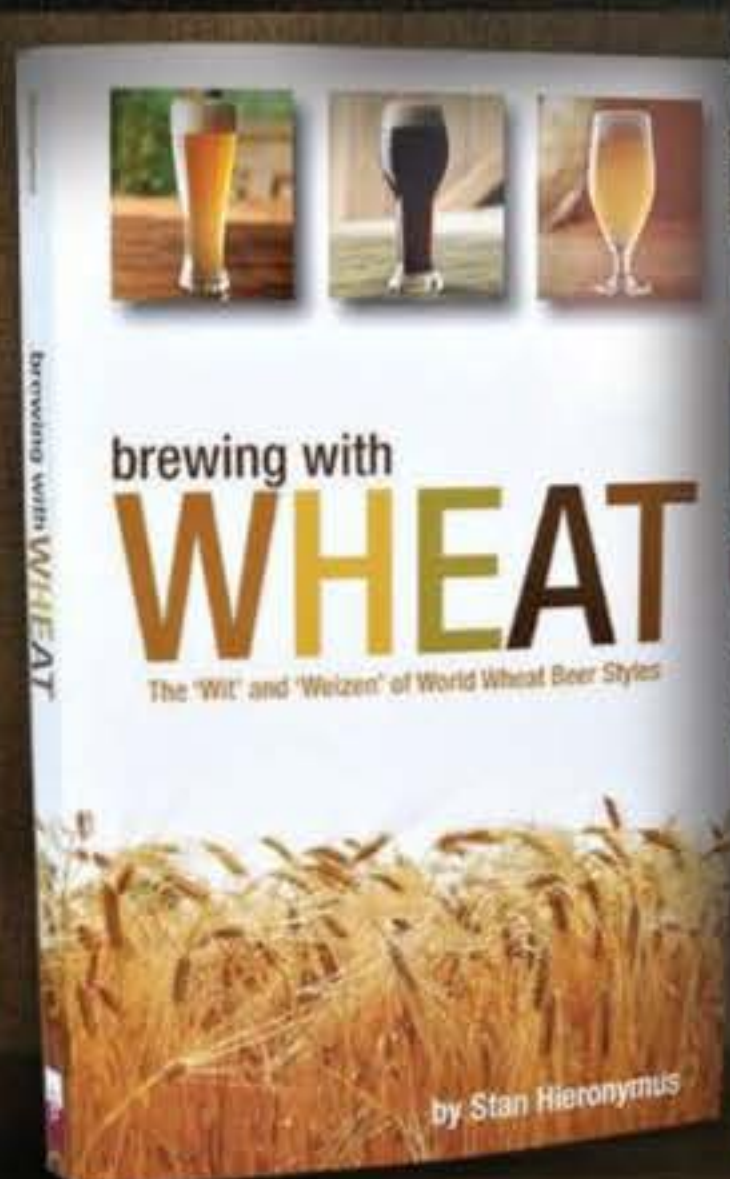
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Water with Attitude

The second question I am asked when I introduce a friend to homebrew is, “What’s in it?”

And I have to explain—there are no ingredients in beer. It’s a common misconception—there are plenty of influences on beer. There are experiences and acquaintances that shape the personality of a beer, just like there are experiences and acquaintances that shape a person’s growth into adulthood. Those experiences, influences, and acquaintances directly affect the outcome of both. But there are no ingredients in beer.

The first influence is the grain. It can range from the better-safe-than-sorry English two-row, the playful caramel, or the in-your-face German smoked. But once it has made its acquaintance, once the grain has imparted its influence, the beer moves on to the kettle. The grain is left behind in the lauter tun like an outgrown playground friend. Sure, the water is much better for having met the grain and has now blossomed into a sweet young wort. But make no mistake about it. There is no grain in beer.

Next come the hops. They can have the regal dignity of the noble Hallertauer, the folksy familiarity of the outdoorsy Cascade, or the stiff upper lip of a Kent

Goldings. Each will leave its distinguishable, indelible mark. But trust me—once it does, the beer moves on to the primary fermenter. The hops are left behind in the kettle like an old high school sweetheart. The wort is more layered and balanced now. But there are no hops in beer.

Finally, the yeast. It may have the over-the-top spiciness of a Bavarian wheat beer yeast, the fruity assertiveness of *Brettanomyces*, or the drollness of an Irish ale yeast. It lives longest with the wort, changing it from liquid confection to a mature, mind-altering libation that is very much a function of the yeast’s own character. But at the end of the day, once it has done its job, the yeast is left behind in the fermenter like an old college roommate. No. There is no yeast in beer.

When you get right down to it, beer is really water with attitude. There are no ingredients in beer.

What’s the first question I’m asked when I introduce a friend to homebrew?

“How’d you get the cap on?”

Neil Sullivan is a healthcare attorney in New Jersey who has been brewing for 20 years.

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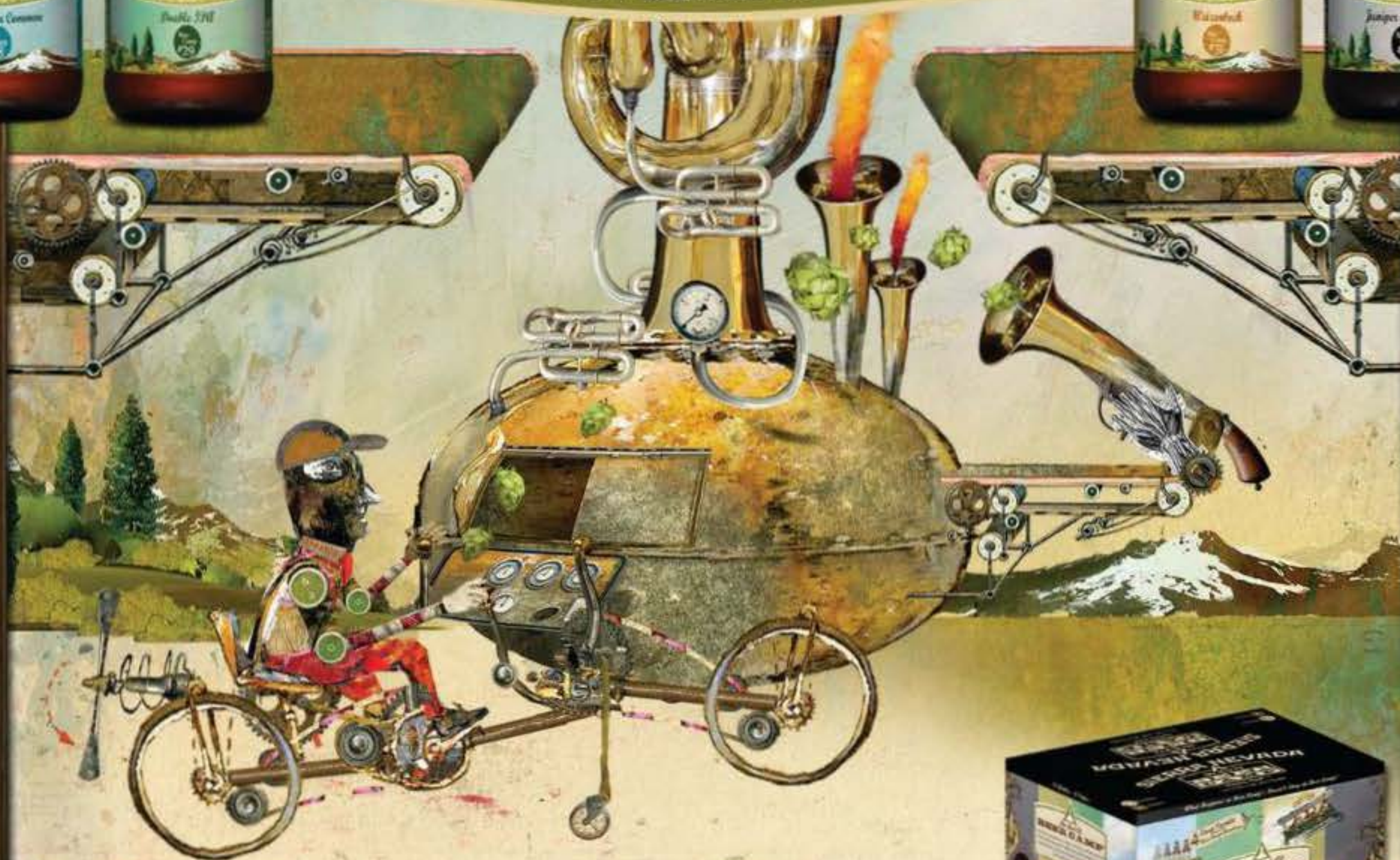
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