Vol. 38 ✻ No. 5 | September/October 2015

FOR THE HOMEBREWER & BEER LOVER

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by Jill Redding

Brew's Up, Indeed

News and notes from the 2015 National Homebrewers Conference in San Diego June 11-13:

- Congratulations to the Maltose Falcons, the second recipient of the Radegast Club of the Year Award. The Falcons, who celebrated their 40th anniversary last year, received the award at the grand banquet on June 13. Along with a mash paddle presented by sponsor Yakima Chief-Hopunion, the Falcons received $500, and an additional $500 will be donated to the charity of their choice. The Falcons have implemented Brew with a Falcon Day and a Troubleshooter's Corner to mentor new homebrewers and help members improve their homebrew. In addition, the group collects toys for the Spark of Love Toy Drive organized by the Los Angeles Fire Department, and raises money for various charities. The Radegast Award, nicknamed the "Awesome Club of Awesomeness Award," recognizes clubs who have an impact on their communities. Eighteen homebrew clubs from around the country submitted applications for the 2015 award. Kudos to all homebrew clubs for teaching the world to brew, and for giving back to their communities!

- "Brewing with Experimental Hops: A New Hop Variety Just for Homebrewers" was one of the most popular seminars at the conference. Attendees came away with knowledge of how a hop variety is developed, plus samples of HBC 438, an experimental hop developed by the Hop Breeding Company. The hop, used by Russian River's Vinnie Cilurzo to brew one of the six commemorative beers for the conference (Ron Mexico), imparts notes of tropical and stone fruit, orange, and a unique herbal and mint character.

- Tomme Arthur, founder of The Lost Abbey and Port Brewing, delivered the keynote address to a packed room. Arthur got his start in 1995 when he received a homebrew kit for his college graduation. "I have nothing without homebrew and I am everything because of homebrew," Arthur told the attendees. The 2008 World Beer Cup® Champion Small Brewer and three-time Great American Beer Festival® Brewer of the Year also brewed one of the commemorative beers (Lemon Yellow Sun). "We are in an age of incredible opportunity," he said of the current craft brewing revolution. "But we can only go as far as the homebrewing community takes us."

- Brewers Association chief economist Bart Watson shared some statistics about homebrewing in an industry-only seminar. Current trends include more all-grain brewing; smaller batch sizes, including 1-gallon and 3-gallon; changes in brewing frequency; a shift from DIY equipment to high-end equipment; fewer casual hobbyists; and more homebrewers going pro. Some of those "homebrewers gone pro" presenting seminars at the conference included Stone brewmaster Mitch Steele. "This is one of my favorite events of the year," admitted Steele. "I'm an old homebrewer. I haven't homebrewed in a while and I miss it." Another one, Peter Zien, owner of AleSmith Brewing Company, is a past president of the QUAFF homebrew club. "I love homebrewers—I want to give you all a big hug," said Zien. "Homebrewers are fueling the craft beer renaissance."

ON THE WEB

Learn more about experimental hop HBC438 @ HomebrewersAssociation.org/hbc438

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

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

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ON THE WEB

Find more homebrewing recipes on our website @ HomebrewersAssociation.org/homebrew-recipes

Cover photo © Souders Studios

beerOscope

>> GET THERE!

CHARLOTTE OKTOBERFEST

The Carolina BrewMasters, a Charlotte-based homebrew club, will host the 17th annual Charlotte Oktoberfest on October 3 at the NC Music Factory in Charlotte, N.C.

The event, sponsored by Lagunitas Brewing, is one of the largest beer festivals in the Southeast. More than 100 breweries will be pouring at the event, which also includes live music, fun activities, and food vendors.

Charlotte Oktoberfest has raised more than $500,000 for local Charlotte charities in its first 16 years. This year's beneficiaries include the Ada Jenkins Center, Beds for Kids, Greater Charlotte SPCA, and Operation Homefront – Carolinas.

For more information, go to CharlotteOktoberfest.com.

September 17-20
Addison Oktoberfest
Addison, TX
addisontexas.net

September 18
San Diego Festival of Beer
San Diego, CA
sdbeerfest.org

September 18-20
Telluride Blues & Brews Festival
Telluride, CO
telluridebluesbrews.com

September 19
Texas Craft Brewers Festival
Austin, TX
texascraftbrewersfestival.org

September 19-October 4
Oktoberfest
Munich, Germany
oktoberfest.de

September 24-26
Great American Beer Festival®
Denver, CO
greatamericanbeerfestival.com

October 3-4
Handmade Bike & Beer Festival
Portland, OR
bikeandbeerfest.com

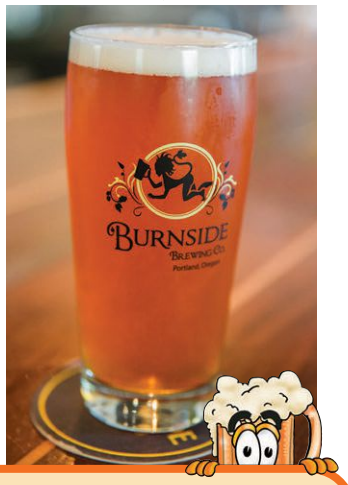
October 17
Nashville Beer Festival
Nashville, TN
nashvillebeerfestival.com

October 24
Lighthouse Beer Festival
Wilmington, NC
lighthousebeerfestival.com

For more craft brewing events, go to CraftBeer.com

>> YOU'VE GOTTA DRINK THIS

BURNSIDE OATMEAL PALE ALE



The explosion of craft breweries has led to an unprecedented number of fabulous beers to taste and enjoy. Experimenting with new beers is especially exciting with family and friends, as we did recently in Portland, Ore. This pale ale has a deep golden color with a hint of sweetness up front. The oatmeal provides a slight slickness in the mouthfeel of this lovely pale ale.

Oatmeal Pale Ale is more in the English style of pale ales with little or no hop aroma but a nice earthy hop flavor. The bitterness of the beer is balanced nicely by the complex malt flavors. This beer is slightly hazy with small bubbles and a pure white head that sticks on the side of the glass. It's a wonderful drinking beer with a lingering hop finish.

Reviewed by Tom and Lars Vedvick (father and son), homebrewers and BJCP judges

Share your favorite beer with us! Send your description, in 150 words or fewer, to zymurgy@brewersassociation.org. Feel free to include a photo!

Photos courtesy of Carolina BrewMasters (top); Burnside Brewing Co

>> GREAT PRODUCT

WHAT'S NEW FROM HYDRO FLASK

TRUE PINT

Travel with it, camp with it, use it at your next party! The 16-ounce True Pint is made from 18/8 food-grade stainless steel and the double wall vacuum provides insulation power to keep your beverage cold for hours. Hydro Flask products are BPA-free, 100-percent recyclable, and are backed by a lifetime warranty.

The True Pint was modeled after a standard pint glass, with a few tweaks. A slight interior angle not only aids in a smooth pour, but also opens up the aromas while tipping the glass to drink. When stacked, True Pint glasses won't stick together due a ledge built into the bottom.

Hydro Flask gives 5 percent of its net profits back to 12 different non-profits through its charitable arm.

The True Pint retails for $21.99 and is available in blue, black, orange, stainless steel, and brown. To order or to learn more, go to hydroflask.com.

>> BREW NEWS

ZYMURGY'S 10TH ANNUAL GADGETS ISSUE

Hey homebrewers! It's time for Zymurgy's 10th annual Gadgets issue (January/February 2016)! Have you created your own brewing equipment, or tweaked your existing equipment to make your brew day easier? Or, have you discovered a brewing-related use for a common (or not so common) household item?

If so, please upload a description of your gadget along with (high-res) photos at HomebrewersAssociation.org/gadgets-submission. Please include your city and state, and, if relevant, your homebrew club. Submissions are due by September 18. Thanks in advance for helping us make the 10th annual Gadgets issue the best ever!

>> BEER QUOTE

"People in Germany are homebrewing radical beers—which is so awesome."

—**Randy Mosher**, author of *Radical Brewing*, remarking on the explosion of homebrewing around the world

>> CLUB NEWS

THE ST. LOUIS BREWS CELEBRATE 30 YEARS

St. Louis' oldest and largest homebrew club, The St. Louis Brews, celebrated its 30th anniversary on July 26.

The St. Louis Brews club was founded in 1985, at a time when homebrewing, and for that matter craft brewing, was just a dormant, almost unfathomable idea in the shadow of St. Louis' brewing behemoth. Several intrepid adventurers—noted author and brewer Dave Miller, John Sterling, and the club's own David Nitzche, among others—embarked on a pioneering journey that has paralleled the growth of craft beer.

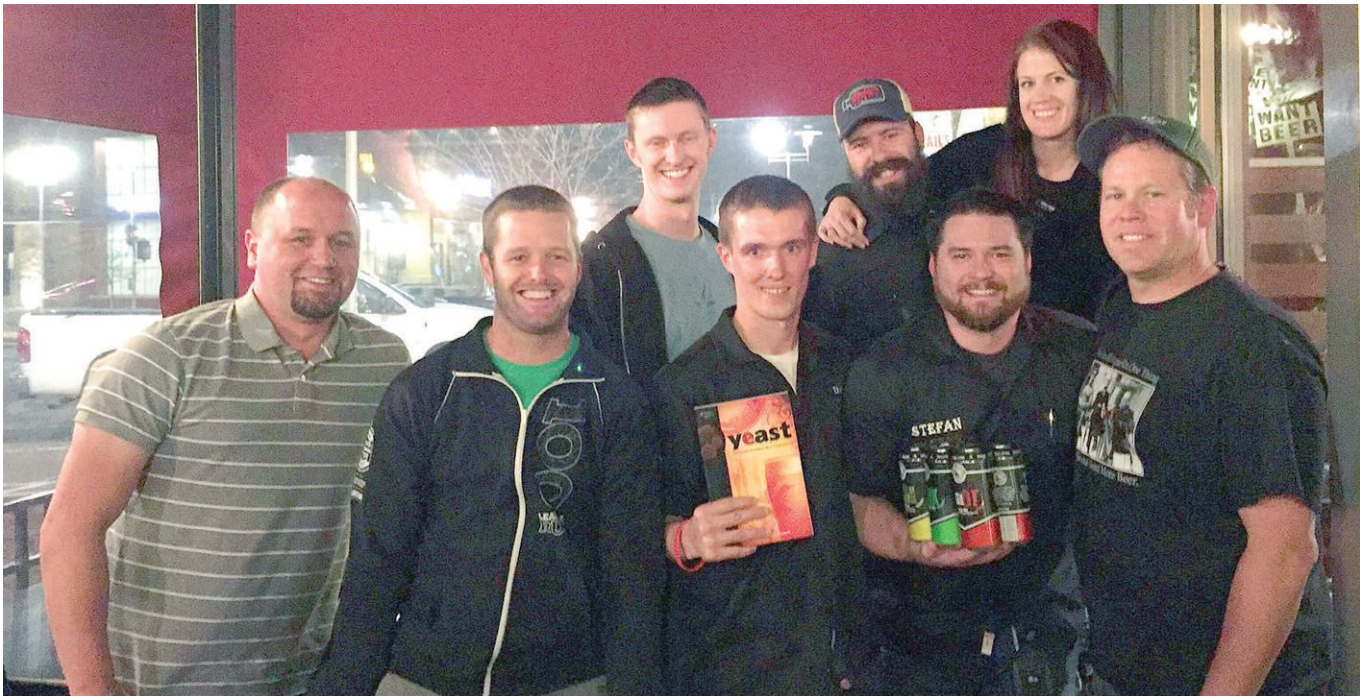
Thirty years later, The St. Louis Brews is still a vibrant, active 150+-strong group of homebrewing enthusiasts. The club celebrated its milestone with a Schlafly-brewed 30th anniversary St. Louis Brews Saison from an internal club competition.

Brewing author Stan Hieronymus has commented of The St. Louis Brews, "When beer writer Michael Jackson called homebrewers 'the shock troops of the beer revolution' he was talking about members of clubs like The St. Louis Brews. They are instruments of change, and as anybody who has sampled a beer at an event where they are pouring knows, that change is ongoing!"

Photos courtesy of Hydro Flask (top); The St. Louis Brews (bottom)

>> CLUB NEWS

FERMENTOLOGISTS COLLABORATE WITH DAD & DUDE'S



The Fermentologists homebrew club, Centennial, Colo.

The Fermentologists, a Centennial, Colo.-based homebrew club, held its second members' only competition with Dad & Dude's Breweria in Aurora, Colo. This collaboration competition, a quarterly event exclusive to the club, focused on yeast. At stake was the opportunity to brew on a professional system and have the winning beer on tap at the brewery and Two Penguins Tap & Grill.

"We were excited to invite the club to join us and look forward to doing this again with them," said Brian Connery, head of brewing operations at Dad & Dude's Breweria. "Since all of us here at Dad & Dude's started as homebrewers, we know what kind of an opportunity it is for them."

Club members were asked to form groups of no more than four and develop a recipe based on one of four specific yeast strains.

WLP 565 Saison I: "Classic Saison yeast from Wallonia. It produces earthy, peppery, and spicy notes. Slightly sweet. With high gravity saisons, brewers may wish to dry the beer with an alternate yeast added after 75 percent fermentation."

> **"IT WAS IMPORTANT FOR US TO COLLABORATE WITH A BREWERY THAT FITS OUR FOUNDING PRINCIPLES: EDUCATION, COMMUNITY, AND COMPETITION"**
>
> — Scott Davidson
> club president and co-founder

WLP 566 Saison II: "Saison strain with more fruity ester production than with WLP565. Moderately phenolic, with a clove-like characteristic in finished beer flavor and aroma. Ferments faster than WLP565."

WLP 585 Saison III: "Produces beer with a high fruit ester characteristic, as well as some slight tartness. Finishes slightly malty, which balances out the esters. Also produces low levels of clovey phenolics. Great yeast choice for a summer saison that is light and easy-drinking."

WLP 568 Saison Blend: "This blend melds Belgian style ale and saison strains. The strains work in harmony to create complex, fruity aromas and flavors. The blend of yeast strains encourages complete fermentation in a timely manner. Phenolic, spicy, earthy, and clove-like flavors are also created."

Each recipe was designed to highlight the different characteristics of each yeast strain. Some brewers used seasonal fruits to enhance yeast esters, others used specific grains like rye to boost spice and clove characteristics, and some added adjuncts to complement phenolic earthy flavors.

On March 8, club president and co-founder Scott Davidson hosted a brew day at his house, providing club members with an opportunity to talk about recipes, discuss brewing techniques, and share homebrew. Recipes included pineapple ginger saison, sourdough bread saison, black saison, cantaloupe saison, blood orange saison, and a saison made with dates.

When the beers were done fermenting, the club met at Dad & Dude's for the judging. The judging panel consisted of brewers

Photo courtesy of The Fermentologists

HOME BREWERS GEAR FOR BEGINNERS TO EXPERTS

carhartt x BREWERS ASSOCIATION

ASSOCIATE MEMBER

Bloodrocuted!

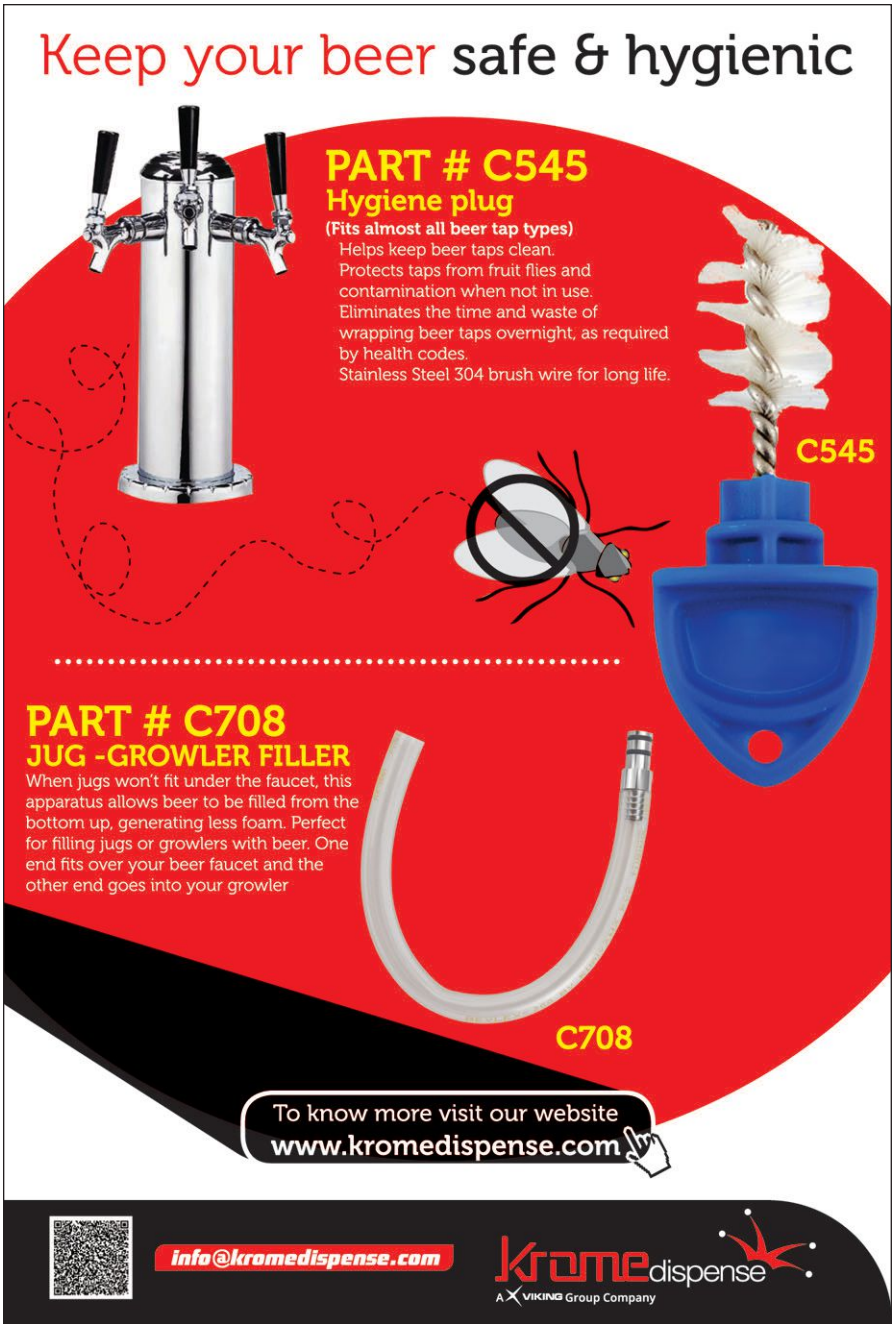
BLOOD ORANGE SAISON — RECIPE BY STEFAN HATFIELD, JOE WILLIAMS, DAN OLDS, AND MARC CAVENDER

INGREDIENTS
for 6.5 U.S. gallons (25 L)

12.0 lb	(5.4 kg) Belgian Munich malt
0.75 lb	(340 g) torrified wheat
0.75 lb	(340 g) American Vienna malt
0.5 lb	(227 g) clover honey (0 min)
1.0 oz	(28 g) Falconer's Flight pellets, 10% a.a. (45 min)
0.5 oz	(14 g) Motueka pellets, 7% a.a. (10 min)
0.5 oz	(14 g) East Kent Golding whole leaf, 5% a.a. (0 min)
5 cups	blood orange puree
5 tsp	blood orange zest
White Labs WLP566	Belgian Saison II Yeast

Original Gravity: 1.058
Final Gravity: 1.010
ABV: 6.37%
SRM: 8.17
Boil Time: 60 minutes

DIRECTIONS
Single infusion mash at 147° F (64° C) for 90 minutes. Ferment at 68° F (20° C).



from Dad & Dude's—Sean, Bard, and Brian—who were joined by Brian Pramov, president of the Rock Hoppers Brew Club, and James and Sarah Howat, owners of Former Future Brewing Company. Each judge was given a scoresheet to provide critical feedback, tasting notes, and a score of 1 to 10 on each element of the beer.

The winning recipe was a blood orange and honey saison brewed by Stefan Hatfield, Joe Williams, Dan Olds, and Marc Cavender. The team brewed a scaled-up version of Bloodrocuted on April 29 at Dad & Dude's Breweria, making a few minor changes to the recipe.

"It was important for us to collaborate with a brewery that fits our founding principles: education, community, and competition," said Davidson. "Brian and his team at Dad & Dude's take risks and challenge the industry head-on. They continuously exceed expectations from the founding days of brewing on homebrewing equipment, to canning their signature DANK IPA, to barrel aging beers."

Dad & Dude's and The Fermentologists will continue the collaboration competitions quarterly, with each style and parameters decided by Connery and the Dad & Dude's team. The next quarterly competition was to focus on wet hopped IPAs with hops from Voss Farms in Aurora.

Dad & Dude's continues to champion homebrewers by supporting not only The Fermentologists, but hiring homebrewers to become professional brewers. Bard Nielsen's Liquid Resume, a pale ale, earned Nielsen a job at the brewery, which he soon turned into the head brewer position. He is now head brewer at El Rancho Brewing Co. in Denver.

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SAMUEL ADAMS
SESSION IPA
SAMUEL ADAMS
REBEL RIDER IPA
SESSION
4.5% ALC./VOL.
WEST COAST STYLE
12 FL OZ. ALE
SAMUEL ADAMS
REBEL IPA
SAMUEL ADAMS
REBEL IPA
WEST COAST STYLE
REWED FOR THE REVOLUTION
6.5% ALC./VOL.
SAMUEL ADAMS
DOUBLE IPA
SAMUEL ADAMS
REBEL ROUSER
DOUBLE IPA
WEST COAST STYLE
8.4% ALC./VOL.
BOLD YET MELLOW SESSION IPA WITH GRAPEFRUIT & TROPICAL FRUIT NOTES
FULL OF WEST COAST HOP CHARACTER WITH BRIGHT GRAPEFRUIT & RESINOUS PINE
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By Gary Glass

South Beer Cup

AHA director Gary Glass with members of Somos Cerveceros.

Photos courtesy of Gary Glass

This past May I was fortunate to be invited to judge and speak at the South Beer Cup in Mar del Plata, Argentina. The South Beer Cup is a competition, conference, and beer festival for South American breweries. I was joined by fellow Norte Americano judges and presenters Fal Allen, brewmaster for Anderson Valley Brewing Co. and co-author of *Barley Wine: History, Brewing Techniques and Recipes*; John Palmer, author of *How To Brew* and co-author of *Water: A Comprehensive Guide for Brewers*; Pete Slosberg, founder of Pete's Brewing Co. and author of *Beer for Pete's Sake*; Gordon Strong, president of the Beer Judge Certification Program and author of *Brewing Better Beer* and *Modern Homebrew Recipes*; and Chris Swersey, Brewers Association technical brewing projects coordinator and competition manager.

South America is experiencing rapid growth in craft breweries, fueled by a burgeoning community of homebrewers. At the conclusion of the commercial beer judging, Gordon and I were invited to help judge the best of show round for the national homebrew competition organized by Somos Cerveceros (We Are Brewers), the national organization for Argentinian homebrewers. The winners of the homebrew competition were announced at the start of the South Beer Cup awards ceremony.

One of the highlights of the South Beer Cup was sampling a homebrewed IPA during a reception at Antares, the largest craft brewery in Argentina. The beer was made by AHA member Hernan Castellani, and was so good that Fal, Pete, and I all had to go back for seconds. Hernan sent me his recipe, included here, which uses hops that are hard to come by in the U.S. and extremely hard to get in Argentina.

Many thanks to Martín Boan, chief organizer of the South Beer Cup, for inviting me to participate and covering all of my travel expenses as well. It was a great opportunity to see the excitement that is going on with homebrewing and commercial craft brewing in South America. As I said in my presentation, homebrewers "son el mismo en toto el mundo" (are the same in all the world). The enthusiasm and thirst for knowledge of Argentine homebrewers is no different than that of homebrewers in the United States.

National Homebrewers Conference

The 37th annual AHA National Homebrewers Conference held in San Diego June 11-13 was another resounding success. We had 2,800 members descend upon the Town and Country Resort for an incredible time of beer, camaraderie, education, and fun.

The conference concluded with the grand banquet and awards ceremony, where the medal winners for the National Homebrew Competition—the world's largest beer competition—were announced. The recipes for all of this year's gold medal entries are featured in this issue of *Zymurgy*.

Want to get a sense of what the conference is all about? Check out the awesome video from the 2015 conference on AHAConference.org, then make plans to join us at the 2016 National Homebrewers Conference in Baltimore June 9-11.

AHA Governing Committee Meeting

Every year on the Wednesday prior to the start of the National Homebrewers Conference, the member-elected AHA Governing Committee holds its annual in-

IPA Deluxe (American IPA)

RECIPE BY HERNAN CASTELLANI

INGREDIENTS

for 50 L (13.21 U.S. gallons)

9.542 kg	(21.03 lb) pale ale malt (89%)
643 g	(1.42 lb) dextrin malt (6%)
536 g	(1.18 lb) dextrose (5%)
40 g	(1.41 oz) Apollo pellets, 17.7% a.a., 90 min
30 g	(1.06 oz) Amarillo pellets, 8.6% a.a., 15 min
20 g	(0.71 oz) Centennial pellets, 9.7% a.a., 10 min
20 g	(0.71 oz) Crystal pellets, 4.3% a.a., 10 min
30 g	(1.06 oz) Citra pellets, 11.1% a.a., 5 min
50 g	(1.76 oz) Amarillo pellets, 8.6% a.a., 0 min
60 g	(2.12 oz) Centennial pellets, 9.7% a.a., 0 min
50 g	(1.76 oz) Citra pellets, 11.1% a.a., 0 min
40 g	(1.41 oz) Crystal pellets, 4.3% a.a., 0 min
25 g	(0.88 oz) Citra pellets, 11.1% a.a., dry hop
35 g	(1.23 oz) Crystal pellets, 4.3% a.a., dry hop
30 g	(1.06 oz) Simcoe pellets, 12.2% a.a., dry hop
4 g	calcium chloride (mash)
9 g	calcium sulfate (mash)
2.5 g	Whirlfloc (15 minutes)
0.5 g	yeast nutrient (15 minutes)

Safale US-05 yeast

Original Specific Gravity: 1.060 (14.7° P)
Final Specific Gravity: 1.012 (3.1° P)
ABV: 6.25%
SRM: 4.4
IBUs: 51.5
Brewhouse Efficiency: 90%
Boil Time: 90 minutes

DIRECTIONS

Single step infusion mash at 65° C (149° F) for 90 minutes. Ferment at 20° C (68° F) with Safale US-05.

Extract Version: Omit pale ale and dextrin malt and replace with 20 lb extra-pale malt extract syrup. Dissolve completely with dextrose and proceed with boil.

From left: Hernan Castellani, Fal Allen, and Pete Slosberg.

Judging at the 2015 South Beer Cup in Mar del Plata, Argentina.

person meeting. In addition, Governing Committee members meet by conference call every month. Members all participate on various subcommittees that hold additional conference calls as necessary, and committee members communicate via email throughout the year. The five-hour annual in-person meeting offers a chance to focus on directing where the organization should be headed in the coming years.

This year's meeting continued with themes brought up in last year's committee meeting: we outlined long-term goals for the association, including support for homebrew clubs, communications with the AHA membership, and expanding diversity within the hobby. In addition, much of the meeting focused on a major research project the AHA is conducting to help us better understand the needs of homebrewers and how to introduce more people to the hobby. The AHA Governing Committee is helping to translate that ongoing research into action. The suggestions from the 15 engaged members of the Governing Committee will be incorporated into the 2016 annual plan we are drafting for the AHA.

Another action item for the meeting was the election of a representative from the

Governing Committee to serve on the Brewers Association (the parent organization of the AHA) Board of Directors. The AHA Governing Committee has two representatives that serve on the Brewers Association board. Governing Committee member Chris P. Frey was elected to serve a third term on the Board of Directors. Congrats to Crispy and thank you for so ably representing the AHA.

The members of the Governing Committee do extremely important work on behalf of the AHA membership. This fall, we will be looking for members to nominate candidates for the 2016 Governing Committee election. Look for the call for nominations on HomebrewersAssociation.org, the AHA Forum, and in the What's Brewing e-newsletter. If you or someone you know would make a great candidate for the Governing Committee, please consider submitting a nomination.

Diversity

The stereotype of the homebrewer as the 40-something white dude with facial hair is so passé. While I happen to closely resemble that stereotype, we all know that homebrewing is a hobby for anyone and everyone (of legal drinking age, of course). Thankfully, we have seen growing diversity in homebrewing, but there is room for improvement. Women made up about 5 percent of responses to a recent survey we conducted of homebrewers, though that same survey indicated that around 30 percent of homebrewers have a spouse or partner who participates in the process, which in my book makes them homebrewers too, even if they may not self-identify as such. Over the past several years at the National Homebrewers Conference, a noticeable shift in attendance has included both more women and more non-white homebrewers.

During the AHA Members Meeting at this year's conference, a member voiced concern about some shockingly offensive comments directed toward women, overheard while waiting in line for a homebrewer event prior to the conference. I've also heard from another member who overheard rude comments regarding the race or sexual orientation of other attendees. I believe these comments come from a very small portion of the homebrewing community—in my 20+ years of homebrewing, I personally have never heard such comments from fellow homebrewers—but this type of behavior negatively affects our whole community.

It is important to be cognizant that the things we say, our behavior, and the names we give our brews, our events, and our competitions influence others and can have a lasting impression on would-be homebrewers. Let's strive to make that impression a positive one! Let's welcome diversity and benefit from the fresh ideas a more diverse homebrewing community will bring.

Learn To Homebrew Day

The American Homebrewers Association's annual Learn To Homebrew Day is coming up on November 7. Help your friends and family discover the joy of homebrewing by hosting a Learn To Homebrew Day site. Participating is easy! Check out the Events section of HomebrewersAssociation.org for information on how to celebrate, register a site, and get copies of *Zymurgy: An Introduction to Homebrewing* to distribute to your homebrewers-in-training. You'll also find tons of resources for new homebrewers in the Let's Brew section of HomebrewersAssociation.org, including an easy-to-follow how-to-homebrew video. Plus, look for the soon-to-be-released Learn To Homebrew Day video starring homebrewer Kyle Hollingsworth, better known as the keyboard player for the band The String Cheese Incident.

Homebrew Club Insurance

The deadline for enrolling in the AHA-endorsed homebrew club insurance program is September 1 (not long after this issue starts hitting mailboxes). See westinsurance.com/homebrewers for details and to enroll.

AHA at California Craft Beer Summit

If you are planning to attend the California Craft Beer Summit in Sacramento September 11-12, stop by the AHA booth and say hi. Thanks to the California Craft Brewers Association for generously providing the AHA with a booth and offering me an opportunity to speak at this inaugural event.

Until next time, happy homebrewing!

Gary Glass is director of the American Homebrewers Association.

TO ALL OF THE 2015 NHC ATTENDEES, THANK YOU!

SEE YOU NEXT YEAR IN BALTIMORE, MD

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Hops from A to Zzzz

Photo courtesy of Jason Smith

Dear *Zymurgy*,
Paul Hanlon's article on toxicology in the May/June 2015 *Zymurgy* was excellent and very informative!

One issue that Paul did not mention was the soporific qualities of hops. According to many sources, hops provide a sedative and soporific (sleepy) effect on humans. From what I can find, it appears that these effects are from the volatile hop oils. The effects appear to be (mostly or completely) from inhalation (e.g., hop pillows to help you sleep). So when you are "evaluating" that hop-burst super IPA, what soporific or sedative effects are the hops producing? Of course, to properly sample the IPA, you'll be sniffing it (inhaling those tantalizing aromas), and also as you taste it your aroma sensors will greatly enhance your blissful hoppy experience.

Questions for Paul:
1. Are the soporific effects of hops from inhalation documented in the toxicology world, and are they temporary or cumulative? If so, what are the toxicological conclusions?
2. In general, is an effect such as sedative or soporific considered to be toxic if it has no harmful side effects (either temporary or long-term)?

Thanks again for the great info!

Nelson Crowle

Author Paul Hanlon responds: Nelson, thanks for the questions and glad you enjoyed the article. The soporific effects of hops are not something that I have ever looked into, and you're the first one to ask.

To answer your first question, it seems as though the majority of the available information falls into the "home remedy" camp, but some scientific articles discuss it as well. I couldn't find any discussion about the adverse effects of using a hop pillow, or of the increased effects of using hops as a sedative over a long period of time. I wouldn't consider the soporific/sedative effects of hops to be something to be concerned about for several reasons.

I haven't found any evidence to suggest that the effects would be cumulative, and I haven't found anyone concerned about these effects from a toxicological point of view. One thing I did look for was data for the high-dose group, and I found this by looking for occupational exposure to hops. Our beloved hop farmers are exposed to far more hop aromatics than even the most fervent hop-head, so I looked to see if their exposure to high amounts of hop aromatics was correlated to any adverse effects. What I found was a suggestion that hop farmers may be at a higher risk for respiratory diseases (sciencedirect.com/science/article/pii/S1081120614005547), although the incidence rate (15 cases in 10,000 individuals) is still not exceedingly high. But this wouldn't worry me if I was a homebrewer, or a hop pillow fan. Hop farmers have exposure far higher than you are ever going to see, and those effects in hop farmers seem to be due more to the exposure to the dust generated in the hop harvesting process than anything unique about the hops (such as aromatics). So I couldn't find any evidence linking those soporific effects to long-term health effects.

Additionally, if we are talking about inhalation of those wonderful hop aromatics while drinking a beer, I'm sure the sedative effects of the alcohol in that beer far outweigh those from the hops. A hop pillow might result in exposure sedative effects with near constant exposure to those aromatics for a long period of time.

As to your second question, one of the hot topics in food toxicology aligns with this issue—the concept of the difference between an adverse effect and an adaptive effect. Toxicologists in the food industry are working on communicating more effectively that important difference, as it is another aspect that is often misinterpreted when science is reported. Often adaptive effects are reported as adverse effects, without further demonstrating that the adaptive effects correspond to true toxicity. In carefully controlled toxicology studies (using Good Laboratory Practice or GLP), controls are built in to help differentiate an adaptive response from an adverse response. For example, while a change in circulating alanine aminotransferase (ALT) may be indicative of liver injury, it could also be an adaptive response. The way a GLP study would differentiate the two is by looking for other endpoints that indicate liver injury (such as a change in liver weight or microscopic examination of the liver).

An example of this relevant to homebrewing is the adaptive and adverse effects associated with drinking alcohol. If you drink alcohol,

your liver will increase the production of some detoxification enzymes. This is an adaptive response, as over time the amount of these enzymes will return to baseline and this effect would not be adverse. However, with excessive exposure to alcohol over a long period of time, you may end up with circulating ALT (a "biomarker"), which might lead to evidence of cirrhosis or fatty liver—both of which are true adverse effects.

Troubleshooting the Brewing Process

Dear *Zymurgy*,
I wanted to share some positive feedback on this article (For Geeks Only, May/June 2015). I have a master's in instructional design. My job is to take a lot of information, focus in on the key things, and then arrange it in the most helpful way possible for the audience. The author did an amazing job of putting together key information into such an accessible format. It brought together so many tips I have read separately into one table. This will be incredibly helpful for future reference.

It would be cool to make this into a beer troubleshooting web tool. Users could select the off flavor/impact and then get a list of possible causes in each step of the brewing process to consider. Anyway, keep up the excellent work!

Sincerely,
Pete Mitchell

Commercial Calibration

Dear *Zymurgy*
I just read through another Commercial Calibration article (May/June 2015), this time on BJCP category 28C, Soured Fruit Beer, one of the new 2015 categories.

I find two improvements that would be tremendously useful to me.

First, I'd like to see the style category description included in the article. I know the style guidelines are available online, but it would be helpful to reprint the specific style with the article and perhaps include a few comments about the key aspects of the category that judges make particular note of during their consideration. In other words, what sets this style apart? Why is it a separate category?

Second, I'd like to see some rationale from the evaluators as to why they scored each section as they did. Many times it is impossible to tell whether a comment made is positive or negative. For example, Dave Houseman comments on mouthfeel for Dogpatch Sour that it is medium to medium thin. Did this contribute to reducing the score in this area or increasing it? I also could not determine from his comments why he scored 13/20 for flavor. Some explanation for reducing the score by a third is needed.

It seems to me that the whole point of this section is to help the average reader learn more about the judging process. As it is currently written I don't find it very useful in these terms.

Randy Dipner

Zymurgy *editor Jill Redding responds: Thanks for your comments, Randy. Unfortunately we don't have the space to run the full guidelines for each style that we review, but I will make an effort to hit the highlights of each style in the introduction to the column. I've also passed along your comments to Dave, Gordon, Scott, and Beth so they can take them into consideration when reviewing future beers. Readers, please note that since this article published, BJCP category 28C has been renamed Wild Specialty Beer in the 2015 guidelines.*

More on Troubleshooting

Dear *Zymurgy*,
You folks raised the bar with the May/June 2015 issue. The table for "Troubleshooting the Brewing Process" is a great resource I'll refer to for some time. I immediately found a (fixable) fault in my brew after scanning the table.

Also the toxicology piece is outstanding—well done to make a typically dull subject interesting.

Proud to support and be a part of this association.

Best,
Marty Zaluski

Proud New Member

Dear *Zymurgy*,
I just joined the AHA after brewing for about three years now. Browsing through *Zymurgy*, I immediately regretted not joining much sooner.

I wanted to reach out to you to let you know that I am very impressed with the publication and look forward to catching up.

Keep up the great work!

Thank you,
Attila Csokai
Pittsburgh, Pa.

Staying Safe

Dear *Zymurgy*,
After reading "Smart Brewing: The Basics of Homebrew Safety" (May/June 2015), I could not help but recall the accident that I read about in Gordon Strong's book *Brewing Better Beer*. For those unfamiliar, Gordon was preparing a bourbon barrel for an English barleywine. In an attempt to kill the mold in the barrel, he and a brewing partner were using a smoldering sulfur stick. Unfortunately, the bourbon vapors ignited and the barrel exploded, sending shrapnel flying.

Gordon was seriously injured but recovered. I am glad that Gordon is still around to share his insights on brewing, such as his article in that same issue, "Improving Your Homebrew." The safety article is a good reminder to all brewers to practice safety first when brewing.

Mark Flores
Milton, Fla.

Big Brew

Dear *Zymurgy*,
In between fire calls and in preparation of participating in Big Brew 2015, Vin Guadagno is seen in the photo dutifully manning the wort chiller for this refreshing Summer Breeze Honey Pilsner. We continue to rely upon the expertise of our extended *Zymurgy* family to help us brew a better batch every time and look forward to each issue. Thank you and keep the great brewing advice coming.

Happy brewing and stay safe!

Louis Soviero
Massapequa, N.Y.

Can't Drink This

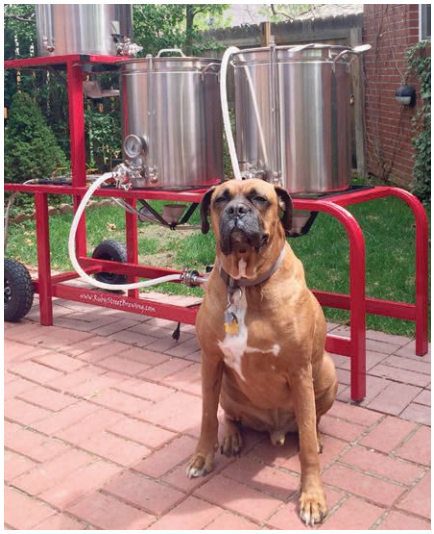
Dear *Zymurgy*,
I was reading the latest *Zymurgy* (May/June 2015) and on page 4 saw the "You've Gotta Drink This" recommendation for Cutter's Floyd's Folly. I couldn't agree more; fantastic beer. I have family in Avon, Ind. and visit the brewery every time I am there. Unfortunately, they are no longer in business [the brewery closed in March 2015]. I wanted to point it out in case someone goes looking for their beer; they won't find it.

Thanks,
Brian Schoolcraft

Zymurgy *editor Jill Redding responds: Thanks for the update, Brian, and we're sorry to hear about the brewery's closing. Readers, we are always looking for contributions to our "You've Gotta Drink This" section in Beeroscope. Just type up a few lines about one of your favorite commercial beers and send them to us at zymurgy@brewersassociation.org. Photos are appreciated!*

Brew Dog

Dear *Zymurgy*,
It would mean a lot if you could put Frank in your Brew Hound section. He was the best dog, friend, and brewing assistant for over eight years. His favorite part of the day was getting a big bowl of spent grains! We will miss you, Frank.



Ryan Kemp,
Denver, Colo.

Send your Dear *Zymurgy* letters to zymurgy@brewersassociation.org. Letters may be edited for length and/or clarity.

Hey homebrewers! If you have a homebrew label that you'd like to submit for the Dear *Zymurgy* section, send it to magazine art director Jason Smith at jason@brewersassociation.org.

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Engineering A Better Beer!

by Professor Surfeit

Oxygenating Wort

The Professor's Note: Here are two recent inquiries regarding oxygenation of beer wort. My response follows.

Dear Professor,
I have been brewing all-grain for about two years and have continually upgraded my equipment and methods trying to make that perfect beer. One of my upgrades is using pure oxygen before pitching. Some members in our club (Shasta Society of Brewers) are using oxygen with good results.

The small cylinders from the hardware store are very expensive and are only good for three to four batches. I have acquired a larger "E" cylinder O_2 tank with a gauge that should be good for many batches, but I am not sure what setting I should use on the regulator. With the small tanks I usually add O_2 for about 30 to 45 seconds, but that is just a guess. For a 5-gallon batch, how many liters of O_2 should be used and for how long? I have not found a definitive answer in brew books or other sources.

Bob Bryceson

Oxygenating wort using an aeration pump and stainless steel diffusion stone.

Photo courtesy of WestCoastBrewer.com

Greetings Professor,
I am looking forward to aerating high gravity worts with pure O_2 using a welding O_2 tank and have a couple questions. First, I've read that one should use a medical-grade O_2 regulator specifically manufactured to deliver low flow rates desirable to homebrewers at 0 to 3 L/min, with an incorporated flow meter to accurately assess the amount of O_2 being dissolved into the wort. If I'm on the right track, do you have any suggestions regarding where such a regulator can be purchased? I haven't yet been able to locate one despite a reasonable amount of searching.

Second, does a 2 micron diffusion stone work just as well as a 0.5 micron stone (I've read that the latter can clog easily)?

Finally, at what OG does it become necessary to aerate with pure O_2, and how long should a flow rate of ~1 L/min be delivered to these high gravity worts?

Keven Hoehntop

Dear Keven and Bob,
Both of you have asked some good questions. There are no simple answers and from the material I've reviewed, the suggestions and science are all over the place. I'm admittedly not an expert, since I don't introduce or bubble pure oxygen into my wort. I get very good results by simply aerating with lots of splashing, shaking, and agitation. From what I've read, this method is as good as if not (sometimes) better than forcing oxygen into your wort.

I think it boils down to observing and understanding your yeast's behavior and resulting beer. If you are happy with your results by shaking and agitating air into your wort, you don't need to use oxygen. But if you are concerned and want to improve consistency, then

you'll need to learn more about oxygenating systems and several variables.

First, a word of caution is in order. Compressed gas can be dangerous and forcefully explosive if not managed properly. Oxygen, while not flammable, will exacerbate any open flame and can be quite dangerous under certain circumstances. To be clear: no open flames while using oxygen!

I've tapped into our team of technical experts here at the Brewers Association and American Homebrewers Association and have reviewed comments from Chris Swersey (technical brewing projects manager), Chuck Skypeck (technical brewing projects coordinator), and Gary Glass (AHA director). I also reviewed several resources, including Yeast *by Chris White and Jamil Zainasheff.*

Yeast, of course, needs oxygen in order to reproduce and then initiate fermentation. This requires mixing it into unfermented fresh wort. The amount of oxygen that can be dissolved into wort depends on many things, such as wort gravity and temperature, pressure exerted on wort (important if you have a 30-foot-high fermenter), and the type of mixing process used. If these factors are not enough to confuse you, here are a few more things to consider: different strains of yeast require different minimum amounts of dissolved oxygen for optimum health. These differences can be quite dramatic; for example one source explains that Wyeast 1187 Ringwood Ale yeast needs around 8.5 or 9 ppm minimum, or you'll get massive diacetyl. In contrast, Chico Ale yeast is good down to 6.5 to 7 ppm or better. If you want to shoot for a good middle-of-the-road dissolved oxygen amount, then 8 to 10 ppm is a safe range for average circumstances.

When you read about super saturations of 11 or higher, be suspicious. Maybe that was an oxygen bubble that got mixed into the measurement; maybe it was a measurement at the bottom of a tall tank where the pressure is greater and that sample at atmospheric pressure would be measured more accurately at about 10. They say super saturation, or dissolving too much oxygen into wort, can be toxic to yeast or at the very least inhibit its metabolism. At the same time, I've read elsewhere that super saturation is a myth; you can only dissolve a limited amount of oxygen into wort at a given gravity, temperature, and pressure—that these are fixed limits imposed by the laws of physics. To help enhance yeast metabolism in the same way oxygen does, having a certain amount of trub transferred along with the finished wort helps. In other words, hazy trub content in finished wort is a good thing for yeast. Another option is to add a minuscule amount of olive oil to 5 gallons of boiling wort. (Some websites suggest to dip the point of a toothpick in olive oil and then dip it into the wort). The unsaturated fatty acids in olive oil provide the precursor chain of molecular events that provide sterols yeast need to build cellular structure; these in part replace what oxygen would provide.

The cooler the wort, the more oxygen you can get into solution. The higher the wort gravity, the more difficult it is to dissolve oxygen into it; this becomes more exaggerated the higher you go over 10° P (1.040). The higher the atmospheric pressure exerted on the wort, the easier it is to dissolve oxygen.

At what pressure you introduce oxygen (or even purified air) depends on where you introduce it. If it is at the bottom of a 20-foot-high fermenter, it's going to take much more pressure to force gas to flow out of the tube than at the bottom of a 5-gallon fermenter. Ultimately you want to exert just enough pressure to create a consistent flow of gas.

How much gas? This is a question about gas flow rate, not about pressure settings. For that you need a flow meter, but do you really want to go to that expense? If so, then a flow of about one liter/minute seems to be adequate. Blowing through a lot of oxygen can get expensive and I don't think it is necessary. Swersey tells me that one very small bottle (about the size of a CO_2 5-pounder) lasts 60 to 70 brews. With his setup he attaches a barb and six feet of 5/16" tubing to the regulator, and a large-gauge stainless hypodermic needle clamped at the other end. He injects directly into the wort transfer line (a tube that directs [gravity] flow from chilled wort into the fermenter); this is at a flow and pressure combination sufficient for the gas to actually move. For him that turns out to be 30 psi and 1.5 to 2 SCFM (standard cubic feet per minute).

If after all this you still want to use oxygen to oxygenate your wort, you should, because it will reduce your worrying. Be careful about foaming; that can be a messy issue. The question about whether to use 2 micron or 0.5 micron stones is up to you, but Swersey's hypodermic injection is an easy alternative. If using stones, Glass recommends that if you don't handle the stone with your bare hands and you wash it immediately after use, then 0.5 microns won't present a clogging problem.

For me I'll stick to rocking, rolling, and a whole lot of shaking it up with good old air.

Relaxing and not worrying,
The Professor, Hb.D.

Photo © iStock/Theeradech Sanin

Flawed Lager

Dear Professor,
I entered several lagers into the National Homebrew Competition. My scoresheet came back with the following flaws: phenolic, spicy.

They commented that the cause was possibly fermenting at too high of a temperature. I don't understand how this happened. I have a small room in my basement where the temperature gets to 50° F (10° C) in the winter. I use two vials in a yeast starter. I lower the wort temperature to 45° F (7° C), oxygenate, and then pitch the yeast. I use a plastic bucket and put the lager in this room. I do a diacetyl rest at 65° F (18° C). I transfer to a carboy and lager in the mid-30s (1 to 2° C) for about four to six weeks.

Then I bottle it and let it bottle condition for about a month at about 65° F. Is this the source of the flaws? Any other thoughts?

Thanks,
David Scheil

Hiya David,
I get confused anytime someone mentions the word "spicy" when describing beer. I know

what spicy means to green chile, panang curry, and pickled peppers, but beer? I also moan whenever spicy is used for describing hop character. Spicy could mean cinnamon, cayenne, thyme, nutmeg, or any other spice; and there are a lot of spices out there. Spicy as a descriptor is too vague. Spicy also doesn't have anything to do with high temperature fermentation, as far as I can recall.

As far as phenolic goes, that too is a term that can be used to describe many elements such as smoky, clove, plastic, and other flavor/aroma notes. But generally speaking and from my knowledge base, phenolic is not a direct result of high fermentation temperatures unless you are using a German hefeweizen yeast where clove-like phenols may be emphasized.

If it tastes or smells like plastic/band-aid phenolic, this most likely is from a yeast contamination. Some strains of wild yeast will produce phenolic off-flavors and aromas. Usually wild yeasts are suppressed at cold lager temperatures, though elevating beer temperature to 65° F for conditioning could theoretically kick any wild yeast present into a phenolic-producing mode. So maybe you're onto something there.

I know this because I used to transfer heavenly tasting beer into my kegs and within a week or so many of them were turning phenolic. Turns out I needed to physically scrub out the keg tube with a brush and kitchen cleanser and even sometimes with alcohol to dissolve unseen gunk that harbored phenolic-producing yeast. I've also seen my prized yeast culture slowly go phenolic on me, most likely due to wild yeast contamination. Cleanliness is essential at every stage—even the final pour from a dirty tap line can contaminate an otherwise perfect beer.

Have you bought a new siphon hose/tube lately? That could be the issue. Old and well-used plastic bucket fermenters will eventually harbor unseen, undesirable yeast. Replace your fermenter bucket with a new one or use glass (or spendy stainless steel).

I hope this helps your lager get unflawed.

Vaguely,
The Professor, Hb.D.

Send your letters to professor@brewersassociation.org.

HOP-FORWARD PILSNERS

BY AMAHL TURCZYN

I was fortunate enough to have three exceptionally talented craft brewers join me for a seminar on Cloning at the January 2015 Big Beers, Belgians and Barleywines Festival in Vail, Colo.: Christian Koch of Elevation Beer Company, John Frazee of Gravity Brewing, and Matt Brynildson of Firestone Walker. Together, we discussed, tasted, and created homebrew recipes for 8 Second Kölsch, Newtonian ESB, and Firestone Walker Pivo Hoppy Pils, respectively (see the July/August 2015 *Zymurgy* for recipes and more).

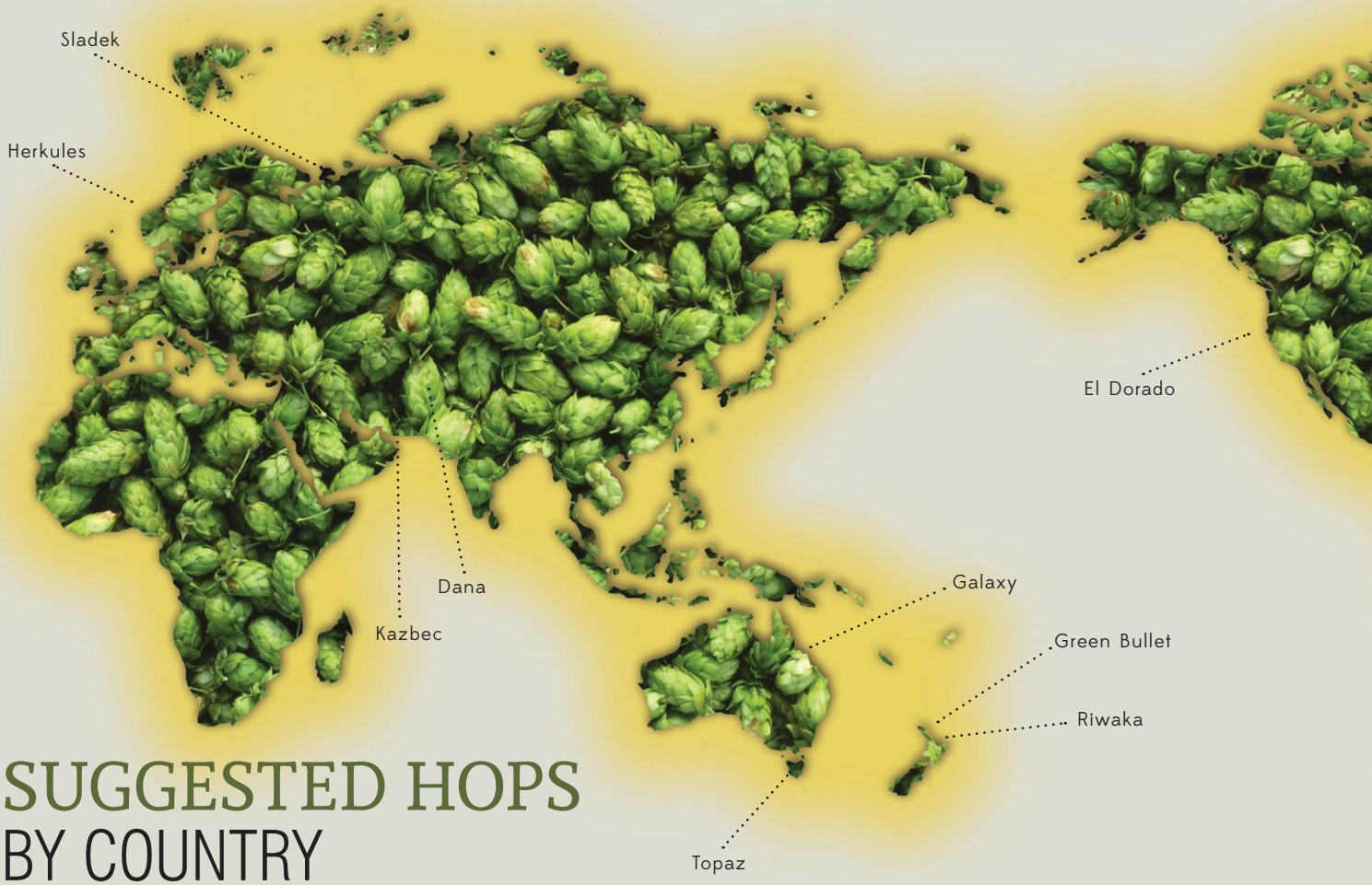
All are excellent, even world-class craft beers, but the philosophy behind Pivo Pils, driven by Brynildson's passion for using a clean, delicate style like Pilsner to showcase all aspects of a hop variety, got me thinking about what I wanted out of my next series of homebrews. I still had a few gallons kegged up in the serving fridge, among them a Scottish 90/-, a gruit lager, a bacon-smoked cider, and an export stout.

But I found myself craving something lighter, drier, and hoppier. I wanted to get some crisp, summery lagers tucked away before the weather became too warm. So for inspiration I picked up another Pivo Pils, along with Stone Delicious IPA that showcases the new Lemondrop hop variety, and got an idea. I would crank out five batches of a Pivo-style Pilsner, using the same base recipe but changing up the late and dry hops.

I placed an order for several pounds of different hops, spurred on by the fact that the new 2014 crop had just been released, and there were dozens of new and experimental hop varieties available that hadn't even been named yet; not just from Washington and Oregon, but from all over the world. Brynildson had remarked that homebrewers could often get their hands on the newest hop varieties even before the big craft brewers. Suddenly, I had aroma hops from all over the world. But of course, Pilsner started in Plzeň.

WHAT MAKES IT A PILS?

When it was first brewed in what is now called the Czech Republic, Pilsner's distinguishing trait was its light color and flavor. Hops, of course, were part of the equation, but it was the relatively new malt kilning technology allowing for a pale, clear beer that set it apart from other mostly dark and cloudy beers of the time. This same distinction of



SUGGESTED HOPS BY COUNTRY

- **Czech** brewers have used **Žatec** hops (Saaz is the German name for Žatec) almost exclusively for their traditional Pilsners, and as the forefather of the style, that hop can be seen as the baseline for all Old and New World Pilsner offshoots. But even the well-known **Saaz** hop has changed, with Slovakia breeding its own hops from Saaz parentage. New hops like **Kazbec,** with its lemon, grapefruit, and spicy herbal notes, are certainly good choices.

- **Polish** brewers have since adopted more regionally distinctive hops like the fruity, floral Saaz offspring **Lublin** (or Lubelski) and woodsy **Marynka** with its cedar and licorice notes; these soon became signature flavor and aroma components in their lagers, differentiating them from classic Bohemian Pils. **Sladek,** another Saaz offspring but with Northern Brewer parentage, is another hop commonly used in Polish lagers, with its distinct peach, citrus, and passion fruit leanings.

- **Slovenia** has some new varieties available as well, with choices like **Dana,** a high-alpha hop with lots of lemon and pine; and **Bobek,** a low-alpha aroma hop with similar character, but perhaps more floral notes. Also look for **Aurora, Celeia,** and good old **Styrian Golding** (Savinja Golding is similar to the Fuggle hop and is grown in Slovenia and Austria).

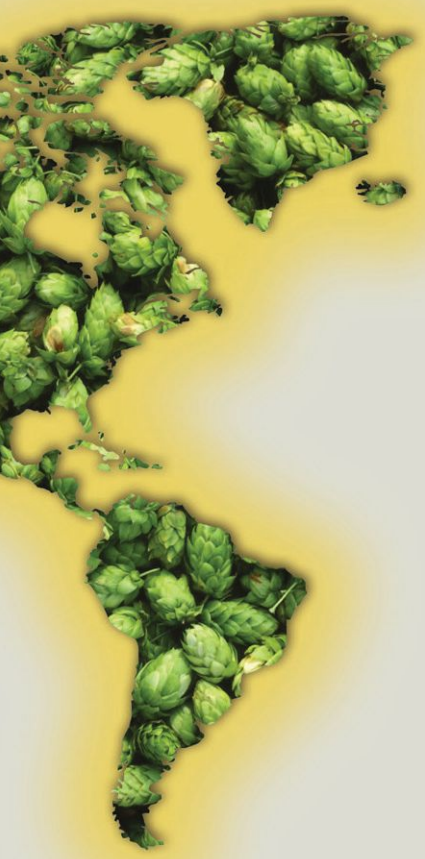
- In addition to **Strisselspalt,** herbal, citrus **Aramis** and grassy, floral **Bouclier** are two relative newcomers that would be at home in a French-style Pilsner.

- **German** brewers have their famous **Hallertau** hop growing region near Munich (now lumped in with Hersbruck), **Tettnang** in Baden-Württemberg, and **Spalt** in Bavaria. These areas produce classic German "noble" aroma hop varieties for the world. But taking cues from American craft brewers, these regions are also beginning to produce oil-rich flavor and aroma hops displaying a wilder, more exotic character: **Hallertau Blanc,** with pineapple, grape, lemongrass, and passion fruit; **Hüll Melon,** with honeydew and strawberry; tangerine-heavy **Mandarina Bavaria**; spicy, fruity, peppery **Opal**; **Herkules,** with its combination of high alpha and melon, black pepper and pine oils; and the minty, super high alpha **Polaris,** just to name a few.

- **American** Pilsner brewers usually relied on locally available but somewhat coarse Cluster hops before and after Prohibition, at least for bittering. Now, of course, the number of American-grown "noble" aromatic varieties suitable for Pilsner beer is nothing short of staggering: **Crystal, Liberty, Mt. Hood, Willamette, Ultra, Santiam, Sterling,** and of course American-grown **Hallertau, Tettnang,** and **Saaz.** And as in Germany, lots of wilder, oil-rich flavor and aroma varieties are available, including **Simcoe, Citra, El Dorado, Lemondrop, Comet, Medusa, Equinox, Palisade, Belma, Jaryllo, Mosaic, Calypso, Azacca,** and **Zythos,** as well as several experimental varieties, many already in use by craft brewers, but as-yet unnamed.

- **Pride of Ringwood** all but defined **Australian** Pilsner for many years, recognizable as the signature, resiny hop flavor in beers like Foster's Lager. Now Australian hop growers too have turned to high oil aromatic

Photos © iStock



varieties emphasizing tropical fruit character like the citrus-and-passion-fruit **Galaxy,** and have a host of new **Victoria-** and **Tasmania-**grown crosses on the way: the fruity, pine scented **Vic Secret**; the tropical, star anise **Ella** (formerly Stella); the apricot and melon laced **Summer**; musky, citrus/apricot **Topaz**; and the raspberry and wine-like **Enigma,** any of which might make for an intriguing late or dry hop.

- Among the more intriguing and distinctive aroma varieties used for Pilsner in **New Zealand** are Saaz cultivars **Motueka,** with its lemon lime notes, and **Riwaka,** with its powerful grapefruit punch and high oil content; the somewhat familiar **New Zealand Cascade**; and **Pacifica,** a Hallertau Mittelfrüh offshoot with orange peel and marmalade highlights. **Nelson Sauvin** is perhaps the most well-known New Zealand variety in North America, with its fruity white wine character, and **Green Bullet** is a lager bittering hop that's been picked up by many U.S. craft brewers. **Kohatu, Pacific Jade, Pacific Gem, Rakau, Wai Iti, Waimea,** and **Wakatu** hops are available if you can find them. But supply, at least for now, is limited: when they run out, they run out.

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light flavor, however, allowed those Saaz hops to really come forward. As other countries began to adopt the style, they used their own local hop varieties, and that became one of the main differences between, say, a Pilsner from the Hallertau region of Bavaria and one from the Žatec region of Bohemia.

There were other distinguishing characteristics as well, with Bohemian Pils becoming known for fuller malt flavors and colors, Danish lagers becoming drier and more mineral-flavored, and German lagers remaining very pale with an earthy emphasis on hop bitterness. But as the world adopted this new style, the importance of hop variety began to take on greater significance. How would one distinguish a craft Pilsner made today in Patagonia, for instance, from one made in India? One made in China from one made in Spain? Ukraine? Argentina? There are now hop breeding programs in all of those regions, and you can bet there are craft and amateur brewers ready to create a beer showcasing their local hop crop. For brewers wishing to proudly display the unique signature of their hop *terroir*, Pilsner is the perfect vehicle.

The canvas for such techniques as first-wort hopping, dry hopping, whirlpool hopping, and late-addition "hop bursting" doesn't necessarily have to consist of a clean, fruity, caramel or dextrin malt-bolstered pale ale. Pilsner is perfectly suited to the task, and is in many ways superior to a hop-forward beer such as IPA in terms of letting the full glory of hop bitterness, flavor, aroma, astringency, savory (umami), and the countless other sensory inputs from hops shine through. Pilsner provides a cleaner, more neutral backdrop. It is often better attenuated. Dextrin and light caramel malts aren't there to block or muffle hop expression. Dry hopping contact time can be longer and at cooler temperatures, minimizing harsh, vegetal, or grassy character.

BREW IT

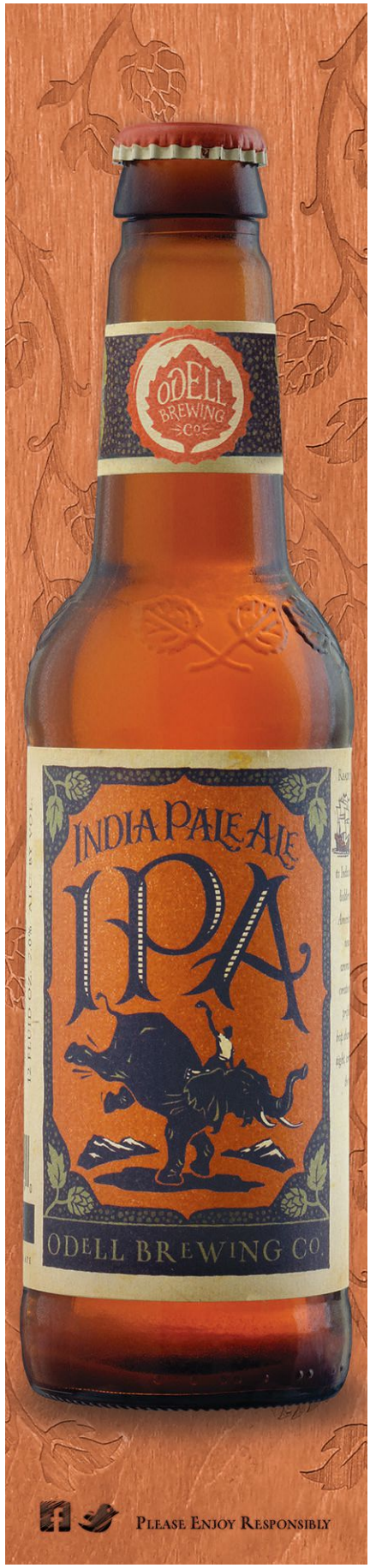
The base recipe is modeled after Firestone Walker's Pivo Hoppy Pils, and if brewed with Magnum early, Spalter Select late, and Saphir to dry hop, it can come very close to that beer, though this version's

PILSNER PROVIDES A CLEANER, MORE NEUTRAL BACKDROP

original gravity is about a point higher on the Plato scale (1.057 OG as opposed to Pivo's 1.054). Like Pivo, it's a simple but hearty Pilsner with just one high-quality base malt. Brynildson swears by a base of Weyermann® Pilsner malt, as do many other craft Pilsner brewers. Two percent acidulated malt provides proper mash pH. I do a fairly standard step mash with a 20-minute protein rest at 122° F (50° C), a 30-minute beta saccharification rest at 145° F (63° C), and a 30-minute alpha rest at 155° F (68° C). This should produce a sufficiently fermentable wort while still retaining good foam stability.

Distilled or reverse-osmosis water treated with one gram per gallon of calcium chloride is used, as it is for Pivo. The chloride ion is preferable to sulfate to bring the malt out as much as possible, even though these are obviously going to be heavily hop-focused lagers; gypsum would encourage too much bite from the hops. For a good, dependable lager yeast, I chose my old favorite WLP 802 Czech Budejovice. Pivo is fermented with the more commonly used Weihenstephan 34/70 strain, said to be the same as the WLP 830 German Lager strain. I like the slightly higher attenuation of 802 (80 vs. 79 percent), but the two are very similar. Wyeast 2278 Czech Pils and 2007 Pilsen Lager are also great choices and tend to finish drier than their 74- to 75-percent attenuation stats (respectively) suggest. If you prefer a slightly heavier body, using one of the latter strains is, in my opinion, far preferable to resorting to a light cara or dextrin malt addition to the grain bill.

Ideally, you'll want to mash enough malt for 30 to 35 gallons (113 to 132 L) depending upon your evaporation rate, then split that into five identical 8-gallon (30 L) kettles



ULTRA PILSNER

(BASE RECIPE FOR HOP-FORWARD PILSNER)

INGREDIENTS for 5.5 U.S. gallons (20.82 L)

11.0 lb	(4.99 kg) Weyermann® Pilsner malt
3.0 oz	(85 g) acidulated malt
1.0 oz	(28 g) U.S. Magnum pellets, 14% a.a. (FWH, 90 min)
Whirlfloc	(15 min)
2.0 oz	(57 g) Ultra pellets, 3% a.a. (10 min)
2.0 oz	(57 g) Ultra pellets, 3% a.a. (5 min)
2.0 oz	(57 g) Ultra pellets, 3% a.a. (steep/whirlpool 10 min)
2.0 oz	(57 g) Ultra pellets, 3% a.a. (dry hop, 55° F/13° C diacetyl rest, 3-5 days)
WLP 802	Czech Budejovice lager yeast (2 L starter)

Distilled or reverse-osmosis water treated with 1g/gal calcium chloride

Original Gravity: 1.057
Final Gravity: 1.009
SRM: 3.5
IBUs: 64
Efficiency: 75%

DIRECTIONS

Use an infusion mash schedule beginning with a 20-minute protein rest at 122° F (50° C). Ramp up to 145° F (63° C) and rest for 30 minutes. Ramp up to 155° F (68° C) and rest another 30 minutes. A 168° (76° C) mash out for 10 minutes is optional. Recirc, run clear wort into the kettle, add first wort hops and keep it on a low flame as kettle fills (180-190° F, 82-88° C). Boil when desired pre-boil volume is reached. After flameout, add whirlpool hops. If you have an efficient counterflow chilling system, you may want to wait the full 10 minutes before beginning your chill. My old immersion chiller takes its time even in winter (since it has 20+ gallons to cool), so I begin chilling immediately, and I still get plenty of contact time for the hops. Remember that you will still get isomerization above 180° F (82° C), even though most of the IBUs will be coming from your first-wort hops. Oxygenate thoroughly once wort is below 80° F (27° C). Allow cold break to form and settle, running clear wort into your fermenter. Pitch as close to fermentation temperature (48° F, 9° C) as you can.

After two weeks, or when fermentation begins to slow, increase temperature to 55° F (13° C), add dry hops and hold 3-5 days. Then crash beer to lagering temps (35° F, 2° C) allowing yeast to settle for at least two days in primary. Package in kegs, taking great care not to introduce any oxygen, and blend in gelatin finings. I use 1 packet unflavored gelatin per five gallons; this is mixed at about a 1:1 ratio with boiled, cooled water, left to hydrate for 5 minutes, then diluted with 100 mL boiling water per packet until the gelatin dissolves. As kegs begin to fill with beer, the hot, concentrated gelatin solution is introduced to the beer without splashing, so that it blends completely as the keg is filled. Force carbonate kegs to desired volume of CO_2 (around 2.5 is typical) and lager them at 35° F for four to five weeks minimum. Once all traces of sulfur disappear, hop aromas will begin to come on strong. These beers can be lagered for several months, but hop character is at its freshest at about six weeks.

Extract Version: Substitute 8.75 lb (3.97 kg) Pilsner malt extract syrup or 7.1 lb (3.23 kg) dry Pilsner malt extract for Pilsner malt. Omit acid malt. Dissolve extract to dilute to desired boil volume with untreated, distilled, or reverse-osmosis water. Proceed as above.

Photo courtesy Dean Turczyn

THE GOAL HERE IS OVER-THE-TOP HOP FLAVOR AND AROMA

over five identical burners, adding different hops for each kettle, so that each kettle yields 5.5 gallons (20.8 L) going into each separate fermenter. However, I realize that short of a very dedicated brew club, this is a tall order. It is far easier and more practical to stagger the batches, brewing one after the other as time allows, but getting each wort exactly consistent is obviously going to prove challenging. And if you begin with a 2 L starter of lager yeast and keep re-pitching for each subsequent batch, which would be the most cost-effective way to go, hop compounds will eventually accumulate in the yeast (even if you wash it between batches), and you'll find that even with careful calculations, subsequent Pilsners will end up with progressively higher hop bitterness. Plus, this practice tends to muddy the unique hop signature of each aroma variety, since a little bit of the character from the last one used ends up in the next batch. This isn't necessarily a bad thing—sort of a *solera* hop method—but going with a strong, charismatic variety like Galaxy and following it with a delicate one like Mittelfrüh might lead to mixed results. So, if you do brew these sequentially and want to keep pitching the same yeast, start with the more delicate noble varieties, and introduce the stronger ones to later batches. Or, even better, remove the variable completely by beginning each batch with a fresh yeast starter.

A 90-minute boil is standard practice in all-Pilsner malt beers to drive off DMS; however, I introduce the first charge as first-wort hops while the uncovered kettle fills, and keep the wort temperature between 180° and 190° F, just shy of boiling. At one hour before flameout, I crank up the heat and start boiling. There's still a high enough surface area-to-volume ratio to drive off DMS, and the kettle hops get contact with the wort before the rolling boil. Utilization suffers from hop material binding with hot break, but the bitterness is very smooth. Calculated bitterness on that first charge is around 45 IBUs, but the resulting Pilsner, especially after a few weeks in the lagering tank, drinks more like 30. (And this is before the late and whirlpool charges add their own IBUs.) I like Pilsner dry and crisp, just shy of sharply bitter, but you may wish to adjust kettle hop-contributed IBUs depending upon your system and tastes. The goal here is over-the-top hop flavor and aroma; the bitterness, as long as it's not distractingly aggressive or grating, can be dialed up or down as you prefer.

Late hops are what really supercharge the flavor and aromatics. Four two-ounce additions are added. The first two go in at 10 and five minutes from the end of the boil; the next for a 10-minute hop stand after flameout (the whirlpool addition); and the final one goes in as dry hops during the diacetyl rest toward the end of primary fermentation. Pitch a large volume of healthy yeast, ideally at fermentation temperature (48° F or 9° C). Thorough attenuation is critical to the beer's success!

HOP TO IT

Start with the base recipe for Ultra Pilsner and simply sub in hops from your favorite source, targeting about 50 calculated IBUs for the first wort addition and 15 to 20 for the late additions. Again, 50 seems like a lot for a balanced Pilsner, but introducing them early enough so that they bind with hot break translates to a pleasantly smooth 30 IBUs in the finished beer.

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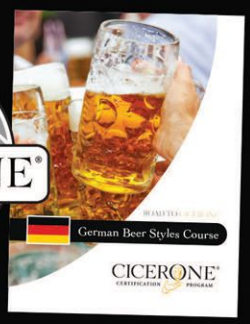
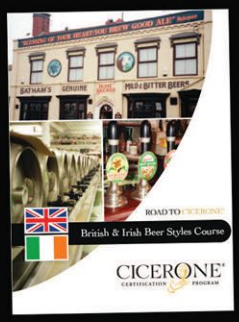
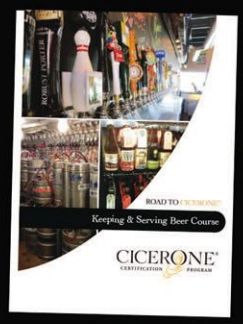


German Beer Styles



British & Irish Beer Styles



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Magnum makes a good bittering hop for any Pilsner, and you could run off a series of batches using only first wort Magnum and varying the late hops. I used American-grown Magnum in the base recipe. For late, whirlpool, and dry hops, I used the Mittelfrüh/Saaz triploid Ultra, first bred in Oregon; it has a classic Bavarian floral character and is high in humulene, but has just a touch of grassy American rustic character.

For subsequent batches you can also vary the kettle hops by region. For example, I used Polaris to bitter the German Pilsner, followed by four additions of Spalter; Marynka to bitter the Polish Pilsner, followed by four additions of Lublin; Green Bullet for the New Zealand, with three additions of Motueka and dry hopped with Nelson Sauvin; Dana for the Slovenian followed by Bobek; Pride of Ringwood for the Australian with Topaz, Ella and Vic Secret…you get the idea. Just do the calculations to make sure your IBUs are dialed in. If you want to keep varieties accurate to a specific region, as I did, check out the bulleted list by country in the sidebar on page 24 for suggestions. Pilsners take particularly well to the refined and delicate noble-type hops of any given country. But that's certainly not to say you couldn't late/whirlpool/dry-hop your Pilsner with Simcoe, Apollo, and Galaxy for a little extra dual-citizenship kick.

Amahl Turczyn is associate editor of *Zymurgy*.

RESOURCES

1. Morgan, Jason. "Growing hops trends: The hottest hops and budding industry developments." CraftBrewingBusiness.com, February 11, 2013.

2. Dornbusch, Horst, et al. "2014 World Hop Harvest: European Hops." *The New Brewer,* November/December 2014.

3. Hieronymus, Stan. "Groundbreaking: Cultivating New Hop Varieties." *The New Brewer,* November/December 2014.

Weyermann® master baker Bettina Malmgren kneading dough for bread beer.

Baked bread loaf cut open.

CELTIC-GERMANIC BREAD BEER

Recreating a Tribal Brew from the First Century AD

Brewing a Celtic-Germanic bread beer in a freestyle reconstruction of a medieval kettle and a wooden lauter tun (right).

Crack open any book about the history of beer, and you'll quickly learn that the first beers of mankind were made partially—or even entirely—not from malt as they are today, but from bread. Archaeologists have much physical, pictorial, and hieroglyphic evidence to support this. However, when you search for an ancient bread beer recipe online or in print, perhaps surprisingly, you will find many guidelines for making bread *with* beer, but none for making bread *for* beer. In fact, we seem to know next to nothing about how exactly the ancients made their tipple—and this in spite of the many beer-related artifacts, especially from ancient Egypt, that have been preserved into our time. For an adventurous and experimental brewer, therefore, this unusual gap in our historical knowledge poses an almost irresistible temptation to turn bread into beer.

By Horst Dornbusch

A loaf of sourdough bread for Celtic-Germanic beer making.

Thomas Kraus-Weyermann of the Weyermann® Malting Company and I took on the challenge of journeying into the dawn of beer making, and we eventually came up with a slightly viscous, low-alcohol, bread-based brew that was surprisingly drinkable. We make no claim of authenticity about our reconstruction; the methods we used may or may not reflect ancient beer-making practices. However, we are certain that, in the process of experimenting, we unearthed the broad biochemical and microbiological principles on which ancient bread brewing techniques must have been based.

THE PARADOX OF ANCIENT BEER MAKING

Beer making started in the Stone Age, some 10,000 to 12,000 years ago, shortly after the so-called Neolithic Revolution, when nomadic hunters and gatherers—first in the Middle East, then elsewhere—stepped out of the fog of pre-history, became settled, and took up agriculture. The most prominent early farmer-brewers were, in rough chronological order, the Sumerians, Assyrians, Babylonians, and Egyptians in the Middle East, as well as the Celtic and Germanic tribes in Central Europe; and it did not take these enterprising cultures long to figure out how to transform the grains they reaped into bread and beer. They apparently did so as a means of preserving their grains unspoiled in storage so that they would always be readily available for consumption, without much fuss or preparation.

We also know—or think we know—that bread and beer making evolved in parallel. Today, it has simply become an axiom of faith that "[b]read dough was…used in the brewing of beer." At least, this is the conclusion of the eminent brewing chemist and beer historian Ian S. Hornsey, whose book, *A History of Beer and Brewing*[1], contains perhaps the most comprehensive and best-researched treatise on early beer making. Hornsey points out that the many reliefs, paintings, and models recovered in Egyptian tombs, for instance, often show beer brewing and bread baking side by side, yet there is no coherent and unequivocal description of the processes involved. The depictions of beer and bread making, according to Hornsey, are "rarely accompanied by any form of explanation," which is why "it is quite difficult to ascertain what is going on, and in what order portrayed actions are carried out."

Hornsey quotes a 1996 study by archeologist Delwin Samuelson, published in the *Journal of the American Society of Brewing Chemists*[2]: "Although there is vague general agreement, there has been no definite consensus of opinion on precisely how beer was brewed in ancient Egypt. Most interpretations vary in minor details or

IT DID NOT TAKE THESE ENTERPRISING CULTURES LONG TO FIGURE OUT HOW TO TRANSFORM THE GRAINS THEY REAPED INTO BREAD AND BEER.

major aspects of production. For example, the use of malt has been much debated… Confirmation for its production has been sought in the interpretation of written evidence…[but] opinion on the meaning of particular cereal-related words varies." In other words, it is an open question, whether or not the Egyptians—or any other ancient beer makers—used malt in their bread beers. In the end, Hornsey seems to be throwing in the towel. "In trying to interpret the content of the various drawings, images, and hieroglyphics related to brewing," he writes, "many details…remain unanswered."

Perhaps the only known elaborate description of ancient brewing methods is a vague and cryptic set of instructions in ancient Greek by Zosimus, a fifth-century AD Byzantine historian. Zosimus claims that these methods were common in ancient Egypt from the time of the Old Kingdom in the third millennium BC until about the third century AD. Hornsey quotes these instructions in translation from a book by R. I. Curtis, *Ancient Food Technology*[3]. "Throw [soaked barley] into a perforated vessel…Dry it until it becomes like a lump [much like making modern chit malt]…grind [it] and make loaves, adding leaven…Bake partially and when they

Top view of bread beer "mash."

First Century Bread Beer

INGREDIENTS

for 5 U.S. gallons (19 liters)

21.0 lb	(9.5 kg) bread (see text for details)
1.75 oz	(50 g) green, unkilned malt or pale kilned malt
0.53 oz	(15 g) chamomile
0.07 oz	(2 g) caraway
0.07 oz	(2 g) wormwood (vermouth)
Half and half of Safbrew Abbaye and Safdistil C-70 (or equivalents)	

Original Gravity: 1.043 (10.7° P)
Final Gravity: 1.031 (7.9° P)
Color: 3 SRM/6.7 EBC
ABV: 1.5%
IBU: 0

DIRECTIONS

See article text.

Photos courtesy of Horst Dornbusch

Free-style reconstruction of a medieval wooden lauter tun.

The finished Celtic-Germanic bread beer was unusually viscous, with the color of turbid apple juice.

[the loaves] turn light, dissolve [them] in fresh water and strain [them]…Others… throw them [the loaves] into a vessel along with water and boil it [the mixture]…And they draw it up and strain it. And, having covered it [the brew], they heat it and lay it aside." A 2002 paper by Hideta Ishida[4], published in the *MBAA Technical Quarterly* and also quoted by Hornsey, even asserts that Zosimus' instructions are indeed an accurate summary of antique beer making. To modern brewers, this process sounds a lot like "bread lautering" and "bread wort" boiling.

However, this cannot be the entire story, because kneading starchy milled grain into a dough does not produce enough sugars for yeast to metabolize into significant amounts of alcohol. In addition, at a baking temperature of roughly 170° F (75° C) and above, which is required to turn dough into bread, all starch-converting enzymes have long been denatured. Therefore, while modern science says that a fermented beverage made from virtually sugarless bread would have next to no alcohol, available records—and the expert researchers who interpret them—imply that there definitely was alcohol in ancient beer. In other words, the ancients must have found a way to turn grain starches into sugars!

MAKING ANCIENT BREAD

As a first step, we researched the history of bread making. Fortunately, documents about the early history of

TO MODERN BREWERS, THIS PROCESS SOUNDS A LOT LIKE "BREAD LAUTERING" AND "BREAD WORT" BOILING.

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bread making are much less ambiguous than those about beer making. From hieroglyphic and pictorial depictions in Egyptian tombs, for instance, we know that the people along the Nile were the first, some 5,000 years ago, to use leavening and sourdough starters in their breads. They made their flour with mortars and pestles or grinding stones. They baked their bread directly in hot ashes or in bell-shaped clay pots in ovens of various designs.

Next came the Romans, who learned bread making from the Egyptians. They developed a dome-shaped oven similar in design to a modern brick oven for pizza. A vigorous fire inside such an oven heated the thermal mass of the oven floor and the dome. After the ambers and ashes were removed, the loaves were placed inside the hot cavity for baking. The Romans also came up with a mechanized, water-powered flour mill, with sieves that allowed bakers to separate finer from coarser grist.

Parallel to the Romans, the tribes of Central Europe invented a direct-fired, pipe-like stone oven. One of these, dating from around 300 BC, was found in Bulgaria. Fired from the inside, this oven baked flat patties of dough, pasted on the outside oven surface until they were done. The finished product was a brittle, hard-tack-like loaf, similar perhaps to modern Swedish crisp bread (knäckebröd). It was an ideal on-the-go "fuel" for Bronze Age hunters.

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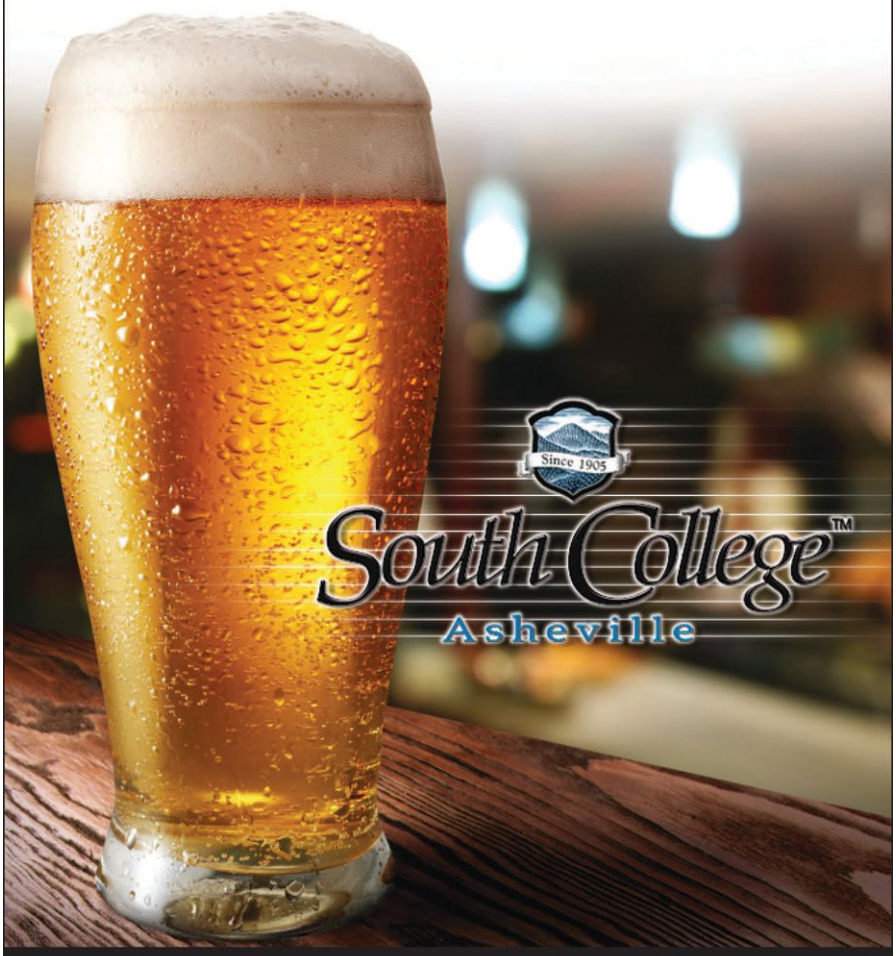

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For raw materials for their bread and beer, ancient people south of the Alps used mostly heirloom forerunners of our modern wheat, while the people north of the Alps also baked and brewed with rye and spelt, which generally thrive in cold and wet climates.

Given the geographic origin of the malts available at Weyermann®, we decided to conduct our experiment with breads baked with north-of-the-Alps raw materials. Using a sourdough starter, we baked some "antique," salt- and preservative-free bread in the Weyermann® test bakery. The starter amounted to about 10 percent of the total weight of the flour. The total grain proportion added to water and yeast consisted of 70 percent rye flour, 20 percent whole-spelt flour, and 10 percent whole-wheat flour. We proofed the bread for 30 to 45 minutes at 90° F (32° C) at an ambient humidity of 75 percent. We then baked the loaves in traditional German earthenware loaf pans in a commercial oven at roughly 220 to 240° F (105 to 115° C) for 50 to 60 minutes. The finished bread was moist with a firm crust. It smelled earthy, cereal-like, and pleasant. On the palate, it had a chewy texture and tasted slightly pasty with a healthy, muesli-like graininess. It was neither sweet nor salty, but had a perceptible sour note. Once the bread cooled, we laboriously sliced the loaves by hand into tiny, one-half-inch squares (about 1.2 cm x 1.2 cm).

BREAD BEER "WORT" PRODUCTION

As a first step, we decided to verify empirically that crumpled up loaves dissolved in water and inoculated with yeast do not turn into beer...and, as expected, no beer ever came of it. Time for more creativity! Thus, we "laid base" in a custom-made, old-fashioned 2.5 hectoliter (2.13 bbl) copper kettle stoked by a beechwood log fire until the liquor temperature reached 140° F (60° C). We then added the enzyme-free (!) chunks of bread, while stirring with a wooden paddle for about 15 minutes to create a porridge-like broth. In analogy to the amount of modern malt used in an average hectoliter of beer, we used 20 kg of bread per 100 liters of beer

(about 50 lb/bbl or 2.4 qt/lb). At this point, there were no enzymes in the bread gruel to convert starches into sugars, nor were there enough sugars from the bread to ferment into alcohol.

Now came the crucial part of the operation, the one that we believe allowed us to solve the fundamental paradox of ancient bread beer making! After the "dough-in" was complete, we raised the temperature of the gruel to roughly 195° F (90° C). This took about 90 minutes. As the temperature passed the 175° F (80° C) mark, we could observe the liquefaction of unconverted bread starches. Thus, we needed a source of amylase enzymes, added at the correct temperature, to convert the now-gelatinized starches and thus also reduce the mash viscosity. We solved this problem by adding an infusion of cold water to the bread mash until the temperature fell back to about 149° F (65° C), the peak temperature for beta amylase activity. We then added about 5 kg (11 lb) of germinated—thus enzyme rich—green Pilsner malt to the bread mash. In a way, we treated the bread starches as if they were an adjunct. Given Hornsey's stated ambiguity about the order, in which "portrayed actions were carried out," there seemed to be no compelling argument for precluding such an addition. Of course homebrewers, unlike malting companies, tend not to have access to green malt, but enzyme-rich kilned Pilsner or six-row malt should work just as well.

After a 30-minute rest, we brought the entire mash slowly to a decoction boil, which we maintained for about 15 minutes. Five minutes before shutdown, we stirred 100 grams per 100 liters of gruit into the mash, as would have been the custom in Celtic-Germanic Central Europe, in the first century. Our gruit consisted of 80 grams chamomile, 10 grams caraway, and 10 grams wormwood (vermouth). For a five-gallon (19-liter) homebrew batch, see the recipe for equivalents. At shutdown, we simply removed the burning wood from the fire chamber. We then ladled the mash into a wooden lauter tun. We know from early monastery records that brew monks filtered their wort through beds of straw; we used a modern kitchen strainer instead. The runoff went back into the kettle for a wort boil of about 20 minutes. When done, the net kettle volume was a tad below 200 liters (50 gallons), which we allowed to sediment for five minutes. Compared to a regular wort, there was lots of trub and the wort was unusually viscous.

THE FINISHED BREAD WAS MOIST WITH A FIRM CRUST. IT SMELLED EARTHY, CEREAL-LIKE, AND PLEASANT.

BREAD BEER FERMENTATION

We transferred the finished wort into an open fermenter, using the strainer again to

Interior of a freshly baked bread loaf.

trap the gruit. Because of the wort's high viscosity and particulate load, we did not pass it through a heat exchanger, which we feared might become clogged. Besides, using such a device would not have been authentic. Instead, we allowed the wort to cool off in the fermenter. Homebrewers, of course, can use a wort chiller to speed up the process. The wort tasted pleasantly bready, earthy, bread crust-like, and mildly sweet, with a mild flavor of gruit. Once it had cooled to 73° F (23° C), we pitched 30 grams (about 1 ounce) each of dry Abbey yeast (Safbrew Abbaye) and whiskey yeast (Safdistil C-70). We chose the whiskey yeast because it can ferment trisaccharides, including maltotriose. If whiskey yeast is unavailable, use a lager yeast, which has a greater propensity than ale yeast to metabolize maltotriose.

At the start of fermentation, the wort pH was 5.4 and the OG was 10.7° P (1.043). After 24 hours, the pH had dropped to 4.63, and the gravity to 10° P. On day two in the fermenter, we added about 35 grams (roughly 1.25 ounces) per 100 liters of very finely milled acidulated malt flour to imitate the inevitable lactic infection that must have been present in antique brews. To activate the bacteria, we had soaked the acidulated malt flour in 3 cups of cold water for 24 hours. For a five-gallon batch, use approximately 7 grams (0.25 ounce) of acidulated malt flour. As an alternative, homebrewers can also use a Lambic-type bacteria mix for the same effect.

Fermentation stopped at a relatively high final gravity of 7.9° P (1.031), at which point the pH was 3.8 and the alcohol by volume was only about 1.5 percent. The beer's color resembled turbid apple juice. Its bouquet had hints of coconut, pineapple, and green apple. The taste was of rhubarb, vanilla, sloe, and caraway. The finish was refreshing and slightly sour, with notes of bitter vermouth and chamomile. Because of its high turbidity and viscosity, the brew is best served in opaque steins. For a food pairing, pork roast and game would go well with this Celtic-Germanic bread beer. Serving it with wild boar, of course, would be truly authentic!

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Horst Dornbusch is a consultant in the international brewing industry. He is a multilingual author of books about beer and a frequent contributor to *Zymurgy* and other brewing publications. He enjoys recreating old and forgotten beer styles from antiquity to more recent times.

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The Water Chemistry of Mead

BY AARON KUECK

EDITOR'S NOTE: This is the seventh published experiment from the AHA's Research & Education Fund. For more on the REF and to see other completed projects, go to HomebrewersAssociation.org/community/research-and-education-fund. The data and observations presented in this report were derived from only one experiment and therefore should not be considered conclusive.

Water chemistry is an often-discussed factor in both the brewing process and eventual flavor profile of beers. Water profiles of famous brewing cities are widely published; calculators for adjusting water are easily found on homebrewing forums. As it is in beer, water is a major ingredient in mead, typically constituting 70 to 80 percent of the initial must. Unlike beer, the impact of water chemistry on the fermentation process and flavor profile is largely undiscussed when it comes to mead.

The Experiment

In this experiment, a set of four water profiles was chosen to test the fermentation kinetics and flavor profiles of a simple traditional mead. A single must of distilled water (~3.5 gallons), local upstate New York fall wildflower honey (1 gallon), and a small amount of yeast nutrient (2 g Fermaid K) mixed to an original gravity of 1.100 was divided among four containers. A half-gallon Lalvin DV10 yeast starter, at a specific gravity (SG) of 1.060 using New York summer honey, was used to reduce the need for nutrients (and their associated salts and buffering properties) during fermentation. The starter was decanted off the yeast after two weeks and approximately 70 grams of thick yeast slurry was added to each batch. Salts (calcium sulfate, magnesium sulfate, calcium chloride, calcium carbonate, potassium carbonate, sodium chloride, and sodium bicarbonate, measured to 0.01 g) were added to three batches to generate soft water, hard water, and hard water with high sulfate-to-chloride ratio profiles; the fourth batch was unaltered (distilled water), as a control. Water profiles were not specifically tailored to any particular regional water profiles, but were intended to span a typical range of water sources.

The fermentation process was monitored by weight loss. The starting volume of each batch was calculated based on the measured initial weight and initial specific gravity. The SG was thereafter calculated based on the measured weight and the initial volume. Volume loss during fermentation and biomass accumulation introduced small errors into the weight loss method, but the magnitude of the error was less than 0.010 SG at the end of fermentation. The finished meads were evaluated after approximately six and 18 months. Samples of the finished meads were analyzed by Ward Laboratories in Kearney, Neb. for chemical content.

Table 1: Calculated Initial Salt Additions (ppm)

	Na	K	Ca	Mg	SO_4	Cl	HCO_3
#1 Distilled	0	0	0	0	0	0	0
#2 Soft	10	15	25	10	55	25	50
#3 Hard	25	**50**	**100**	25	133	60	250
#4 Hard, High Sulfate:Chloride	25	50	100	25	133	25	300

Table 2: Final Water Chemistry

	Na	K	Ca	Mg	SO_4	Cl	HCO_3	Hardness as $CaCO_3$	pH	FG
Distilled	12	223	93	15	51	102	0	295	3.4	0.996
Low	16	229	46	25	60	127	0	219	3.5	0.996
Hard	32	291	109	39	83	116	0	435	3.8	0.998
Hard, high SO_4:Cl	35	267	130	38	79	122	0	483	3.8	0.999

Ion concentrations in ppm.

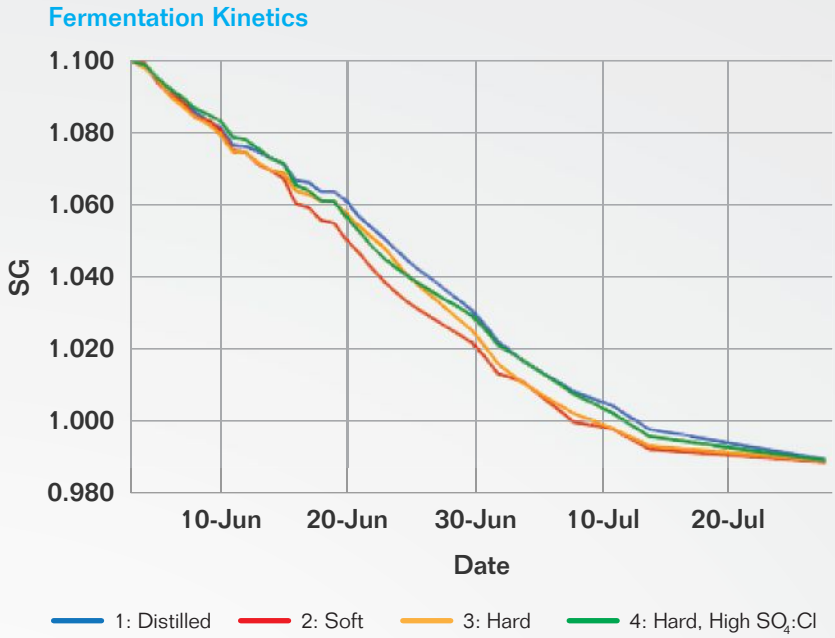
Table 1 shows the calculated starting water chemistry in ppm added to each batch based on the weight of added salts. Note that 0.5 g/gallon of FermaidK is expected to contribute an additional 15 ppm Ca, 8 ppm Mg, 10 ppm SO_4, and 100 ppm HCO_3 and the initial pH of a distilled water-honey must prior to salt additions was measured at 3.7.

Figure 1 shows the progress of fermentation. The soft water batch, Mead #2, fermented slightly faster than the other batches, but there was little difference in overall fermentation speed between the batches, and the final gravity of each was essentially identical. Images of the meads during fermentation are shown in Photo 1.

Table 2 provides the measured final water chemistry of each batch. The sodium concentration is essentially unchanged after fermentation. The potassium, sulfate, and chloride concentrations of all four batches are very similar at the end of fermentation. Magnesium increased by approximately 15 ppm for all four batches, and calcium increased slightly for all but the distilled water batch, in which it increased dramatically. Increases in calcium and magnesium content may be due to yeast autolysis; if that is the case then the distilled water batch appears to have experienced the most autolysis. The increase in calcium and magnesium during fermentation also creates a high final hardness. Final pH mirrors the buffering capacity of the original musts, with the distilled water batch having the highest acidity. The salt profiles are remarkably similar after fermentation, showing that the action of the yeast tends toward a constant environment. An image

Photo 1: Meads near the start of fermentation, #1-4, left to right.

Figure 1: Specific gravity (SG) vs. time for each batch



of the finished meads is shown in Photo 2. It is notable that no batches experienced a pH crash leading to a stuck fermentation, although the use of yeast starters likely prevented this.

Tasting Notes

Judging was conducted blind, other than the author's notes. Six judges evaluated the meads at six months, and four tasters evaluated them again at 18 months.

Overall, the softer water profiles were strongly preferred. Perception of phenolic flavors was greatly influenced by initial hardness and somewhat by sulfate content, and the detection of cooked vs. fresh fruit flavors correlated with hard vs. soft water. The consensus favorite was Mead #2, with the moderately soft water profile. Mead #1, the distilled water sample, was a close second. Mead #3, hard water with a lower sulfate to chloride ratio, was the least preferred, although #4 was not well received either. Both of the hard water batches were perceived as flat, hot, and waxy, while the softer waters produced meads with brighter acidity, higher minerality, and overall approachability.

Some tasters noted that the distilled water batch was overly acidic, consistent with expectations of a poorly buffered fermentation. Tasting after 18 months produced similar notes concerning the waxy/phenolic aspects of the high hardness meads to the tastings conducted after six months, and there was no change in relative ranking over this time period. The additional year of aging did increase the presentation of fruit and honey characteristics in all four batches.

Photo 2: Finished meads #1-4, left to right, after one-and-a-half years.

Photos courtesy of Aaron Klueck

Tasting notes are as follows:

Mead #1

Distilled Water

Pale straw and hazy. Dry, mineral, drying mouthfeel. Floral with light honey, pear/apricot, slightly dank aroma. Acidic, light phenolics, especially on the finish.

Mead #2

Softer Water

Pale straw and clearer than #1. Less mineral/chalky than #1, but with a more noticeable sharp acid edge. Fresh apple, pear. Drying. Very slightly phenolic/pithy. Rounder than #1 and easy to drink.

Mead #3

Hard Water

Very clear, pale straw with a hint of gold. Overripe pear, cooked peaches. Phenolic, pungent, chemical. Low honey expression, noticeable alcohol/fusel presence. Flat and hot with an acrid finish. Generally considered the most unpleasant of the set.

Mead #4

Hard Water, High Sulfate to Chloride

Clear and lightly golden like #3. Heavy mouthfeel, flat, and lacking acidity. Musty, salty, waxy. Subdued honey. Cooked fruit, light sherry notes, bitter edges with a soapy finish. Generally considered better than #3 but still unloved.

Conclusion

Based on the results of this experiment, mead makers with high hardness water should take steps to soften their water in order to reduce the perception of phenolic off-flavors. Typical home water softeners that exchange calcium and magnesium for sodium ions may not produce the desired results, so diluting hard water with RO or distilled water or otherwise treating the water to reduce the overall ionic content is recommended. Low hardness water is preferred for the perception of fresh fruit flavors and reduction of fusel production, but 100 percent distilled water may result in unbalanced acidity and increased presence of phenolic flavors, possibly due to increased autolysis.

Further experiments are recommended to study the effect of residual sugar and fruit additions, especially in light of the influence of initial must buffering capacity on the production of phenolics and fusels.

Aaron Kueck has been making mead, beer, and cider since 2005. He is a member of the Ithaca Practitioners of Alemaking homebrew club and is a longtime GotMead forum member. **He wishes to thank the AHA's Research & Education Fund for financial and logistical support, and Susan Ruud, Gordon Strong, Harold Gulbransen, Cole Davisson, and gullible friends for volunteering to taste the results.**

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MODERN HOMEBREW RECIPES

Mosaic Double IPA

Gordon (second from left) with the brew crew at Cervejaria Seasons in Porto Alegre, Brazil.

BY GORDON STRONG

Editor's Note: The following includes an excerpt from Modern Homebrew Recipes, *recently published by Brewers Publications (BrewersPublications.com).*

It's almost cheating to use Mosaic in a single-hop IPA because it has a more complex aroma and flavor than many hops, featuring several trendy characteristics like fruity, piney, citrusy, and floral. It's like instant IPA in a single hop varietal. This recipe uses some of my favorite modern techniques, such as first wort hopping and hop bursting, to reduce harshness while giving a smooth bitterness. It also uses honey to increase complexity and attenuation.

While on a recent trip to Brazil, I brewed a commercial scale (10 hL or 8.5 bbl) batch of this beer with Leonardo Sewald and his crew at Cervejaria Seasons (cervejariaseasons.com.br) in Porto Alegre. They already produce one of my favorite beers in South America, Green Cow IPA, so I was thrilled to get a chance to brew a double IPA with them. We made a few minor grain substitutions and used orange blossom rather than tupelo honey, but we did use the same yeast and hops, and nailed our target gravities.

Recipe on page 50 >

Photos courtesy of Gordon Strong

ON THE WEB

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MOSAIC DOUBLE IPA

Introduced in the 2004 BJCP Style Guidelines as Imperial IPA, the style has been renamed Double IPA in the 2015 BJCP Style Guidelines to better reflect current market usage. Mosaic is a relatively new hop, but well suited to single-hop beers.

BATCH SIZE: 6.5 gallons (25 L)
OG: 1.074 **FG:** 1.011 **EFFICIENCY:** 70%
ABV: 8.4% **IBU:** 72 **SRM:** 5
INGREDIENTS:

12.0 lb	(5.44 kg) U.S. two-row (Briess)
2.0 lb	(907 g) German Vienna malt (Weyermann®)
1.0 lb	(454 g) Golden Promise pale malt (Simpsons)
1.0 lb	(454 g) German Munich malt (Weyermann®)
10.0 oz	(283 g) white table sugar (10 min)
1.0 lb	(454 g) Tupelo honey (10 min)
1.0 oz	(28 g) U.S. Mosaic 12.7% pellets (FWH)
1.0 oz	(28 g) U.S. Mosaic 12.7% pellets (15 min)
1.0 oz	(28 g) U.S. Mosaic 12.7% pellets (10 min)
1.0 oz	(28 g) U.S. Mosaic 12.7% pellets (5 min)
1.0 oz	(28 g) U.S. Mosaic 12.7% pellets (0 min)
1.0 oz	(28 g) U.S. Mosaic 12.7% pellets (+10 min)

Wyeast 1272 American Ale II yeast

WATER TREATMENT: RO water treated with ¼ tsp 10% phosphoric acid per 5 gallons. 0.5 tsp $CaCl_2$ and 0.5 tsp $CaSO_4$ in mash.
MASH TECHNIQUE: Step infusion
MASH RESTS: 144° F (62° C) 45 minutes
158° F (70° C) 15 minutes
KETTLE VOLUME: 8.5 gallons (32 L)
BOIL LENGTH: 90 minutes
FINAL VOLUME: 6.5 gallons (25 L)
FERMENTATION TEMP: 68° F (20° C)

SENSORY DESCRIPTION: Mosaic has a very complex profile that is fruity, citrusy, piney, and floral; it's like a blend of hops bred into one variety. The beer is pale amber with orange highlights, very clear. Big fruity, piney, and fresh hop aroma. Clean fermentation profile. High bitterness, but no harshness due to the late hopping technique. Fruity, piney flavor, dry finish, medium body. Very easy drinking, especially considering the deceptive strength.

FORMULATION NOTES: Mosaic is critical to this recipe, obviously. The base malt is supportive, but I use base malts to add complexity without crystal sweetness. Some sugar helps attenuation, and the Tupelo honey adds a little flavor as well. If you haven't used Tupelo before, it's a wonderful honey that can improve virtually any mead (or beer). I think the yeast selection adds some fruitiness as well. With the late steeping hops, the actual IBUs are likely higher than calculated.

VARIATIONS: I would love to see someone try to recreate this beer without using Mosaic hops. I'd be very intrigued to see how many different hops would need to be blended to get this level of complexity. Since the beer is fairly simple, it could serve as a base for other double IPA experiments by adding some other color or character malts. I'd be afraid of stepping on the hops too much, so tread lightly with those additional grains. The other obvious alternative is to dry hop this beer; I'd start with 2 oz (57 g) of Mosaic pellets and see where it goes from there.

PARTIAL MASH VERSION: Substitute 12 lb pale malt with 7.25 lb (3.29 kg) extra light dry malt extract. Mash remaining malts together at 150° F (66° C) for 45 minutes. Drain, rinse grains, dissolve extract, honey, and sugar completely, and proceed with boil.

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By Amahl Turczyn

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2015 National Homebrew Competition Overall Winners

Homebrewers of the Year

Oskar Norlander, Brooklyn, N.Y. with Peter Salmond and Erik Norlander
New York City Homebrewers Guild

"Gueuze"
Gueuze

Homebrewer of the Year goes to the brewer of the Best of Show beer from 23 categories.

Oskar Norlander started brewing with some friends while at Gustavus Adolphus College in Minnesota during the '90s. He brewed occasional 5-gallon batches using extract and specialty grains and at the time thought the results were decent. In 2002, he got rid of his homebrewing equipment when he moved to New York City, since there wasn't much room in the one-bedroom he shared with his brother Erik. In 2007, after moving to Queens, the brothers had more space, so they bought some equipment and started brewing again.

In 2009, Oskar joined the New York City Homebrewers Guild and passed the BJCP exam. Erik had been cooking since childhood, so the shift into brewing was a natural transition for him; he loves the hands-on process and blending of flavors to achieve a final desired result.

Their friend Peter Salmond got a late start in homebrewing, but worked on the commercial side for some time prior. He got his first production brewery job at age 21, washing kegs and helping on the bottling line at the defunct Sacramento Brewing Company. Several years and a few breweries later, he'd moved up to a head brewer position in a 15-barrel brewhouse. He moved to New York City in 2009, into Erik and Oskar's spare bedroom in Queens (he was a former neighbor of Erik's in Sacramento), and it was the first time in years that he didn't have a job at a brewery. He knew the process from working in

Photo courtesy of Oskar Norlander; © Souders Studio (previous page)

commercial breweries, of course, but had never actually brewed a batch of beer at home until he moved to New York City.

The trio worked their way up from doing partial mashes to a three-vessel all-grain system with two Blichmann 15-gallon pots on a propane turkey fryer and a 10-gallon Igloo cooler that they used as a hot liquor tank. They got a chest freezer for temperature controlled fermentation and started kegging. As the beers got better, they starting entering their local club's competition, Homebrew Alley, and won a few ribbons.

Oskar and Erik's father, Hans Norlander, had been a home winemaker since 2004, producing Zinfandel in Sonoma County. The brothers started dreaming about aging sours in barrels when he was done with them. In 2011, a 30-gallon barrel had lost most of its oak character so the trio had it shipped it across the country. They decided to fill it with a lambic-style base beer and start a solera system (periodically removing a portion of aged beer from the barrel, then brewing enough new beer to replace it, keeping the barrel full). The first fill was in July 2011. They used commercial lambic pitches, mostly Wyeast Lambic Blend, and a few batches with propped-up bottle dregs from numerous Belgian and American sour ales.

In 2013 their shared apartment was sold, so they moved into three separate, small apartments in Brooklyn. They didn't have as much space to brew, so they made a lot less beer and focused almost exclusively on keeping the solera project going. The barrel itself resided in Oskar's living room, in his small fifth-floor apartment. Most of the lambic-style base beer was brewed at Salmond's apartment, on his back porch, and fermented in carboys on the kitchen floor, then transported in kegs via taxi to Oskar's apartment. They'd gotten some aged hops grown by Peter's father, Mike Salmond, in his Oregon backyard, and used them in a number of the base beer batches.

In January 2015, as they prepared for Homebrew Alley, the three thought the beers from the barrel were tasting better than ever. They bottled a gueuze, a passion fruit lambic, and a framboise lambic and entered them along with a few other beers in the Homebrew Alley competition. They were surprised to learn they'd swept the Sour category and the gueuze won Best of Show against more than 650 entries. They then decided to enter the gueuze and passion fruit lambic, along with an American stout and a Flanders red, in the 2015 National Homebrew Competition. Their first-ever medal at NHC was a gold for their gueuze—which went on to win Best of Show.

Erik is planning a move to Pittsburgh and will construct a purpose-built brew room in the basement. While he is leaving the solera project, he is excited about the possibility of greatly expanding on it and is testing the idea of opening a small commercial sour-only brewery.

Ninkasi Award Winner

Mark Schoppe, Austin, Texas
Austin Zealots
1 gold, 1 silver, 1 bronze

Photos courtesy of homebrewers; © Brewers Association

The Ninkasi Award goes to the winningest brewer in the second round of the National Homebrew Competition.

Mark Schoppe's passion for beer started when he spent his junior year of college on a study abroad program in Freiburg im Breisgau, Germany. He traveled widely and drank every type of beer he could find. "It was a great experience," Schoppe remembers, "but I didn't have much of an understanding of what I was drinking." It wasn't until he returned to the U.S. that Schoppe discovered the writings of Michael Jackson and started to learn about the different styles of beer and how the ingredients and processes affect the final product.

The decision to start brewing beer came from an unlikely source. "I had a consultation with a career counselor during my senior year at Rice University," he remembers. "The conversation turned to beer and I talked about how much I loved the beer in Germany, and how I was getting into microbrews. The counselor suggested that I should start homebrewing and maybe consider a career in brewing."

The counselor, who had just started in the hobby, sent Schoppe to see Scott Birdwell, a Rice graduate, at DeFalco's Home Wine & Beer Supplies. "Scott set me up with a starter kit and I brewed my first beer, a dark English mild, in April 1993. I brewed extract for a couple years and then stepped up to all-grain in 1995."

Schoppe graduated in 1993, and after a year of working part-time jobs, he ended up going to graduate school at the University of Texas to study Operations Research. During a summer break from school in 1995, he got a job as an assistant brewer at Saint Arnold Brewing Co. in Houston (founded by Rice graduates Brock Wagner and Kevin Bartol). He worked there for several months and briefly considered a career in brewing, but ended up finishing his degree and getting a "real job." But Schoppe wasn't entirely over his relationship with brewing.

"In 1996, I went to work for a software company based in Dallas that was expanding into Europe," he said. "I took it as an opportunity to travel and drink

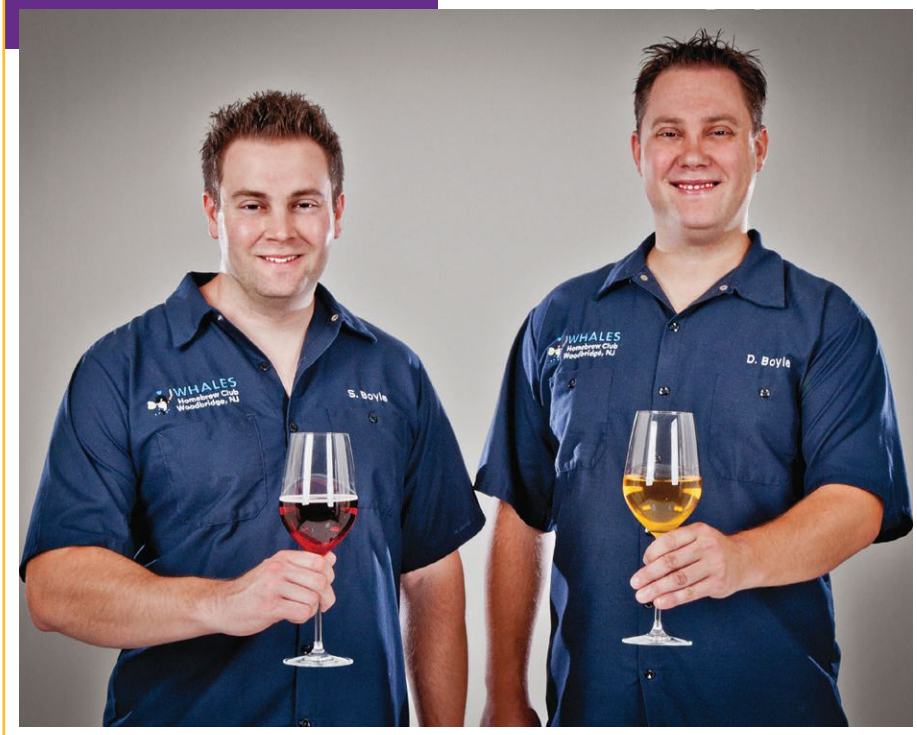
my way across Europe again. I ended up moving there and lived and worked two years in the Netherlands and three in Belgium. I didn't homebrew for the first year, but eventually I started missing the hobby. I managed to bring my Igloo cooler mash tun as my checked bag on a flight from the U.S., filled with all of the homebrewing equipment I could fit inside. I bought a nice 8-gallon stainless steel pot and a wort chiller from a homebrew shop in Belgium. I had to buy a cheap Corona-style mill because the homebrew shops there didn't sell pre-milled malt." But basic equipment, he found, did not hinder his ability to brew great beer. "I'm still brewing today with the same equipment." He upgraded to a three-roller mill about five years ago, and also acquired a keggle for 10-gallon batches.

After moving back to the U.S. in 2001, Schoppe's interest in homebrewing waxed and waned. The hobby took on fresh life, though, when he joined the Austin Zealots in 2005. "Hanging out and drinking and talking beer with other homebrewers has been a constant source of inspiration, and also challenged me to stretch as a brewer to try and impress these other brewers I admire." It only took a reminder of the competitive aspect of brewing for Schoppe to fall back into the hobby full tilt.

"In 2007 I got back into entering homebrew competitions. After winning a medal at the NHC in 2009, homebrewing went from a hobby to an obsession. I started brewing all the time, and brewed my way through every sub-category in the style guidelines. I perfected my process for making small batches of beer [1-2 gallons] on my stove to be able to enter more beers in competition—and not have so much leftover beer. The result has been around 400 ribbons and medals in the last six years. Don't ask me how much I've spent in entry fees..."

Highlights include several Best of Show and Homebrewer of the Year honors (as well as a Funkiest of Show recognition), as well as the 2012 Ninkasi Award at the National Homebrew Competition, along with this year's honor.

Meadmakers of the Year



Donald and Stephen Boyle, Colonia, N.J.

"Blueberry Mead"
Semi-Sweet Mead with Blueberry Honey; Petillant, Medium, Standard

Meadmaker of the Year goes to the maker of the Best of Show mead from three mead categories.

Brothers Donald and Stephen Boyle started brewing beer in August 2009; soon after, they started making mead, cider, and wine. In 2011, they joined the WHALES homebrew club out of Woodbridge, N.J., where they made many friends and gained a wealth of knowledge about various brewing techniques. In addition, they spent a lot of time reading books, doing research online, and listening to podcasts about how to best make all types of fermented beverages. In doing so, they learned many big idea concepts that could be applied to making all types of fermented beverages.

Armed with this knowledge, the brothers grasped the fundamentals of fermenting with honey, applying many of the concepts they learned from making wine. For instance, they feel that it is important to check and, if needed, modify the pH of the must to ensure a healthy fermentation. It is also important to use bench trial techniques in order to determine how the beverage could be improved if it's lacking balance. They also record every last detail of the process every time they make a batch, and compare that data to external feedback.

The brothers feel that it is critical to take detailed notes during fermentation along with tasting notes throughout the lifetime of the beverage. They also frequently enter competitions in order to gain unbiased opinions. The next time they make that beverage, they review their notes and the comments from judges in order to improve their recipe and/or techniques.

This scientific approach has paid dividends in competitions. The Boyles started entering their beers, meads, and ciders in 2010, and have advanced to the final round of NHC for the last five years. In 2013, they won their first gold medal with a jalapeño cider. Another great accomplishment was winning the Eastern Pennsylvania Homebrewer of the Year title in 2014. They also claimed the WHALES Homebrewer of the Year award from 2011-2014.

Cidermaker of the Year

Brett Glenna
Lakeville, Minn.
Minnesota Home Brewers Association

"Common Cider"
Common Cider, Petillant, Medium

Cidermaker of the Year goes to the Best of Show cider from two cider categories.

Brett Glenna, current president of the Minnesota Home Brewers Association, has been brewing for more than eight years. He won two previous medals at NHC in cider before taking gold and Cidermaker of the Year in 2015.

When Glenna began making cider five years ago, fellow club member Al Boyce gave him pointers during a club cider purchase. Since then, Chris Smith, a good friend and award-winning cider maker, has continued to provide advice and critical feedback. "Chris has been instrumental in not only improving my ciders, but my beers as well," Glenna said.

While making cider is fairly straightforward, Glenna states that starting with a quality varietal base of apple cider is key to a good hard cider. Fortunately for him, his native Midwest is abundant with apple varieties. Experimenting with sugar additions and how they balance with a particular cider is important in making great cider; adding sugar increases alcohol, but also impacts the balance of acidity, tannins, and sweetness. Using nutrients helps maintain healthy yeast and a cleaner fermentation. Cider makers commonly back-sweeten their cider to reach a balanced flavor, but Glenna recommends proceeding with caution when using this technique, as back-sweetening can lead to a raw apple juice flavor, even when using concentrated juice.

Glenna credits a few things with improving his skills as a brewer and cider maker. Members of his homebrew club provide valuable feedback and opportunities for community through social gatherings and meetings. While he didn't join MHBA right away when he started brewing, he has found that being part of a local homebrew club and interacting with others face-to-face to be extremely important in increasing his skills. "Online resources and forums can be useful," he said. "But nothing beats sitting around with other homebrewers, sharing beverages and providing feedback to each other."

Another thing that has helped him improve has been participation in the BJCP. "Becoming part of the Beer Judge Certification Program has been instrumental in my ability to be critical of my own beverages," he said. "The BJCP isn't just about judging to style, it is also about learning how to detect and correct flaws and understanding balance and drinkability." He also stresses that he is lucky to be surrounded by so many BJCP judges in Minnesota who share experiences and learn from one another at events and competitions.

Finally, Glenna recommends joining the AHA. He says, "If you're reading this, you're likely already a member. But we as members need to get the message out to all homebrewers. The AHA provides access to community, support, and resources for homebrewers of every level who want to improve their beverages and expand their skills."

Homebrew Club of the Year

The Brewing Network
Concord, Calif.

The Homebrew Club of the Year goes to the winningest club in the National Homebrew Competition.

The Brewing Network, with its "virtual" homebrew club based in Concord, Calif., continued its recent hold on the Homebrew Club of the Year title, winning for the fifth year in a row.

The AHA-registered club is comprised of The Brewing Network internet radio show and podcast listeners who might not have access to a local club or might not be interested in joining a local club. The Brewing Network club has members in 50 states and internationally.

"You have to make amazing beer to win a medal in the final round, and our brewers do that year after year," commented The Brewing Network host Justin Crossley.

Club members William Steimle, Dylan Vaughan, and Craig Vilhauer won a gold medal in Category 13 with their Russian imperial stout, while Patrick and Hank McNeely took a silver medal in Category 26: Other Mead.

For the third straight year, the Quality Ale and Fermentation Fraternity (QUAFF), based in Carlsbad, Calif., finished second. Just eight points separated the two clubs, with The Brewing Network compiling 170 points to QUAFF's 162. The Austin Zealots of Austin, Texas finished third.

Woodbridge Homebrewers Ale and Lager Enthusiast Society (WHALES)
Woodbridge, N.J.

The Gambrinus Club Award goes to the club with the most final-round points per number of entries from the club in the National Homebrew Competition.

Now in its seventh year, the Gambrinus Club Award (named for King Gambrinus, the patron saint of beer) recognizes clubs with the most success in the National Homebrew Competition. To be eligible, clubs must have a minimum of five club members entering the first round, and a minimum of two club members advancing to, and at least one entry placing in, the final round of the competition. Six points are awarded for first place, four points for second place, and two points for third place.

Gambrinus Club Award

"The award is a demonstration of brewing excellence, and one that is extremely difficult to achieve," commented AHA director Gary Glass. "No club has managed to win it more than once since we initiated the award in 2009."

The Woodbridge Homebrewers Ale and Lager Enthusiast Society (WHALES) of New Jersey had three members and seven entries qualify for the final round. Of those, three entries medaled in the final round. Club member Craig Easton of Hillsborough, N.J. won a gold medal in Category 22: Smoke-Flavored and Wood-Aged Beer with his Belgian dark strong, while brothers Donald and Stephen Boyle of Colonia, N.J. won gold in Category 24: Traditional Mead and also took silver in Category 25: Melomel (Fruit Mead). The Boyles took the Meadmaker of the Year title as well.

Finishing second in the Gambrinus Club Award point tallies were the Lincoln Lagers of Lincoln, Neb., followed by the Kuhnhenn Guild of Brewers Homebrew Club of Warren, Mich.

2015 National Homebrew Competition Gold Medal Recipes

The 2015 National Homebrew Competition had a total of 7,663 entries from 3,170 homebrewers from all 50 states, Washington, D.C., Puerto Rico, Canada, Mexico, Brazil, Germany, Greece, and Israel.

The first round took place at 12 regional sites across the country. The top three entries at each site in each of the 28 brew style categories advance to the final round of the competition, held every year at the AHA National Homebrewers Conference.

This year, the final round of judging took place June 11 at the conference, where 946 entries were evaluated by the judges. The awards were announced June 13 at the awards banquet held at the Town & Country Resort in San Diego.

"In the final round, the 36 entries per category are the best collection of entries you'll find anywhere," commented competition director Janis Gross.

"IT'S THE LARGEST BEER COMPETITION IN THE WORLD"

The AHA National Homebrew Competition recognizes the most outstanding homemade beer, mead, and cider produced by homebrewers worldwide. Over its 37-year history, the National Homebrew Competition has evaluated 118,911 brews. The first competition, held in 1979 in Boulder, Colo., judged 34 beers.

"It is the largest beer competition in the world," said Gross. "A lot of people enter to test their brewing abilities against the best in the world. Part of why the NHC is the biggest competition is that the homebrewing hobby has really gotten much bigger. The accessibility and quality of brewing equipment, ingredients, and even the brewing knowledge base has advanced remarkably. These days, it's a natural progression for some people who have entered the NHC and won medals to open their own brewery, or to go pro in someone else's brewery."

Gross has assembled a dedicated team to help her organize and execute a 946-entry competition in one day. That team includes Bruce Buerger of Waukesha, Wis.; Luann Fitzpatrick of Chicago, Ill.; and Faith Faw from Mills River, N.C. "This team is all-star awesome, and I'm looking forward to working with them again in Baltimore in 2016," Gross said.

"The competition would not be possible without the volunteer organizers and their staffs at each of the 12 judge centers around the country," added Gross. "These are the people who run the qualifying competitions; they arrange for the shipping locations, food, and the entry check-in/bottle sort, and they get commitments from judges and stewards to judge up to 750 entries in one weekend. I can't thank them enough for the work they do for the competition!"

For the 2016 National Homebrew Competition in Baltimore, the competition will utilize a modified version of the 2015 BJCP Style Guidelines. Stay tuned to the National Homebrew Competition pages on HomebrewersAssociation.org for more information.

Amahl Turczyn is associate editor of *Zymurgy*.

CONVERTING TO EXTRACT

Most all-grain recipes can be converted to extract recipes by substituting the base malt (e.g. pale malt or pilsner malt) with light malt extract. Multiply the pounds of base grain by 0.73 for liquid malt extract or by 0.60 for dry malt extract. Specialty grains can be steeped in water at 160° F (71° C) for 30 minutes or so and rinsed with hot water. If you are doing a partial wort boil [as opposed to boiling the entire 5 gallons (19L) of a 5-gallon batch], you will want to increase your bittering hops slightly to make up for the increased concentration of the wort, which decreases hop utilization.

You can always ask your local homebrew supply shop owner to help you convert a recipe.

ON THE WEB

Find past winners' homebrew recipes on our website @ Homebrewersassociation.org/homebrew-recipes

Category 1

Light Lager

174 entries

Sponsored by:
Five Star Chemicals & Supply, Inc.

Isaac Trowbridge
Zeeland, Mich.
Kuhnhenn Guild of Brewers Homebrew Club

"Standard Lager"
Standard American Lager

INGREDIENTS
for 6 U.S. gallons (22.71 L)

8.4 lb	(3.81 kg) American pale 2-row malt
1.25 lb	(0.57 kg) flaked corn
1.25 oz	(35 g) Hallertau, 4.1% a.a. (60 min)
0.25 oz	(7 g) Hallertau, 4.1% a.a. (1 min)

White Labs WLP840 American Lager (starter)
50% filtered tap water, 50% distilled water

Original Specific Gravity: 1.050
Final Specific Gravity: 1.010
Boil Time: 90 minutes

Primary Fermentation:
4 weeks at 48° F (9° C)
Secondary Fermentation:
1 week at 52° F (11° C)
Tertiary Fermentation:
1 week at 56° F (13° C)

DIRECTIONS
Single infusion mash at 149° F (65° C) for 60 minutes.

RUNNERS-UP
Silver Medal: Isaac Trowbridge, Zeeland, Mich., Kuhnhenn Guild of Brewers Homebrew Club, Lite American Lager
Bronze Medal: Glenn Quinting, Timonium, Md., Lite American Lager

Category 2

Pilsner

193 entries

Sponsored by:
Seven Bridges Cooperative

Keith Ciani
Olympia, Wash.
South Sound Suds Society

"Gold"
German Pilsner

INGREDIENTS
for 10 U.S. gallons (37.85 L)

20.0 lb	(9.07 kg) Pilsner malt
6.0 oz	(170 g) whole Hallertau, 3.4% a.a. (90 min)
1.5 oz	(42 g) whole Hallertau, 3.4% a.a. (15 min)
1.5 oz	(42 g) whole Hallertau, 3.4% a.a. (1 min)
2 tablets	Servomyces
2 tablets	Whirlfloc

untreated Olympia artesian well water – "it's the water!"

Original Specific Gravity: 1.054
Final Specific Gravity: 1.010
Boil Time: 90 minutes

Primary Fermentation:
27 days at 52° F (11° C)

DIRECTIONS
Use a decoction mash schedule with an initial rest at 147° F (64° C) for 90 minutes. Pull 15 quarts thick mash, with 5 minute rests at 148° F (64° C) and 158° F (70° C). Boil thick mash for 10 minutes and remix to achieve mashout at 170° F (77° C).

RUNNERS-UP
Silver Medal: Rodney Kibzey, Portland, Ore., Oregon Brew Crew, German Pilsner
Bronze Medal: Scott Jackson, Brighton, Colo., Keg Ran Out Club (KROC), Classic American Pilsner

Category 3

European Amber Lager

166 entries

Sponsored by:
Brewing Tools

Andy Weigel
Munhall, Pa.
Three Rivers Alliance of Serious Homebrewers

"Since This Is NHC I'll Keep The Beer Names Nice and Clean… Vienna Lager"
Vienna Lager

INGREDIENTS

for 6 U.S. gallons (22.71 L)

8.5 lb	(3.86 kg) Best Vienna malt
2.0 lb	(0.9 kg) Avangard Pilsner malt
1.0 lb	(0.45 kg) Weyermann® Munich II malt
0.25 lb	(113 g) melanoidin malt
3.0 oz	(85 g) Weyermann® Carafa III Special malt
0.6 oz	(17 g) U.S. Magnum pellets, 12.2% a.a. (60 min)
0.25 oz	(7 g) Saaz pellets, 2.9% a.a. (5 min)
White Labs WLP833	German Bock lager yeast (430B cells)
Whirlfloc	in boil

Adjust mash pH with 2 ml lactic acid
Adjust sparge pH with 1 ml lactic acid
Forced CO_2 to carbonate (2.5 vol.)
1 tsp gelatin finings in secondary

Original Specific Gravity: 1.050
Final Specific Gravity: 1.012
Boil Time: 75 minutes

Primary Fermentation:
14 days at 48° F (9° C)
Secondary Fermentation:
30 days at 35° F (2° C)
Tertiary Fermentation:
60 days at 30° F (-1° C)

DIRECTIONS

Mash at 152° F (67° C) for one hour.

RUNNERS-UP

Silver Medal: Christopher Allen, Nashville, Tenn., Music City Brewers, Oktoberfest/Märzen
Bronze Medal: Mark Messmer, Lake Saint Louis, Mo., Oktoberfest/Märzen

Category 4

Dark Lager

148 entries

Sponsored by:
Briess Malt & Ingredients Co.

Randy Scorby
Bend, Ore.
Central Oregon Homebrewing Organization (COHO)

"May The Schwarz Be With You"
Schwarzbier

INGREDIENTS

for 5 U.S. gallons (18.93 L)

5.0 lb	(2.27 kg) Munich I malt
2.0 lb	(0.9 kg) Munich II malt
0.6 lb	(272 g) Pilsner malt
0.25 lb	(113 g) Carafa II malt
0.25 lb	(113 g) chocolate malt
1.0 oz	(28 g) whole Northern Brewer, 8% a.a. (60 min)
0.5 tsp	Irish moss
1 pack	Wyeast 2124 Bohemian Lager yeast
0.5 tsp	Wyeast yeast nutrient (15 min)

Original Specific Gravity: 1.048
Final Specific Gravity: 1.014
Boil Time: 60 minutes

Primary Fermentation:
14 days at 48° F (9° C)

DIRECTIONS

Mash in at 142° F (61° C) for a single decoction mash and hold for 10 minutes. Pull a thick decoction (1/3 of mash) and hold at 152° F (67° C) for 20 minutes, then boil for 10 minutes. Return to main mash and hold at 154° F (68° C) until conversion is achieved. Sparge with 168° F (76° C) water and boil for 60 minutes. Dark grains should not be added to the mash until you begin to sparge.

RUNNERS-UP

Silver Medal: Christopher Hjorth, Farmington, N.M., Dark American Lager
Bronze Medal: Andy Hejl, Lansdale, Pa., Keystone Hops, Schwarzbier

Category 5

Bock

170 entries

Sponsored by:
Washington Hop Commission

Jeff Lampman
Morro Bay, Calif.
San Luis Obispo Brews (SLOB)

"Saint Martin Doppel"
Doppelbock

INGREDIENTS

for 11 U.S. gallons (41.64 L)

24.0 lb	(10.89 kg) Munich malt
10.0 lb	(4.54 kg) Vienna malt
4.0 lb	(1.81 kg) Cara-Munich malt
3.5 lb	(1.59 kg) melanoidin malt
2.0 lb	(0.9 kg) dextrin malt
2.0 oz	(57 g) Carafa III malt
3.25 oz	(92 g) German Tradition pellets, 6.9% a.a. (60 min)
White Labs WLP 833	German Bock lager yeast
Water:	"Aim for close to Munich, Germany."

Forced CO_2 to carbonate (2-2.4 vol)

Original Specific Gravity: 1.096
Final Specific Gravity: 1.024
IBUs: 26.9
SRM: 23.6
Brewhouse Efficiency: 67%
Boil Time: 2.25 hours

Primary Fermentation:
48-50° F (9-10° C)

DIRECTIONS

Dough in at 1.25 quarts per gallon to hit 125° F (52° C). Hold for 15 minutes, then pull 35 to 38 percent of mash out for decoction. Bring decoction up to 156° F (69° C) and hold for 15 minutes, then raise to a boil and boil for 15 minutes. Add back to main mash to hit 156° F (69° C) and hold for 45 minutes. Remove 20 to 23 percent for a second decoction. Bring decoction to a boil and boil for 15 minutes, then add back to main mash to hit mash out at 168° F (76° C) and hold for 10 minutes. Collect enough wort for a 2.25 hour boil. Chill beer to 48-49° F (9° C) and transfer to fermenter, keeping the wort as clean of trub as possible. Oxygenate well.

Consult Mr. Malty to calculate the correct yeast-to-wort ratio needed. Begin your starter one week ahead of time at 68-70° (20-21° C). The day before you brew, drop starter down to 48-49° F (9° C). After your wort is cooled to 48-49° F (9° C), pour off as much of the spent starter as possible without losing any yeast. Add some of your wort from fermenter and swirl to get the yeast in suspension and add to your fermenter.

In nine to 12 days, when fermentation is about 70 percent done, raise fermenter temperature to 60-62° F (16-17° C) for a 4-5 day diacetyl rest. After this, fermentation should be complete. Transfer to kegs and lager for 2.5 to 3 months at 32-34° F (0-1° C). "I like to go to a secondary for a month before I keg to let the beer clear up. This doppelbock was nine months old when submitted for judging at the NHC."

RUNNERS-UP

Silver Medal: Nick Ladd, Brooklyn, N.Y., New York City Homebrewers Guild, Eisbock
Bronze Medal: Mark Schoppe, Austin, Texas, Austin Zealots, Eisbock

ON THE WEB
Find past winners' homebrew recipes on our website @ Homebrewersassociation.org/homebrew-recipes

Category 6

Light Hybrid Beer

331 entries

Sponsored by:
Cargill Specialty Malts

Thomas Wallace
Stanardsville, Va.
Charlottesville Area Masters of Real Ale (CAMRA)

"Cream of the Crop"
Cream Ale

INGREDIENTS

for 5 U.S. gallons (19 L)

4.75 lb	(2.15 kg) Pilsner malt
4.75 lb	(2.15 kg) U.S. 2-row malt
1.0 lb	(0.45 kg) flaked corn
0.75 lb	(340 g) table sugar
2.0 oz	(57 g) Hallertau pellets, 2.7% a.a. (60 min)
0.5 oz	(14 g) Hallertau pellets, 2.7% a.a. (1 min)

Fermentis Safale US05, rehydrated
Prime with carb tabs to 2.5 vol

Target Original Specific Gravity: 1.057
Target Final Specific Gravity: 1.008
Boil Time: 90 minutes

Primary Fermentation:
14 days at 65° F (18° C)

DIRECTIONS

Mash at 149° F (65° C) for 60 minutes.

DIRECTIONS

Silver Medal: Jay and Shanon Waldner, Keystone, S.D., Ale Riders Homebrew Club, American Wheat or Rye
Bronze Medal: Tim Wang, San Diego, Calif., Kölsch

Category 7

Amber Hybrid Beer

157 entries

Sponsored by:
FastRack

John Boyd
Sacramento, Calif.
Greenbelt Brewers Association

"Gate Keeper"
California Common Beer

INGREDIENTS
for 10 U.S. gallons (37.85 L)

16.4 lb	(7.46 kg) pale 2-row malt
2.1 lb	(934 g) Munich malt
1.6 lb	(708 g) 40° L crystal malt
8.0 oz	(227 g) caramel-Munich II malt
12.4 oz	(352 g) Victory malt
3.1 oz	(88 g) chocolate malt
2.0 oz	(57 g) Northern Brewer pellets, 6.5% a.a. (60 min)
3.0 oz	(85 g) Northern Brewer pellets, 6.5% a.a. (15 min)
3.0 oz	(85 g) Northern Brewer pellets, 6.5% a.a. (1 min)
1.5 oz	(42 g) Northern Brewer pellets, 6.5% a.a. (dry hop 7 days)
White Labs WLP810	San Francisco Lager yeast or Wyeast 2112 California Lager yeast
2 tablets	Whirlfloc, 15 min
2 tsp	yeast nutrient, 5 min

Forced CO_2 to carbonate (2.3-2.5 vol)

Original Specific Gravity: 1.054
Final Specific Gravity: 1.012
Boil Time: 60 minutes

Primary Fermentation:
21-28 days at 62° F (17° C)
Secondary Fermentation:
21 days at 35° F (2° C)

DIRECTIONS
Mash grains at 148-150° F (64-66° C) for 60 minutes. Mash out at 168-170° F (76-77° C). Vorlauf prior to lautering. Use a big healthy starter of either WLP 810 or Wyeast 2112 lager yeast. I used three yeast packs in 2.25 L starter wort, on a stir plate at least 24 to 36 hours prior to brew day. Settle and decant spent starter wort. Oxygenate wort prior to pitching, 1.5 L/min for one minute. Pitch at 60-62° F (16-17° C). Ferment at 62° F (17° C) for 3-4 weeks. Dry hop the week before racking. Rack and condition for at least three weeks onto 2 oz (57 g) of Biofine clear (optional).

RUNNERS-UP
Silver Medal: Robert Todd, Pittsfield, Mass., Northern German Altbier
Bronze Medal: Brian Blossfeld, Howell, Mich., California Common Beer

Category 8

English Pale Ale

217 entries

Sponsored by:
St. Louis Wine & Beer Making

Brian Gregory
Santa Maria, Calif.
Valley Brewers

"Ordinarily Bitter"
Standard/Ordinary Bitter

INGREDIENTS
for 8.5 U.S. gallons (32.18 L)

15.5 lb	(7.03 kg) Golden Promise pale malt
1.0 lb	(0.45 kg) Caramalt
6.0 oz	(170 g) 120° L caramel malt
0.88 oz	(25 g) Challenger pellets, 6.5% a.a. (60 min)
0.5 oz	(14 g) E.K. Golding pellets, 7.2% a.a. (60 min)
0.42 oz	(12 g) Horizon pellets, 12% a.a. (60 min)
0.88 oz	(25 g) Styrian Golding pellets, 3.8% a.a. (20 min)
1.76 oz	(50 g) E.K. Golding pellets, 7.2% a.a. (steep 20 min)
1 tablet	Whirlfloc
White Labs WLP002	English ale yeast (starter)

Forced CO_2 to carbonate (1.75 vol)

Original Specific Gravity: 1.043
Final Specific Gravity: 1.014
Boil Time: 60 minutes

Primary Fermentation:
20 days at 64-68° F (18-20° C)

DIRECTIONS
Mash at 152° F (67° C) for 60 minutes. "Full volume mash (no sparge), 60% brewhouse efficiency. This was one of my first brews dialing in my two vessel, electric RIMS setup." Mash out at 168° F (76° C) for 10 minutes.

RUNNERS-UP
Silver Medal: Ross Winberg, Saint Paul, Minn., Saint Paul Homebrewers Club, Ordinary Bitter
Bronze Medal: Paul Nanian, Rumney, N.H., Baker River Brew Club, Extra Special/Strong Bitter

Category 9

Scottish and Irish Ale

268 entries

Sponsored by:
Nikobrew

Richard Kearns
Marlborough, Mass.

"3 Angels Kilt Lifter"
Strong Scotch Ale

INGREDIENTS

for 6.5 U.S. gallons (24.61 L)

15.0 lb	(6.8 kg) Golden Promise pale malt
1.0 lb	(0.45 kg) aromatic malt
1.0 lb	(0.45 kg) dextrin malt
1.0 lb	(0.45 kg) caramel-Munich malt
1.0 lb	(0.45 kg) caramel-amber malt
1.0 lb	(0.45 kg) melanoidin malt
1.0 lb	(0.45 kg) 10° L Munich malt
0.5 lb	(227 g) biscuit malt
0.5 lb	(227 g) brown malt
3.0 oz	(85 g) roast barley
0.2 oz	(5 g) 20° L Munich malt
0.5 oz	(14 g) Northern Brewer, 8.5% a.a. (90 min)
0.5 oz	(14 g) Northern Brewer, 8.5% a.a. (45 min)
0.5 oz	(14 g) E.K. Golding, 5% a.a. (22 min)
0.5 oz	(14 g) E.K. Golding, 5% a.a. (15 min)
Wyeast 1728	Scottish Ale yeast

Forced CO_2 to carbonate

Original Specific Gravity: 1.100
Final Specific Gravity: 1.027
Boil Time: 2 hours

Primary Fermentation:
3 months at 68° F (20° C)

DIRECTIONS

Mash in at 156° F (69° C) for 60 minutes. Raise mash to 168° F (76° C) to mash out for 10 minutes.

RUNNERS-UP

Silver Medal: John Blythin and Renee Weinberger, Waukegan, Ill., Beer Barons of Milwaukee, Strong Scotch Ale
Bronze Medal: Rodney Murray, Saint Robert, Mo., Missouri Association of Serious Homebrewers (MASH), Strong Scotch Ale

Category 10

American Ale

563 entries

Sponsored by:
BJ's Restaurant & Brewhouse

Jim Barrie, with Derek Miles, Brittney Barrie, and Rich Yasparro
Gainesville, Fla.
Hogtown Brewers

"Prenup Pale Ale"
American Pale Ale

INGREDIENTS
for 6 U.S. gallons (22.71 L)

9.75 lb	(4.42 kg) pale 2-row malt
1.75 lb	(0.79 kg) 10° L Munich malt
1.75 lb	(0.79 kg) Victory malt
0.5 oz	(14 g) Magnum pellets (60 min)
1.0 oz	(28 g) Amarillo pellets (15 min)
1.0 oz	(28 g) Citra pellets (10 min)
1.0 oz	(28 g) Amarillo pellets (10 min)
1.0 oz	(28 g) Amarillo pellets (5 min)
1.0 oz	(28 g) Amarillo pellets (0 min)
1.0 oz	(28 g) Citra pellets (0 min)
1.0 oz	(28 g) Amarillo pellets (dry hop)
1.0 oz	(28 g) Citra pellets (dry hop)

Safale US-05

Original Specific Gravity: 1.054
Final Specific Gravity: 1.010
Boil Time: 60 minutes

Primary Fermentation:
14 days at 68° F (20° C)

DIRECTIONS
Mash at 148° F (64° C) for 75 minutes.

RUNNERS-UP
Silver Medal: David Fetty, Darien, Ill., Brixie's Brewers, American Pale Ale
Bronze Medal: Steve Medd, Danbury, Ct., Underground Brewers of Connecticut, American Amber Ale

Category 11

English Brown Ale

212 entries

Sponsored by:
Alternative Beverage

Kerry Martin
Austin, Texas
Austin Zealots

"Session Mild"
Mild

INGREDIENTS
for 7 U.S. gallons (26.5 L)

7.0 lb	(3.18 kg) Golden Promise pale ale malt
0.75 lb	(340 g) torrified wheat
10.0 oz	(283 g) dark crystal I
4.0 oz	(113 g) dark crystal II
3.0 oz	(85 g) pale chocolate malt
3.0 oz	(85 g) brown malt
1.0 oz	(28 g) E.K. Golding pellets, 4.1% a.a. (60 min)

Wyeast yeast nutrient
White Labs WLP002 English Ale yeast
Forced CO_2 to carbonate (1.5 vol)

Original Specific Gravity: 1.039
Final Specific Gravity: 1.013
Boil Time: 60 minutes

Primary Fermentation:
14 days at 68° F (20° C)

DIRECTIONS
Mash in at 132° F (56° C) for a 10-minute protein rest. Raise to 154° F (68° C) and hold 50 minutes. Mash out at 170° F (77° C) for 1 minute.

RUNNERS-UP
Silver Medal: Steve Medd, Danbury, Ct., Underground Brewers of Connecticut, Northern English Brown
Bronze Medal: David Barber, Orwigsburg, Pa., Lehigh Valley Home Brewers, Mild

Category 12

Porter

303 entries

Sponsored by:
Deschutes Brewery

Mark Peterson
Queen Creek, Ariz.
Arizona Society of Homebrewers

"Dyson's Chocolate Porter"
Brown Porter

INGREDIENTS
for 6 U.S. gallons (22.71 L)

15.0 lb	(6.8 kg) pale 2-row malt
1.5 lb	(0.68 kg) Munich malt
0.75 lb	(340 g) wheat malt
0.75 lb	(340 g) 80° L crystal malt
0.75 lb	(340 g) chocolate malt
0.5 lb	(227 g) Special Roast malt
0.75 lb	(340 g) Ghirardelli cocoa powder
0.25 oz	(7 g) Columbus pellet hops, 13% a.a. (60 min)
0.5 oz	(14 g) Columbus pellet hops, 13% a.a. (30 min)
0.25 oz	(7 g) Columbus pellet hops, 13% a.a. (0 min)
Wyeast 1056	American ale yeast (1 L starter)
2 tsp	yeast nutrient

Clean, filtered water
Force carbonated

Original Specific Gravity: 1.063
Final Specific Gravity: 1.010
Boil Time: 75 minutes

Primary Fermentation:
2 weeks at 65° F (18° C)
Secondary Fermentation:
40 days at 65° F (18° C)

DIRECTIONS
Mash grains at 152° F (67° C) for 75 minutes. Sparge at 165° F (74° C).

RUNNERS-UP
Silver Medal: John Smith, Newport News, Va., Colonial Ale Smiths & Keggers (CASK), Baltic Porter
Bronze Medal: Christopher Hotz, San Diego, Calif. with Dave Frank, Quality Ale and Fermentation Fraternity (QUAFF), Robust Porter

Category 13

Stout

608 entries

Sponsored by:
Brew & Grow

William Steimle with Dylan Vaughan and Craig Vilhauer
Piedmont, Calif.
The Brewing Network

"Spokonoy Nochi 13"
Russian Imperial Stout

INGREDIENTS
for 23.8 U.S. gallons (90 L)

67.021 lb	(30.4 kg) pale 2-row malt
5.93 lb	(2.69 kg) roast barley
4.63 lb	(2.1 kg) light dry malt extract
3.924 lb	(1.78 kg) Special B malt
1.984 lb	(0.9 kg) 80° L caramel-Munich malt
1.984 lb	(0.9 kg) chocolate malt
1.984 lb	(0.9 kg) pale chocolate malt
6.6 oz	(187 g) Warrior pellets, 16% a.a. (60 min)
7.94 oz	(225 g) E.K. Golding pellets, 7.2% a.a. (10 min)
7.94 oz	(225 g) E.K. Golding pellets, 7.2% a.a. (0 min)
White Labs WLP001	California Ale yeast (2 vials)
2 tsp	Wyeast yeast nutrient

Add 22g CaCl and 13g $CaSO_4$ to very soft water
Forced CO_2 to carbonate (2.2 vol)

Original Specific Gravity: 1.100
Final Specific Gravity: 1.029
Boil Time: 65 minutes

Primary Fermentation:
14 days at 64-70° F (18-22° C)

DIRECTIONS
Single step infusion mash at 152° F (67° C) for 60 minutes.

RUNNERS-UP
Silver Medal: James Satin, Saline, Mich., Ann Arbor Brewers Guild, Foreign Extra Stout
Bronze Medal: Brian Hoesing, Lincoln, Neb., Lincoln Lagers, Russian Imperial Stout

Category 14

India Pale Ale

666 entries

Sponsored by:
Hopsteiner

Joe Formanek
Bolingbrook, Ill.
Urban Knaves of Grain

"Over The Top 7 Hop IPA"
American IPA

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

8.5 lb (3.86 kg) Maris Otter pale malt
5.0 lb (2.27 kg) Canadian 2-row pale malt
1.0 lb (0.45 kg) white wheat malt
8.0 oz (227 g) caramel-Vienna malt
4.0 oz (113 g) whole Centennial, 10.5% a.a. (60 min)
1.0 oz (28 g) whole Centennial, 10.5% a.a. (10 min)
1.0 oz (28 g) whole Cascade, 8% a.a. (10 min)
1.0 oz (28 g) whole Willamette, 5.4% a.a. (10 min)
1.0 oz (28 g) whole homegrown hops (10 min)
0.5 oz (14 g) whole Amarillo, 12.5% a.a. (10 min)
0.5 oz (14 g) whole Citra, 13% a.a. (10 min)
0.5 oz (14 g) whole Simcoe, 15.5% a.a. (10 min)
1.0 oz (28 g) whole Centennial, 10.5% a.a. (dry)
1.0 oz (28 g) whole Willamette, 5.4% a.a. (dry)
1.0 oz (28 g) whole Citra, 13% a.a. (dry)
1.0 oz (28 g) whole Simcoe, 15.5% a.a. (dry)
Wyeast 1056 American Ale yeast (1 L starter)
1 tsp Irish moss (15 min)
0.5 tsp yeast extract-based yeast nutrient tablets (15 min)
0.5 cup corn sugar to prime
Filtered Chicago tap water with 2 tsp gypsum per 5 gallons

Original Specific Gravity: 1.072
Final Specific Gravity: 1.012
Boil Time: 75 minutes

Primary Fermentation:
7 days at 65° F (18° C)
Secondary Fermentation:
14 days at 65° F (18° C)

DIRECTIONS
Mash in at 152° F (67° C) and rest for 60 minutes. Mash out at 170° F (77° C) and hold for 10 minutes.

RUNNERS-UP
Silver Medal: Bryan Jacobson, Nyack, N.Y., Defiant Homebrewers, Imperial IPA
Bronze Medal: Aric Nelson, Minneapolis, Minn., Imperial IPA

Category 15

German Wheat and Rye Beer

170 entries

Sponsored by:
Brewing with Wheat *by Stan Hieronymus*

Harry Pilgrim
Fredericksburg, Va.
Fredericksburg Brewing Insiders (FBI)

"Weize-Ass Bock"
Weizenbock

INGREDIENTS
for 6 U.S. gallons (22.71 L)

9.0 lb (4.08 kg) 6.5° L German dark wheat malt
5.0 lb (2.27 kg) Pilsner malt
2.0 lb (0.9 kg) 10° L Munich malt
0.75 lb (340 g) melanoidin malt
0.5 lb (227 g) Special B malt
0.5 lb (227 g) 40° L caramel malt
4.0 oz (113 g) 200° L pale chocolate malt
1.0 lb (0.45 kg) rice hulls
2.0 oz (57 g) German Hersbrucker, 4.3% a.a. (60 min)
White Labs WLP380 Hefewiezen IV ale yeast
DME to carbonate to 3 vol. CO_2

Original Specific Gravity: 1.070
Final Specific Gravity: 1.018
Boil Time: 90 minutes
SRM: 19 SRM **IBU:** 20 **ABV:** 7.4

Primary Fermentation:
4-5 days at 66° F (19° C)
Secondary Fermentation:
7 days at 70° F (21° C)

DIRECTIONS
Single infusion mash for 90 minutes at 156° F (68° C) with a water/grain ratio of 1.25 gallon per pound. Drain and sparge to collect 7.25 gallons (27 L) of wort. Boil for 90 minutes. Add 2 oz (57 g) hops with 60 minutes remaining in the boil. Top up with brewing liquor to reach 6 gallons (22.71 L) in the fermenter. Chill to 66° F (19° C) and ferment with an appropriately sized starter of WLP380. After krausen begins to fall (4-5 days), allow temperature to free rise to 70° F (21° C) and continue fermenting until complete. Please rouse the yeast. This is NOT a krystal weizenbock. Bottle conditioning is a must for the style. Bottle and prime with enough DME to produce 3 volumes of carbonation. This ale requires patience for the rich malt and dried fruit flavors to mature, so age at cellar temperature for several months to reach optimum flavor.

RUNNERS-UP
Silver Medal: Cecilia Bennett, Corvallis, Ore., with Avi Shayevitz and Derrick Risner, Dunkelweizen
Bronze Medal: Sean Kampshoff, Minneapolis, Minn., Minnesota Home Brewers Association, Weizenbock

Category 16

Belgian and French Ale

524 entries

Sponsored by:
Port Brewing Co./The Lost Abbey

Kirk Hofeling
Salt Lake City, Utah
O-Town Hop Heads

"Raspberry Flanders"
Belgian Specialty Ale – Flanders Red Ale on Raspberries

INGREDIENTS

for 9 U.S. gallons (34.07 L)

6.0 lb	(2.72 kg) Dingemans 5.5° L Munich malt
6.0 lb	(2.72 kg) Dingemans Pilsner malt
6.0 lb	(2.72 kg) Weyermann® Vienna malt
1.0 lb	(0.45 kg) Dingemans 19° L aromatic malt
1.0 lb	(0.45 kg) Weyermann® Cara-Munich II malt
1.0 lb	(0.45 kg) Dingemans Special B malt
1.0 lb	(0.45 kg) Weyermann® wheat malt
4.5 lb	(2.04 kg) raspberries
2.25 oz	(64 g) E.K. Golding pellets, 7.6% a.a. (60 min)
2 packets Fermentis Safale US-05	ale yeast
3 smack packs Wyeast 3763	Roeselare Ale Blend
1 tsp	Wyeast yeast nutrient

Bottle conditioned with 11 oz (312 g) dextrose for about 2.4 vol. CO_2

Original Specific Gravity: 1.056
Final Specific Gravity: 1.006
Boil Time: 60 minutes

Primary Fermentation:
5 days at 65-68° F (18-20° C)
Secondary Fermentation:
455 days at 65-68° F (18-20° C)
Tertiary Fermentation:
42 days at 65-68° F (18-20° C)

DIRECTIONS

Mash with a single infusion at 154° F (68° C) for one hour. Mash out at 165° F (74° C) for 20 minutes. Batch sparge. "Three 3-gallon (11.36 L) batches fermented separately and were then blended together after secondary fermentation. Three gallons of blended beer was then racked onto 4.5 lb (2.04 kg) of raspberries for about six weeks. Batch A initial fermentation with Safale 05, then racked to a plastic bucket for secondary with Wyeast 3763 Roeselare. Batch B initial fermentation with Safale 05 then racked to a glass carboy for secondary with Wyeast 3763 Roeselare. Batch C initial fermentation with Wyeast 3763 Roeselare and then racked to a glass carboy for secondary. Additional priming sugar was added to compensate for lack of residual CO_2 after very long secondary."

RUNNERS-UP

Silver Medal: John Rozborski, Pittsburgh, Pa., Three Rivers Alliance of Serious Homebrewers, Belgian Specialty Ale
Bronze Medal: Torre Ahlberg, Longmont, Colo., Belgian Specialty Ale

Category 17

Sour Ale

288 entries

Sponsored by:
Captain Lawrence Brewing Co.

Oskar Norlander with
Peter Salmond and Erik Norlander
Brooklyn, N.Y.
New York City Homebrewers Guild
NHC 2015 Homebrewers of the Year

"Gueuze"
Gueuze

INGREDIENTS

for 5.5 U.S. gallons (20.82 L)

5.25 lb	(2.38 kg) Pilsner malt (49%)
2.69 lb	(1.22 kg) wheat malt (25%)
2.69 lb	(1.22 kg) unmalted wheat (25%)
2.0 oz	rice hulls, in mash, to assist lautering (1%)
1.0 oz	(28 g) aged whole hops (60 min)
Wyeast 3278	Belgian Lambic Blend ale yeast

Original Specific Gravity: 1.052
Boil Time: 60 minutes

Primary Fermentation:
2 months at 70° F (21° C)
Secondary Fermentation:
See below.

DIRECTIONS

Mash with a single infusion at 162° F (72° C) for one hour. Ferment at 70° F (21° C) with Wyeast Lambic blend for two months. Add to 30 gallon Solera red wine barrel and remove 10 gallons of older aged beer. Blend to taste with younger non-barrel aged beer made from the same recipe. Keg, chill, and carbonate.

RUNNERS-UP

Silver Medal: Brian Trout, San Diego, Calif. with Ryan Reschan, Quality Ale and Fermentation Fraternity (QUAFF), Gueuze
Bronze Medal: Matthew Chan, Seattle, Wash. with Gregory Marlor, Brooklyn Brewsers, Berliner Weisse

Category 18

Belgian Strong Ale

407 entries

Sponsored by:
Cargill Specialty Malts

Gerry Lynch with Jonnie Lynch
Milliken, Colo.
Berthoud Barn Burners

"Tridevils Tripel T's"
Tripel

INGREDIENTS

for 12 U.S. gallons (45.42 L)

30.0 lb	(13.61 kg) Castle Pilsner malt
2.5 lb	(1.13 kg) Briess torrified wheat
3.0 lb	(1.36 kg) Simplicity candi syrup
1.0 lb	(0.45 kg) Blanc soft candi sugar
0.75 oz	(21 g) E. Kent Golding pellets, 7.1% a.a. (FWH)
2.0 oz	(57 g) Saaz pellets, 3.8% a.a. (60 min)
2.33 oz	(66 g) Hallertau Mittelfruh pellets, 4% a.a. (45 min)
2.5 oz	(71 g) E. Kent Golding pellets, 7.1% a.a. (20 min)
White Labs WLP500	Monastery Ale yeast, 2.3 L starter
2 tsp	Wyeast yeast nutrient

Eldorado Springs water
Forced CO_2 to carbonate (3 vol)

Original Specific Gravity: 1.082
Final Specific Gravity: 1.009
Boil Time: 120 minutes
Primary Fermentation:
2 days at 67° F (19° C)
Secondary Fermentation:
7 days at 74° F (23° C)

DIRECTIONS

Mash in with a protein rest at 124° F (51° C) and hold for 20 minutes. Raise to 147° F (64° C) and hold for 90 minutes. Mash out at 168° F (76° C) for 15 minutes.

RUNNERS-UP

Silver Medal: Eric Ernst, Campbell, Calif., The Grain Trust, Belgian Strong Dark Ale
Bronze Medal: John Knott, El Cajon, Calif., Belgian Dubbel

Category 19

Strong Ale

209 entries

Sponsored by:
Northern Brewer

Jim Steinbach with Kent Steinhaus
Santa Fe, N.M.
Sangre De Cristo Craft Brewers

"'Merica F%#K Yeah!"
American Barleywine

INGREDIENTS

for 10.5 U.S. gallons (39.75 L)

15.0 lb	(6.8 kg) Maris Otter malt
12.25 lb	(5.56 kg) pale U.S. 2-row malt
4.0 lb	(1.81 kg) extra-light dry malt extract
2.0 lb	(0.9 kg) 15° L crystal malt
2.0 lb	(0.9 kg) 80° L crystal malt
2.0 lb	(0.9 kg) dextrose
0.5 lb	(227 g) Special B malt
0.5 lb	(227 g) pale chocolate malt
4.0 oz	(113 g) Magnum, 13.6% a.a. (90 min)
2.0 oz	(57 g) Magnum, 13.6% a.a. (60 min)
3.0 oz	(85 g) Amarillo, 9.6% a.a. (0 min)
3.0 oz	(85 g) Centennial, 9.2% alpha acid (0 min)
2.0 oz	(57 g) Columbus, 13.9% a.a. (0 min)
2 tsp.	Wyeast yeast nutrient (15 min)
2 tablets	Whirlfloc
2.11 oz	(60 g) calcium sulfate (boil, 60 min)
Wyeast 1056	American Ale yeast, 4L starter, decanted

Forced CO_2 to carbonate (2.5 vol)

Original Specific Gravity: 1.110
Final Specific Gravity: 1.017
Boil Time: 90 minutes

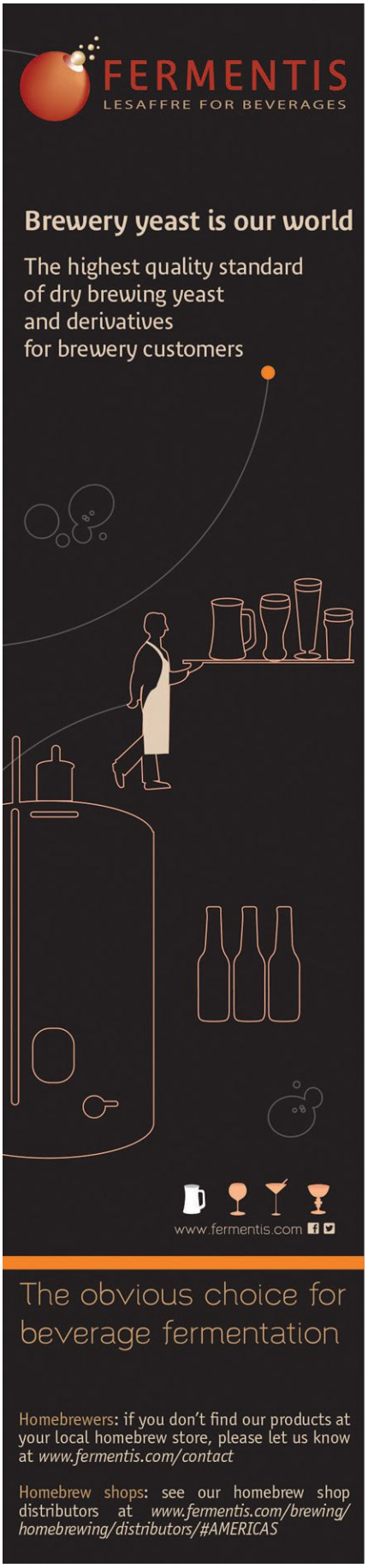
Primary Fermentation:
21 days at 64° F (18° C)
Secondary Fermentation:
100 days at 60° F (16° C)

DIRECTIONS

"So this was a different type of brew day. Due to the huge volumes of water and grain needed for this beer, we had to split the mash into two different mash tuns to get the job done. We mashed with 13.5 gallons (51.1 L) of water (6.75 gallons, or 25.5 L, in each mash tun, which also had half of each type of grain in it) for 60 minutes at 149° F (65° C). Then we did a vorlauf and fly sparged using an additional 5 gallons (18.3 L) sparge water (2.5 gallons, or 9.46 L per mash tun). This got the boil kettle volume to 14 gallons (53 L), then we boiled it until we reduced the volume to 13.5 gallons (51.1 L), then we added the 60-minute hop addition."

RUNNERS-UP

Silver Medal: Joseph Cruz, Sacramento, Calif., Beer UnderGround, English Barleywine
Bronze Medal: Scott Schrader, Pleasant Plain, Ohio, Bloatarian Brewing League, American Barleywine



Category 20

Fruit Beer

192 entries

Sponsored by:
High Gravity Homebrewing & Winemaking Supplies

Tim Thomssen
Lincoln, Neb.
Lincoln Lagers

"Raspberry Tart"
Blonde Ale with Raspberries

INGREDIENTS

for 10 U.S. gallons (37.85 L)

11.0 lb	(4.99 kg) Canadian pale ale malt
5.0 lb	(2.27 kg) Best wheat malt
2.0 lb	(0.9 kg) honey malt
1.0 lb	(0.45) Weyermann® Cara-foam
1.0 lb	(0.45) Weyermann® Cara-Munich II
24.0 lb	(10.89 kg) raspberries (in secondary)
0.65 oz	(18 g) Hallertau Mittelfruh pellets, 6.3% alpha acid (FWH)
White Labs WLP002	English Ale yeast (starter)
1 pinch	Wyeast nutrient (15 min)
Apple raspberry concentrate	(see Directions)

RO mash water with 10 g calcium chloride and 2.5 ml lactic acid
Forced CO_2 to carbonate (3 vol)

Original Specific Gravity: 1.047
Final Specific Gravity: 1.016
Boil Time: 60 minutes

Primary Fermentation:
4 days at 65° F (18° C)
Secondary Fermentation:
21 days at 68° F (20° C)

DIRECTIONS

Single infusion mash at 159° F (71° C) for 60 minutes. Once fermentation slows after a few days, rack onto pre-frozen and thawed raspberries at a rate of 2.4 pounds per gallon. You'll thank me later if you put the fruit in a large paint strainer bag first. You need a good amount of volume as 5.5 gallons of beer plus the fruit fills a 7.9 gallon wine fermenter nearly to the top. Keg, carb and back sweeten to taste with apple raspberry concentrate. Keep the beer cold to prevent secondary fermentation.

RUNNERS-UP

Silver Medal: Sam Paterson, Mesa, Ariz., Arizona Society of Homebrewers, Fruit Beer
Bronze Medal: Mike Spores, Woodbury, Minn., Saint Paul Homebrewers Club, Fruit Beer

Category 21

Spice/Herb/Vegetable Beer

385 entries

Sponsored by:
BeerSmith

Mark Schoppe
Austin, Texas
Austin Zealots
NHC 2015 Ninkasi Award Winner

"Mark's Chipotle Lichtenhainer"
Lichtenhainer with chipotle chiles

INGREDIENTS

for 6 U.S. gallons (22.71 L)

4.16 lb	(1.88 kg) Rauch malt
4.16 lb	(1.88 kg) wheat malt
0.16 oz	(4.5 g) Hallertau Mittelfruh pellets, 5.7% a.a. (30 min)
1 vial	**White Labs WLP677** Lactobacillus delbruecki starter (primary)
Wyeast 2575	Kölsch II yeast starter (secondary)
5	dried chipotle peppers

1g gypsum, 1g calcium chloride and 1.25 ml lactic acid in mash, 1.0 ml lactic acid in sparge water
Forced CO_2 to carbonate (2.7 vol)

Original Specific Gravity: 1.044
Final Specific Gravity: 1.004
Boil Time: 30 minutes

Primary Fermentation:
21 days at 90° F (32° C)
Secondary Fermentation:
156 days at 68° F (20° C)
Tertiary Fermentation:
7 days at 68° F (20° C)

DIRECTIONS

Single infusion mash at 148° F (64° C) for 70 minutes. Lactobacillus only in primary fermentation. Add German ale yeast starter (Wyeast 2575) in secondary. Add five dried chipotle peppers to tertiary (rehydrate in boiled water).

RUNNERS-UP

Silver Medal: Chad Bevers, Heyworth, Ill., Association of Bloomington-Normal Brewers, Spice, Herb or Vegetable Beer
Bronze Medal: Kelsey McNair, San Diego, Calif., Quality Ale and Fermentation Fraternity (QUAFF), Spice, Herb or Vegetable Beer

ON THE WEB
Find past winners' homebrew recipes on our website @ Homebrewersassociation.org/homebrew-recipes

Category 22

Smoke-Flavored and Wood-Aged Beer

350 entries

Sponsored by:
Alaskan Brewing Co.

Craig Easton
Hillsborough, N.J.
Woodbridge Homebrewers Ale and Lager Enthusiast Society (WHALES)

"Whales BBDS"
(Blended Belgian Dark Strong)
Wood-Aged Beer: Belgian Dark Strong, Aged in Oak Bourbon Barrel

INGREDIENTS

for 5.25 U.S. gallons (19.87 L)

13.68 lb	(6.2 kg) Pilsner malt
2.74 lb	(1.24 kg) Munich malt
14.0 oz	(397 g) aromatic malt
14.0 oz	(397 g) caramel Munich malt
14.0 oz	(397 g) Special B malt
14.0 oz	(397 g) cane sugar
7.0 oz	(198 g) melanoidin malt
7.0 oz	(198 g) wheat malt
2.0 oz	(57 g) Hallertauer Mittelfruh pellets, 4.3% a.a. (60 min)

White Labs WLP500 Monastery Ale yeast
Calcium carbonate (dissolved into water under CO_2 pressure)
Calcium sulfate added to mash to achieve a pH of 5.4 at room temp
Calcium chloride and calcium sulfate added to sparge water

Original Specific Gravity: 1.101
Final Specific Gravity: 1.015
Boil Time: 90 minutes

IBUs: 31.8 **SRM:** 22 **ABV:** 11.5%

Primary Fermentation:
35 days at 68° F (20° C)
Secondary Fermentation:
203 days in bourbon barrel

DIRECTIONS

Mash at 153° F (67° C) for 60 minutes with 1.2 quarts of water per pound of grain. Fly sparge until a pre-boil volume of 7.85 gallons (29.7 L) is achieved. Boil for 90 minutes, post boil volume 6.1 gallons (23 L). Chill to 64° F (18° C) and run final fermentation volume of 5.25 gallons into fermenter. Pitch large, healthy yeast starter.

Note: The recipe was scaled up to a batch volume of 65 gallons (246 L), brewed on my club's equipment so as to make enough wort to fully fill a freshly emptied Heaven Hill oak bourbon barrel, where it aged for more than 200 days. The final oak-aged beer was then blended with aged but un-oaked beer to attain the final beer profile.

RUNNERS-UP

Silver Medal: Donna and Larry Reuter, Akron, Ohio, Society of Akron Area Zymurgists (SAAZ), Classic Rauchbier
Bronze Medal: Christopher and Liam Crump, Colorado Springs, Colo., Wood-Aged Beer

Category 23

Specialty Beer

410 entries

Sponsored by:
The Hops Shack

Jason Bryant
Reston, Va.
Wort Hogs

"Citra Session IPA"
Specialty Beer – Session American IPA with Citra hops

INGREDIENTS

for 12 U.S. gallons (45.42 L)

7.5 lb	(3.4 kg) pale 2-row malt
3.5 lb	(1.5 kg) Maris Otter pale malt
2.0 lb	(0.9 kg) Munich malt
1.5 lb	(0.68 kg) aromatic malt
1.0 lb	(0.45 kg) 10° L crystal malt
1.0 lb	(0.45 kg) 40° L crystal malt
1.0 lb	(0.45 kg) dextrin malt
1.0 oz	(28 g) Nugget pellets, 13% a.a. (FWH)
2.0 oz	(57 g) Citra pellets, 14.5% a.a. (10 min)
1.5 oz	(42 g) Mosaic pellets, 12.3% a.a. (10 min)
2.0 oz	(57 g) Citra pellets, 14.5% a.a. (5 min)
1.5 oz	(42 g) Mosaic pellets, 12.3% a.a. (5 min)
4.0 oz	(113 g) Citra pellets, 14.5% a.a. (dry)
1.5 oz	(42 g) Mosaic pellets, 12.3% a.a. (dry)
Wyeast 1056	American ale yeast (3L starter)

Forced CO_2 to carbonate (2.5 vol.)

Original Specific Gravity: 1.042
Final Specific Gravity: 1.012
Boil Time: 60 minutes
Brewhouse Efficiency: 70%
ABV: 3.8%

Primary Fermentation:
7 days at 62° F (17° C)
Secondary Fermentation:
7 days at 66° F (19° C)

DIRECTIONS

Single infusion mash at 155° F (68° C) for 60 minutes.

RUNNERS-UP

Silver Medal: Mark Schoppe, Austin, Texas, Austin Zealots, Specialty Beer
Bronze Medal: Scott Jackson, Brighton, Colo., Keg Ran Out Club (KROC), Specialty Beer

Category 24

Traditional Mead

82 entries

Sponsored by:
Moonlight Meadery

Donald and Stephen Boyle
Colonia, N.J.
Woodbridge Homebrewers Ale and Lager Enthusiast Society (WHALES)
NHC 2015 Meadmakers of the Year

"Blueberry Mead"
Semi-Sweet Mead with Blueberry Honey; Petillant, Medium, Standard

INGREDIENTS

for 5 U.S. gallons (18.93 L)

16.0 lb	(7.26 kg) blueberry honey
10.0 g	Lalvin 71B-1122 dry yeast
16.0 g	DAP
8.0 g	Fermaid O
12.5 g	Go-Ferm

Potassium metabisulfate
Kieselsol
Chitosan
RO water

Gravity: 25 Brix (1.106 S.G.)

Primary Fermentation:
30 days at 60° F (16° C)
Secondary Fermentation:
5 months at 64° F (18° C)

DIRECTIONS

Add RO water to the honey until it reaches 5.5 gallons. Mix until the must is fully homogenized. Add 90 seconds of oxygen with a diffusion stone. Properly hydrate the yeast using Go-Ferm, and then pitch the yeast. Ferment at 60° F (16° C). Add half of the Fermaid O nutrient addition at the first signs of fermentation. Add the second half of the Fermaid O addition when the sugar levels are depleted by about 25 percent. When fermentation is complete, transfer to a secondary and add 45 ppm of sulfites. Let the mead condition in the secondary. Add a clearing agent if needed. Transfer to a keg; add 30 ppm of sulfites and carbonate to your preferred level of carbonation.

RUNNERS-UP

Silver Medal: Tim Thomssen, Lincoln, Neb., Lincoln Lagers, Sweet Mead
Bronze Medal: Ed Moore, Highlands Ranch, Colo., Rock Hoppers Brew Club, Sweet Mead

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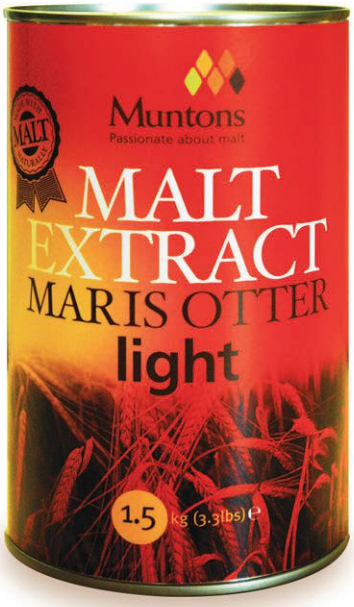
Dr Bell bred *Maris Otter* barley from a cross of *Proctor* and *Pioneer* - two top quality traditional malting barley varieties. To this day, *Maris Otter* seed is only sold to a select group of farmers who are specially chosen to grow the variety.

Soon after its introduction, *Maris Otter* barley malt became a favourite with brewers due to its excellent malting characteristics, low nitrogen content and forgiving brew-house performance.

Maris Otter is still highly prized in today's craft brewing industry providing independent brewers with a rare opportunity to create beers of unparalleled individuality and quality.

And now you can benefit from the unique characteristics of *Maris Otter* in your home brewed beers. Muntons *Maris Otter* liquid Malt Extract is a new addition to the Muntons Malt Extract range available in both 3.3lb cans and bulk malt.



Made using the finest East Anglian Maris Otter barley malted to perfection by Muntons in the UK, this light malt extract contains a blend of premium Brewing malt with at least 60% Maris Otter, making it an ideal base ingredient for any beer recipe.

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Muntons

Find out more from Fred Johnson email: sales@muntons-inc.com
Muntons Inc. WestPark, 8445 154th Ave, NE Building H, Redmond, WA 98052
Office: 425 558 9991 www.muntons.com

Category 25

Melomel (Fruit Mead)

133 entries

Sponsored by:
Moonlight Meadery

John Raczkowski, Plymouth, Ind.
Michiana Extract & Grain Association (MEGA)

"Plum Crazy"
Other Fruit Melomel with Orange Blossom Honey and Michigan Plums; Still, Sweet, Sack

INGREDIENTS

for 6 U.S. gallons (22.71 L)

24.0 lb	(10.89 kg) orange blossom honey
18.0 lb	(8.16 kg) red Michigan plums
White Labs WLP720	Sweet Mead yeast (starter)
3 tsp	pectic enzyme

acid blend
tannin
3 Campden tablets with fruit for 24 hours
yeast nutrient added in staggered additions

Original Specific Gravity: 1.150
Final Specific Gravity: 1.032

RUNNERS-UP

Silver Medal: Donald and Stephen Boyle, Colonia, N.J., Woodbridge Homebrewers Ale and Lager Enthusiast Society (WHALES), Pyment
Bronze Medal: Karl Weiss, Wharton, N.J., Morris Area Society of Homebrewers, Other Fruit Melomel

Category 26

Other Mead

115 entries

Sponsored by:
Celestial Meads

Steve Fletty
Falcon Heights, Minn.
Saint Paul Homebrewers Club

"Damage Control"
Sour Barrel Aged Traditional Mead with Mesquite Honey; Still, Sweet, Sack

INGREDIENTS

for 4.5 U.S. gallons (17.03 L)

18.0 lb (8.16 kg) mesquite honey
3 gallons (11.36 L) water
yeast nutrient
Lalvin 71B yeast
Champagne yeast
Forced CO_2 to carbonate (2.5 vol.)

Original Specific Gravity: 1.150

DIRECTIONS

"This was an experimental rescue mead. In general, however, here's a description of the train wreck and subsequent rescue attempt. The mead stalled in primary. Despite adjusting the pH and pitching more yeast, it would not drop below about 1.060. The yeast was probably 71B, but I also re-pitched Champagne and others in a vain attempt to restart fermentation. At that point, I needed to empty my Flanders red barrel, so in went the mead for about six months just to see what would happen. It dropped some more points, but not much. The barrel gave it subtle oak, funky aromatics, and some acidity."

RUNNERS-UP

Silver Medal: Patrick and Hank McNeely, Golden Valley, Minn., The Brewing Network, Open Category Mead
Bronze Medal: Matthew Chrispen, Bastrop, Texas, Austin Zealots, Open Category Mead

Category 27

Standard Cider and Perry

107 entries

Sponsored by:
Vermont Hard Cider Company

Brett Glenna,
Lakeville, Minn.
Minnesota Home Brewers Association
NHC 2015 Cidermaker of the Year

"Common Cider"
Common Cider, Petillant, Medium

INGREDIENTS

for 5 U.S. gallons (18.93 L)

5 gallons (18.93 L) mixed-variety cider
2.0 lb (0.9 kg) light brown sugar
White Labs WLP775 English Cider yeast

Original Specific Gravity: 1.064
Final Specific Gravity: 1.014

DIRECTIONS

Heat 1.5 quarts water to dissolve sugar, add to must and ferment.

RUNNERS-UP

Silver Medal: Brian Phillips, Nora Springs, Iowa, Iowa/Minn. Society of Brewers (IAMNSOB), Common Cider
Bronze Medal: Paul Arends, Rockford, Mich., GR Homebrewers Club, Common Cider

Category 28

Specialty Cider and Perry

116 entries

Sponsored by:
Vermont Hard Cider Company

Jeremy Olsen
Minneapolis, Minn.
Saint Paul Homebrewers Club

"Ice Cider"
Other Specialty Cider/Perry; Ice Cider, Still, Sweet

INGREDIENTS
for 1.75 U.S. gallons (6.62 L)

5 gallons	(18.93 L) fresh, unpasteurized apple cider from Pine Tree Orchard, White Bear Lake, Minn. Blend included Haralson, Regent, Cortland, Keepsake, and Fireside apples.
2 tsp	yeast nutrient
5 g	Lalvin 71-B, properly rehydrated

Original Specific Gravity: 1.138
Final Specific Gravity: 1.061
ABV: 10.7%

Primary Fermentation:
60 days at 60° F (16° C)
Secondary Fermentation:
90 days at 60° F (16° C)

DIRECTIONS
Sulfite the cider with Campden tablets to 50 ppm for 24 hours and then freeze solid (use a container with a bottom outlet, such as a mash tun or bottling bucket). Once frozen, slowly thaw and collect the melting liquid until target OG is reached. Oxygenate with pure O_2 and add the yeast nutrient and rehydrated yeast. After primary fermentation reaches a stable final gravity, rack into a secondary and age an additional three months before bottling.

RUNNERS-UP
Silver Medal: Todd Donnelly, Chardon, Ohio, Society of Northeast Ohio Brewers, Fruit Cider
Bronze Medal: Brendon George, Shoreline, Wash., Beer Renegades of Everett Washington (BREW), Fruit Cider

ON THE WEB
Find past winners' homebrew recipes on our website @ Homebrewersassociation.org/homebrew-recipes

KUDOS—BEST OF SHOW

AHA/BJCP Sanctioned Competition Program

April 2015

The ALES Open, 652 entries—*Gary and Carly Falkenstein, Regina, SK*

South Shore Brewoff, 193 entries—*Chuck Feyler, Brockton, MA*

Lucid BFD, 151 entries—*Chris Smith, Minneapolis, MN*

ZZHops Club only comp - American Wheat, 30 entries—*Eric Cole, Lee's Summit, MO*

1776, 48 entries—*Chris Becker, Springfield, MO*

4th Annual Larry Fest Twisted Beer Competition, 40 entries—*Brenton Day, Baton Rouge, LA*

Titletown Open HBC XXI, 108 entries—*Ben Young, Black Earth, WI*

20th St. Louis Microfest Homebrew Competition, 243 entries—*Ryan Boyer, St. Louis, MO*

Philly Homebrew Cup, 174 entries—*John Mulligan, Swanton, OH*

2015 Maltose Falcons Mayfaire Competition, 464 entries—*Nick Corona, San Diego, CA*

Hop Courage Great American Homebrew Contest, 303 entries—*Kelly Montgomery and Mark Landers, Cincinnati, OH*

19th Annual Chico Homebrew Competition, 132 entries—*Virg Redman, Vacaville, CA*

2015 WanCup2, 177 entries—*Yasunori Namioka, Nara*

May 2015

6th Annual Greg Noonan Memorial Homebrew Competition, 292 entries—*Andrew Starsiak, Weymouth, MA*

Brew & Grow's Battle of the Brewers: Beers of the British Isles, 197 entries—*Brad Pausha, Chicago, IL*

West Sixth Brew-Off, 42 entries—*Ben Hoh, Lexington, KY*

Operation: Fermentation, 79 entries—*Richard Jander, Houston, TX*

Boston Homebrew Competition, 351 entries—*Steve Schember, Arlington, MA*

4th Annual Lucette Brewing Spring Home Brewing Competition, 46 entries—*John Susa, Eleva, WI*

Lagerpalooza, 57 entries—*Don Robinson, Salt Lake City, Utah*

2015 Parkway Am-Pro, 75 entries—Jon Dawson, Poulsbo, WA

HOWL annual competition, 15 entries—*George Prusha, Leesburg, VA*

Wisconsin State Fair 2015 Homebrew Competition, 159 entries—*Dan Schlosser, Wauwatosa, WI*

BrewFest at Mount Hope Homebrew Competition, 162 entries—*Steven Landgren, Webster, NY*

Alameda County Fair Homebrew Competition (BABO), 213 entries—*Charlie Forsyth, Fremont, CA*

Brew Masters Competition, 13 entries—*Dana Collins, Dracut, MA*

The Original Wort Transformation Challenge, 144 entries—*Eddie Franco, Omaha, NE*

Suds & Desist Homebrew Competition, 93 entries—*Evan Palmer, Wichita, KS*

Segundo Concurso Somos Cerveceros 2014-2015, 112 entries—*Diego Bagnato*

Joseph James Pro-Am Competition, 8 entries—*John Griffith, Las Vegas, NV*

SFHG SMaSH Competition, 40 entries—*Keith Kost, San Francisco, CA*

THOTCON Hacker Brew Competition, 10 entries—*Skyler Kaufman*

Brew Maui HBC Homebrew Competition, 104 entries—*Robert Horst, Sacramento, CA*

Homebruin Cup V, 55 entries—*Michael Caylor, Alcoa, TN*

War of the Wort, 106 entries—*Tyler Broussard, Memphis, TN*

Hopfest Homebrewer of the Year, 53 entries—*Michael Blouin and Anthony Birchfield, Kansas City, MO*

2015 GEBL IPA Bracket Challenge, 90 entries—*Jeremy Allison, Oak Harbor, WA*

33rd Oregon Homebrew Festival, 274 entries—*Randy Scorby, Bend, OR*

RiverRoots Brew-Off, 10 entries—*Pat Stack, Madison, IN*

Bloatarian Open, 180 entries—*Patrick McLendon, Cincinnati, OH*

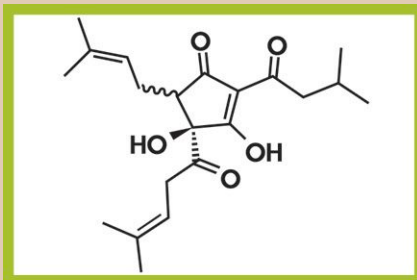
OC Fair Homebrew Competition, 618 entries—*Stephan Setran, Foothill Ranch, CA*

New England Pro Am Beer Festival, 30 entries—*Mike Harper, NH*

Ocean State Homebrew Competition, 184 entries—*Jesse Ferguson, Marion, MA*

Beer Quest Summer Ale, 30 entries—*Tom Malowski, Omaha, NE*

Carolina BrewMasters US Open, 429 entries—*Ben Dolphens and Karl Hungus, Charlotte, NC*



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PROFESSIONAL BREWING PROGRAMS

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AHA/BJCP Sanctioned Competition Program

The Art of Beer: Alabama State Home Brew Competition, 51 entries—*Todd Styles, Huntsville, AL*

Monterrey IPA, 15 entries—*Efren Zuñiga, Monterrey, N.L. Mexico*

Fifth Street Brewpub Members Competition, 60 entries—*Niall Foster, Troy, OH*

20th Annual Big Batch Brew Bash, 44 entries—*Mike Johnson, Houston, TX*

Battle of the Bubbles V, 111 entries—*Matt Cronin, Chevy Chase, MD*

Duane Graf Memorial Homebrew Competition, 19 entries—*Bizzy Gross and Mike Whitmarsh*

Independence Brewing Pro-Am, 15 entries—*Matthew Linnenburger, Fort Worth, TX*

New Styles, 17 entries—*Fabio Colombo, San Diego, CA*

The Great Alaska Craft Beer and Homebrew Festival, 92 entries—*Ryan Lindsay, Juneau, AK*

Hogtoberfest Home Brew Competition, 43 entries—*Mike Santillo, Greensburg, PA*

Venice Brew Bash Home Brew Competition, 43 entries—*Troy Traynham, Spring Hill, FL*

I Concurso de Cerveja Artesanal do Distrito Federal ACervA Candanga, 35 entries—*Hilmar Raposo Filho, Brasília - DF*

Brewnoser's Homebrew Competition 2015, 298 entries—*Rick August, SK*

Sasquatch Brewfest Homebrew Competition, 98 entries—*Daniel Hallila, Campbell, CA*

Garden County Brewers American Ale Competition, 60 entries—*Maja Kristek, Dublin, Ireland*

Hogtown Brew-Off, 380 entries—*Gregory Brown, Tampa, FL*

Sonoma County Home Brewer's Competition, 70 entries—*Joe Monostori, Rohnert Park, CA*

South Beer Cup V, 600 entries—*Heilige, Brazil*

Vista Strawberry Festival Homebrew Competition, 24 entries—*Nathan Gutswiller, Oceanside, CA*

San Diego County Fair Homebrew Competition, 750 entries—*Evan Nagorner, San Diego, CA*

Heart of Cascadia, 17 entries—*Charles Macaluso, Saint Helens, OR*

3rd Annual Hop Blossom Homebrew Competition, 192 entries—*Corey Baldwin, Staunton, VA*

Salem Ale Works Summer Homebrew Competition, 42 entries—*Alex and Caitlin Brehm, Portland, OR*

Ohio State Fair Homebrew Competition, 528 entries—*Matthew Shurtz, Dover, OH*

Kohler Festival of Beer - Homebrew Competition, 100 entries—*Jeff Doll, MI*

8 Seconds of Froth, 21st Annual, 285 entries—*George Delena, Monument, CO*

Paws for Rhythm and Brews Homebrew Competition, 48 entries—*Van Ramsey, Desert Hot Springs, CA*

June 2015

Town Hall Brewery 2nd Annual Cider Competition, 39 entries—*Chris Smith, Minneapolis, MN*

X Concurso Nacional das ACervAs, 663 entries—*Lucas Meneghetti, Porto Alegre, RS*

Bluegrass Cup, 241 entries—*Matt Warren, Signal Mountain, TN*

LMHBA, 223 entries—*Mike Yingling, Northfield, OH*

BUZZ Off 21, 406 entries—*Nicholas Shadel, Reading, PA*

Samuel Adams LongShot American Homebrew Contest, 150 entries—*Daniel Hallila, Campbell, CA*

2nd Annual Steel City Homebrew Competition, 194 entries—*Paul Vieira, Colorado Springs, CO*

IV. Hrvatsko homebrew prvenstvo, 280 entries—*Miroslav Bandzuch, Bratislava, Slovakia*

Hogwild Intraclub Competition, 15 entries—*Richard "Graham" Bolton, High Springs, FL*

Barley's 20th Annual Homebrew Competition, 61 entries—*Seth Draeger, Columbus, OH*

The Beer Project, 46 entries—*Chris Sendker and Travis Schroder, Tarpon Springs, FL*

Nashua River Brewers Festival Homebrew Competition, 52 entries—*Matt Bernier, Athol, MA*

Lift Bridge Pro Am Selection, 30 entries—Rick Helps, *Chisago City, MN*

West Coast Brewers Ironbrewer 2015, 25 entries—Jerome Kennedy, *Perth, Western Australia*

COHO's Spring Fling Homebrew Competition, 312 entries—*Steve Anderson, Bend, OR*

4th Annual Merrimack Valley Homebrew Competition, 147 entries—*Christopher Mark, Cambridge, MA*

Phantom Brewer, 3 entries—*John Mazurco, Costa Mesa, CA*

Because Beer 2015, 429 entries—*Justin MacNeill, Orleans, Ontario*

AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

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

September 4
Competencia Amateur - Cerveza Mexico 2015 (Ronda Final)
Mexico DF, Distrito Federal, Mexico. Entry Deadline: 8/5/2015.
copacerveza.mx

September 5
II Concurso Sul Brasileiro de Cervejas Caseiras
Blumenau, Santa Catarina, Brazil. Entry Deadline: 8/28/2015.
concurso-bjcp.org/sulbrasileiro/

September 5
Schooner Homebrew Competition
Racine, WI. Entry Deadline: 8/22/2015.
theschooner.org

September 5
Western Australia State Amateur Beer Competition
Menora, Western Australia. Entry Deadline: 8/29/2015.
wasabc.org

September 5
The 'Lope 2015
Indianapolis, IN. Entry Deadline: 8/29/2015.

September 6
4th Annual Labor of Love Homebrew Competition
Dallas, TX. Entry Deadline: 8/1/2015.
lolhomebrew.com

September 11
3rd Annual Grace Lutheran Bier Brauen
Sandy, UT. Entry Deadline: 9/5/2015.
gracesandy.org

September 12
Picnique Belgique
North Kansas City, MO. Entry Deadline: 9/1/2015.
graintoglass.biz

September 12
Blue Ridge Brew Off
Asheville, NC. Entry Deadline: 9/4/2015.
maltsters.org/blue-ridge-brew-off

September 12
State Amateur Brewing Show of South Australia
Adelaide, South Australia. Entry Deadline: 9/4/2015.
sabsosa.com

September 12
DRAFT Brewfest
Dayton, OH.
brewfest.brewcompetition.com

September 14
Santa Cruz County Fair Homebrew Competition
Watsonville, CA. Entry Deadline: 8/16/2015.
zymurgeeks.org

September 19
Saskatoon Headhunters Brewing Competition
Saskatoon, Saskatchewan, Canada. Entry Deadline: 9/4/2015. saskatoonheadhunters.ca

September 19
Tulsa State Fair Homebrew Competition
Tulsa, OK. Entry Deadline: 9/11/2015.
tulsastatefair.com

September 19
Texas Meadfest Competition 2015
Gruene, TX. Entry Deadline: 9/1/2015.
texasmeadfestcompetition.org

September 19
Queensland Amateur Brewing Championship
Brisbane, Queensland, Australia. Entry Deadline: 9/5/2015.
qabc.org.au

September 19
LJT's Rhymes & Vines Texas Music Festival & Homebrew Competition
Stephenville, TX. Entry Deadline: 9/19/2015.
larryjoetaylor.com

September 19
Southeast Alaska's Autumn Pour Homebrew Competition
Juneau, AK. Entry Deadline: 9/14/2015.
alaskanbeer.com/2015/06/9/autumn-pour

September 19
II Concurso Estadual da ACervA-ES
Vitoria, ES, Brazil. Entry Deadline: 9/15/2015.
acervaes.com.br

AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

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

September 26
2015 Maryland Microbrewery Festival Homebrew Competition
Westminster, MD. Entry Deadline: 9/12/2015.
mdmicrobrewfest.brewcompetition.com

September 26
HAZtoberfest
Erie, PA. Entry Deadline: 9/12/2015.
brewcompetition.hazardhomebrewing.org

September 26
Aurora - Dearborn County Brewoff
Aurora, IN. Entry Deadline: 9/5/2015.
gcbeer.com

September 26
Pacific Brewers Cup
Los Angeles, CA. Entry Deadline: 9/11/2015.
pbc.pacificgravity.com

September 26
Keep Florence Beautiful BrewFest
Florence, SC. Entry Deadline: 9/19/2015.
keepflorencebeautiful.org

September 26
NOLA on Tap Homebrew Competition
New Orleans, LA. Entry Deadline: 9/26/2015.
nolaontap.org

September 26
Rocktoberfest Homebrew Competition
Redmond, OR. Entry Deadline: 9/19/2015.

October 2
GTA Brew Slam
Toronto, Ontario, Canada. Entry Deadline: 9/25/2015.
gtabrews.ca/brewslam/

October 2
Bavarian Beer Bash Home Brew
Vevay, IN. Entry Deadline: 9/28/2015.
bavarianbeerbash.com

October 3
Old Forge Big Beer and Odd Ale Competition
Old Forge, NY. Entry Deadline: 9/10/2015.
kencarman.wix.com/oldforgeoldale

October 3
Sower's Cup
Lincoln, NE. Entry Deadline: 9/18/2015.
lincolnlagers.com/sowers-cup/

October 3
Orpheus Cup MeadFest
Denver, CO. Entry Deadline: 9/28/2015.
orpheuspcc.org

October 3
Audubon Days
Mayville, WI. Entry Deadline: 9/27/2015.
http://121893.wix.com/mainstreetmayville

October 3
Commander SAAZ Interplanetary Homebrew Blastoff!
Cocoa Beach, FL. Entry Deadline: 9/8/2015.
saaz.org

October 3
Ale Riders Homebrew Competition
Rapid City, SD. Entry Deadline: 9/11/2015.
aleriders.brewcompetition.com

October 3
NC Brewers Cup 2015 - Homebrew
Raleigh, NC. Entry Deadline: 9/16/2015.
ncstatefair.org/2015/Competitions/Entering/BeerCompetition.html

October 3
Members of Barleyment & Beau's Oktoberfest 3rd Annual Homebrew Competition
Ottawa, Ontario, Canada. Entry Deadline: 9/5/2015.
comp.barleyment.ca

October 3
Brixtoberfest
Brookfield, IL. Entry Deadline: 9/25/2015.
brixtoberfest.brixiesbrewers.com

AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

October 3
Michigan Mead Cup
Frankenmuth, MI. Entry Deadline: 9/26/2015.
michiganhoneyfestival.com

October 3
Celebrewtion
Sacramento, CA. Entry Deadline: 9/19/2015.
celebrewtion.goldcountrybrewers.org

October 3
Alabama Brew-Off
Birmingham, AL. Entry Deadline: 9/18/2015.
alabamabrewoff.com

October 3
Linde Oktoberfest Tulsa Homebrew Contest
Tulsa, OK. Entry Deadline: 9/30/2015.

October 3
O'Zapft
Fort Worth, TX. Entry Deadline: 8/31/2015.
ozapfthomebrew.com

October 4
Big Muddy Monster Brew Fest Homebrew Competition
Murphysboro, IL. Entry Deadline: 9/19/2015.
bigmuddymonsterbrewfest.com

October 4
Southern New England Regional Homebrew Competition
Stratford, CT. Entry Deadline: 9/19/2015.
undergroundbrewers.org/snerhc/

October 10
EduCate the Mash Heads
San Diego, CA. Entry Deadline: 10/2/2015.
mashheads.com

October 10
Battle of the Beers
Virginia Beach, VA.
beachambassadors.com

October 10
2015 Schnapp Hans Cup
Delafield, WI. Entry Deadline: 9/26/2015.
schnapphanscup.com

October 10
Arktoberfest Challenge
Arkadelphia, AR. Entry Deadline: 9/18/2015.
arktoberfest.org/wp/

October 10
I Concurso CervaSerra de Cervejas
Caxias do Sul, Rio Grande do Sul, Brazil.
Entry Deadline: 9/22/2015.
cervaserra.com.br

October 17
Queen of Beer Women's Homebrew Competition
Placerville, CA. Entry Deadline: 10/10/2015.
hazeclub.org

October 17
HOPS BOPS XXXI
Philadelphia, PA. Entry Deadline: 10/7/2015.
hopsclub.org

AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

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

October 17
Australian Amateur Brewing Championship
Brisbane, Queensland, Australia. Entry Deadline: 10/3/2015.
aabc.org.au

October 17
Nordeast Big River Homebrew Competition
Minneapolis, MN. Entry Deadline: 9/30/2015.
nordeasthbc.brewcompetition.com

October 17
3rd Annual Delaware Home Brew Championship
Dover, DE. Entry Deadline: 10/8/2015.
delawarewineandbeerfestival.com

October 17
5th Copa Cerveceros Caseros de Chile
Santiago, Metropolitana, Chile. Entry Deadline: 10/10/2015.
minicerveceria.cl/sitio/index.php

October 17
Brews in the Burg
Fredericksburg, VA. Entry Deadline: 10/1/2015.
Brewsintheburg.com

October 18
9th Annual KROC Great American Beer Challenge
Broomfield, CO. Entry Deadline: 10/10/2015.
kroc.org/gabc

October 21
Winnipeg Brew Bombers Pro Am Brew Challenge 2015
Winnipeg, MB., Canada, Entry Deadline: 10/16/2015.

October 24
Valhalla: The Mead-ing Of Life 2015
Phoenixville, PA. Entry Deadline: 10/10/2015.
brewdrinkrepeat.com/valhalla/

October 24
National Organic Brewing Competition
Watsonville, CA. Entry Deadline: 10/01/2015.
nobc2015.com

October 24
14th Annual Oregon Brew Crew Fall Classic
Portland, OR. Entry Deadline: 10/16/2015.
oregonbrewcrew.org/fallclassic

October 25
2015 BrewUnited Challenge
Lake View, AL. Entry Deadline: 10/12/2015.
brewunited.com/2015_challenge.php

October 31
Greater Topeka Hall of Foamers Brew Bash
Topeka, KS. Entry Deadline: 10/18/2015.
topekabrewers.com

November 5
5 Paddles Brewing Competition
Whitby, ON, Canada. Entry Deadline: 10/30/2015.

November 7
M.A.L.T. 2015
Montreal, Quebec, Canada. Entry Deadline: 10/23/2015.
montrealers.ca

November 7
Op. Bravo
Keller, TX. Entry Deadline: 11/7/2015.
opbravo.org

November 7
Skirmish
Greensboro, NC. Entry Deadline: 10/24/2015.
battlegroundbrewers.com

November 14
BrewDat!
Houma, LA. Entry Deadline: 11/14/2015.
bayoubeersociety.org

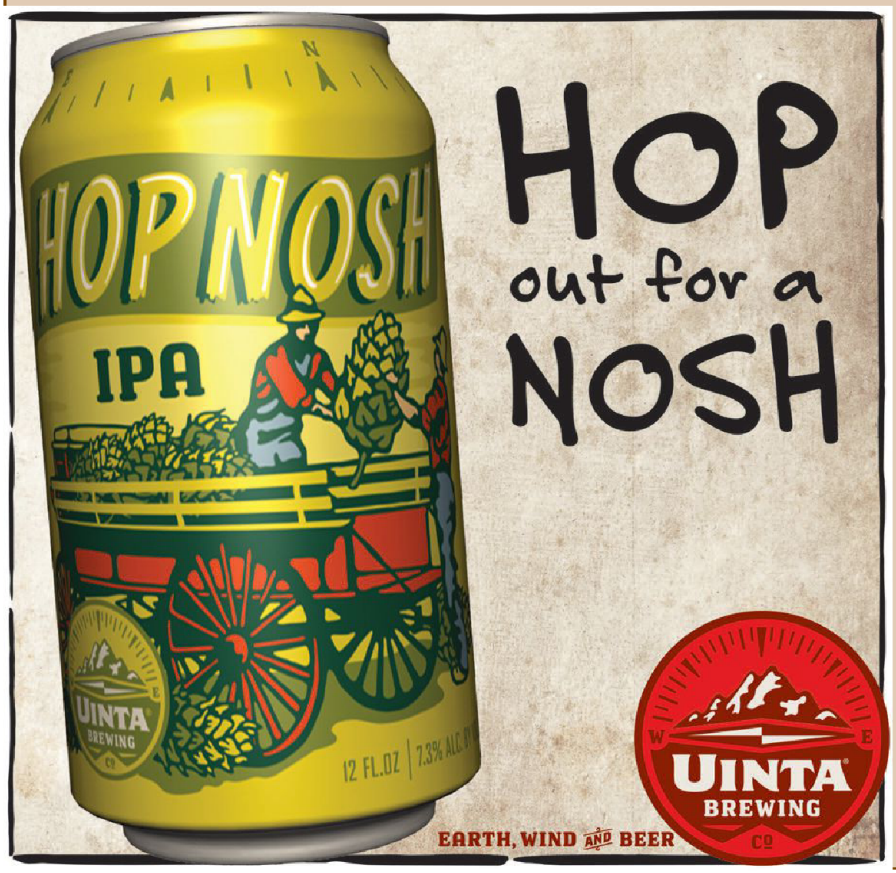
November 14
Días Oscuro
Denver, CO. Entry Deadline: 11/2/2015.
thefermentologists.com

November 14
Knickerbocker Battle of the Brews
Albany, NY. Entry Deadline: 11/5/2015.
thoroughbrews.org/kbotb/

November 14
SCH-ABC 8
Phoenixville, PA. Entry Deadline: 10/22/2015.
schomebrewers.com/sch-abc.html

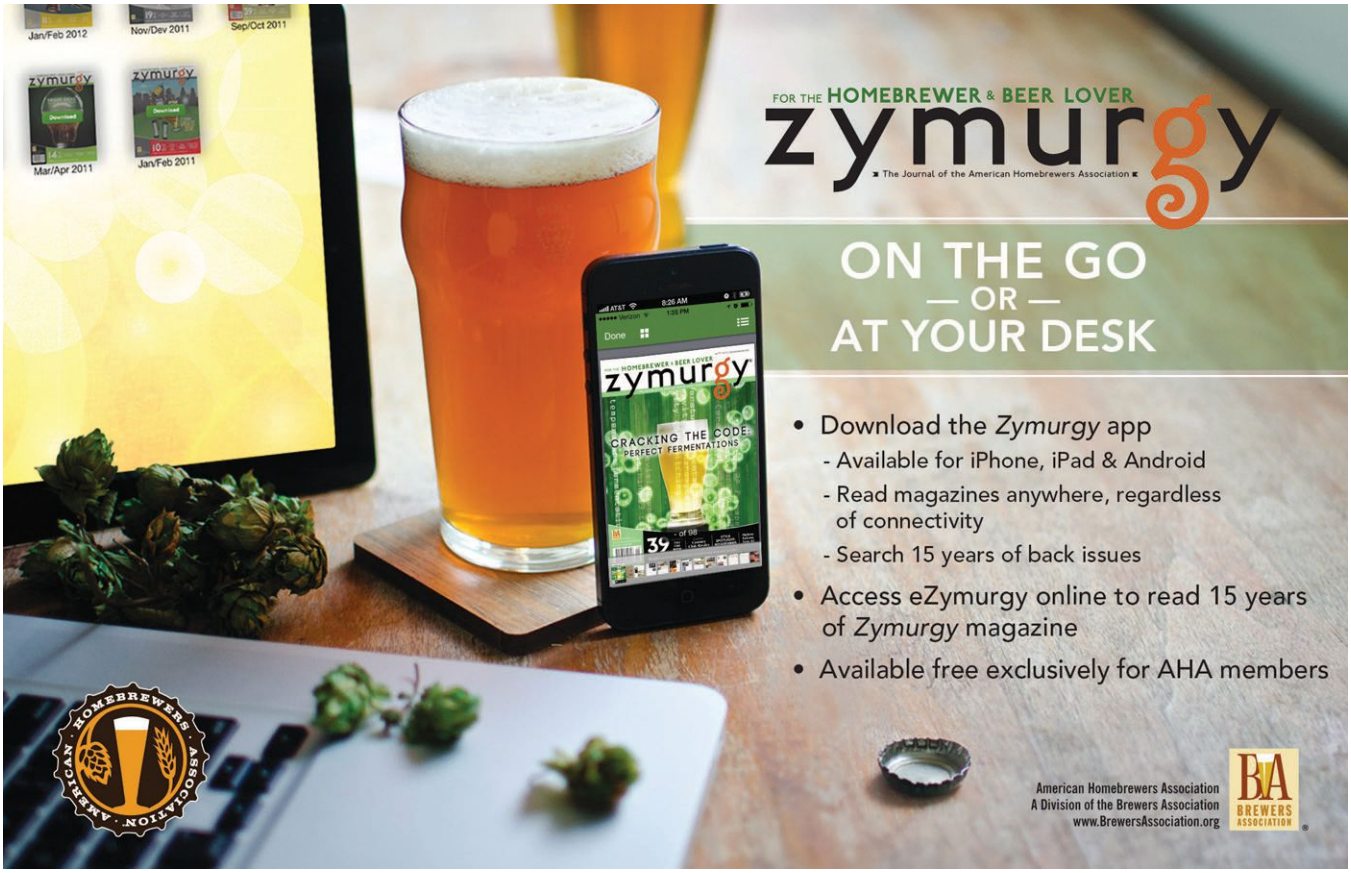
November 14
Monster Homebrew Competition
Cedar Park, TX. Entry Deadline: 11/10/2015.
thedigpub.com/monster-homebrew-competition

November 27
Black Friday Homebrew Competition (Black Beer Only)
London, UK. Entry Deadline: 11/15/2015.
mini-comp.londonamateurbrewers.co.uk



ON THE WEB

For an up-to-date calendar of AHA and BJCP events go to the Events section of HomebrewersAssociation.org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COMMERCIAL CALIBRATION

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 commercial beers (or meads or ciders) using the BJCP scoresheet. We invite you to download your own scoresheets at bjcp.org, pick up a bottle of each of the beverages and judge along with them in our Commercial Calibration.

ON THE WEB

Logsdon Farmhouse Ales
farmhousebeer.com

Victory Brewing Co.
victorybeer.com

BJCP Style Guidelines
bjcp.org

Commercial Calibration Index
HomebrewersAssociation.org/pages/zymurgy/commercial-calibration

Photo © Brewers Association

Continuing to comb through the 2015 BJCP Style Guidelines, we sent our judges two Brett-focused beers for this issue.

First up was Seizoen Bretta from Logsdon Farmhouse Ales in Hood River, Ore. This beer was judged as 28A: Brett Beer. According to the style guidelines, beers brewed with Brettanoymyces are "most often drier and fruitier than the base style suggests. Funky notes range from low to high, depending on the age of the beer and strain(s) of Brett used."

Seizoen Bretta, a gold medal winner at the Great American Beer Festival, has "fruity and spicy flavors that are balanced by hops and soft malt character," according to the brewery website. Brett provides added dryness and crisp complexity, and the beer is bottle conditioned with pear juice for natural carbonation. Seizoen Bretta checks in at 8 percent ABV.

Logsdon Farmhouse Ales founder Dave Logsdon is also the founder of Wyeast Laboratories, and he's now brewing Belgian-style beers in a big red barn on 10 acres in Hood River.

Next up was the new Victory Sour Monkey from Victory Brewing Co. in Downingtown, Pa. Sour Monkey is a Belgian-style tripel incorporating multiple fermentations via three different yeasts, including Brett. It was judged as Category 28B: Mixed Fermentation Sour Beer, due to the addition of Lactobacillus, with Belgian tripel as the base style. Category 28B is described simply as "a sour and/or funky version of a base style of beer" in the style guidelines.

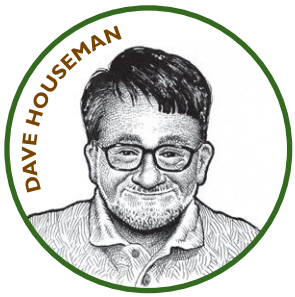
Sour Monkey is brewed with Tettnang and Hallertau hops, Pilsner malt, and coriander seed. The beer is a riff on Victory's award-winning Golden Monkey tripel and checks in at 9.5 percent ABV.

"We feel a beer like this, putting an enormous twist on one of our most beloved brands, will open up another level of appreciation for the art of craft beer," commented Victory president and brewmaster Bill Covaleski.

OUR EXPERT PANEL panel includes David Houseman, a Grand Master V level judge and competition director for the BJCP from Chester Springs, Pa.; Beth Zangari, a Grand Master II level judge from Placerville, Calif. and founding member of Hangtown Association of Zymurgy Enthusiasts (H.A.Z.E.); Scott Bickham, a Grand Master III 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 IX judge, principal author of the BJCP Style Guidelines, and president of the BJCP board who lives in Beavercreek, Ohio.

Seizoen Bretta—Logsdon Farmhouse Ales, Hood River, Ore.
BJCP Category: 28A: Brett Beer

THE JUDGES' SCORES FOR SEIZOEN BRETTA



Aroma: Funky, horse blanket, and wet hay aroma is very inviting. Supportive Pils-malt character. Alcohol is evident. No hop aroma. Moderate fruity fermentation esters that aren't assertive; no banana. No DMS. No diacetyl. Well-balanced aroma. (10/12)

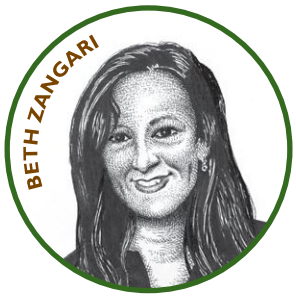
Appearance: Hazy to cloudy clarity, OK for style. Yellow to light gold color. Dense, rich, white, rocky head with excellent retention. (3/3)

Flavor: Sweet, Pils-malt character up front followed by medium-high alcohol and medium hop bitterness that balances nicely. Funky, barnyard character from the Brettanomyces may bloom further as the beer ages. Dry finish, as appropriate for a saison, enhanced by the alcohol as well as the firm attenuation and hop bitterness. Peppery phenols and moderate fermentation esters without distracting banana notes. Hint of lemon in aftertaste adds to complexity. No hop flavor. No DMS. No diacetyl. (16/20)

Mouthfeel: High carbonation. Medium body. Soft, smooth palate with lingering astringency in mouthfeel. Assertive alcohol warming. (4/5)

Overall Impression: Very nice expression of Brett yeast in a very drinkable and stylistically correct saison. Well balanced. The alcohol is not subtle at all, a bit hot, contributing to a more drying astringency than necessary. A refreshing beer that would accompany many dishes including mussels, duck, and pork. (9/10)

Total Score: (42/50)



Aroma: Strong lemony note dominates the first impression, with hints of earthiness and leather, a bit of Brettanomyces barnyard. Hop aroma is quite subdued, perhaps adding to the earthy character. (10/12)

Appearance: Hazy golden-yellow, with a creamy white foam that falls quickly, but still rings the glass with each sip. (3/3)

Flavor: Lightly bready, biscuity malt peeks from behind pronounced lemon, passion fruit, and mango. The earthy herbal wet hay characteristic of Brettanomyces is accentuated with hints of clove and vanilla. Almost sugary sweetness emerges mid-palate, then gives way to a firm, lingering bitterness. (16/20)

Mouthfeel: Spritzy carbonation and medium body create a soft, fluffy texture. A low alcohol warmth follows a dry, crisp finish. (5/5)

Overall Impression: Fluffy, soft, and cozy beverage belies the 8 percent ABV. It's kind of sneaky. The earthy, barnyard notes are reminiscent of first rains on dried grass. Hop bitterness grows with each sip, which begs another, and another. A perfect accompaniment to venison chili with homegrown peppers and freshly baked cheddar biscuits. (8/10)

Total Score: (42/50)

Aroma: Intense barnyard, horse blanket, and leathery aroma. Light clove and vanilla phenols. Mineral, slightly metallic notes lend a musty character. Very light wheat notes, but the focus is on the Brett character. Low tropical fruit esters (mango and papaya) emerge. (10/12)

Appearance: Straw to gold in color with a light to moderate haze. Good carbonation and head retention, but a bit too murky to observe bubbles rising to the surface. (2/3)

Flavor: Starts with a fairly firm wheaty backbone that helps provide a pedestal for leathery, woody, and other Brett flavors. Additional complexity from light peppery and clove phenols. Finish dries out nicely with acidity to cut the malt sweetness. Hop bitterness is restrained, but is enhanced by phenols and tannins from the fermentation to yield a balanced finish. Light esters, but less apparent than in the aroma. (16/20)

Mouthfeel: Complex, with a generous carbonation level that provides a lively mouthfeel. Moderate astringency, as well as a lingering mineral character, lends a chalky dryness and slight mouth-puckering sensation. Moderate alcohol warmth. Residual sugars leave stickiness on the lips. (5/5)

Overall Impression: A very enjoyable beer that showcases a classic Brett fermentation. Astringency detracts a little from the finish. It has more of a green wood character, similar to aging in young American oak. A little more acidity might help dry out the finish but that may occur naturally with aging. Nicely done! (8/10)

Total Score: (41/50)

Aroma: Moderate leathery aroma with moderate fruit (pears, white grapes, apples). Fairly bright, with hints of acidity. Mild phenolics, spicy, like white pepper or grains of paradise. Brett character is strong, with leather and fruit. Complex aroma, consistent with a saison and Brett character. (10/12)

Appearance: Golden color. Hazy. Moderate-sized white head. The cloudy-hazy appearance is a negative. (2/3)

Flavor: Strong fruity-spicy flavor. Peppery. Fruity notes have the same character as the aroma (white grape, pear, apple). High bitterness. Very dry finish. Slightly pungent aftertaste, not totally clean. Light leathery flavor. Late flavors and finish are a little muddled, kind of soapy-funky. Not really sour (OK), but just slightly tart. Flavor is complex and interesting but the finish isn't as dry and clean as it could be; the aroma is better than the flavor. (14/20)

Mouthfeel: Very high carbonation. Medium-light body. Mildly warming, but not hot. Has a feeling of bigness without being heavy. Slight tannin provides fullness. (4/5)

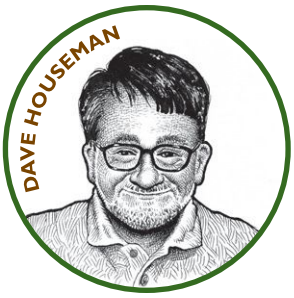
Overall Impression: Definite saison character but also noticeable Brett. Very dry. Fruity, spicy, leathery. Slightly muddled in the finish. Deceptive alcohol. Well balanced. Tasting more of saison than Brett, which gives it a confusing identity. Maybe if it was older, the Brett would have more chance to develop and give it a stronger fruity-funky flavor. Right now, it's just kind of an interesting saison. (7/10)

Total Score: (37/50)

Illustrations by Terry McNerney

Sour Monkey—Victory Brewing Co., Downingtown, Pa.
BJCP Category: 28B: Mixed-Fermentation Sour Beer

THE JUDGES' SCORES FOR SOUR MONKEY



Aroma: Refreshing lactic sourness initially with supporting but low level of horsiness from Brettanomyces. Noticeable alcohol. A touch of bready Pils malt character. The typical tripel Belgian yeast character is subservient to the Lacto and Brett with only a low level of esters. No hop aroma. A lingering plastic-like phenol, not attributable to the glass. No DMS. No diacetyl. (9/12)

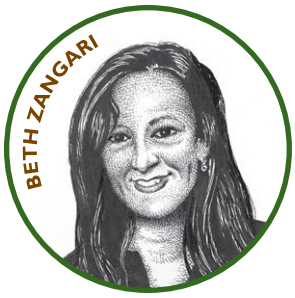
Appearance: Somewhat hazy; OK for style. Golden yellow color. Stiff, white, long-lasting head. (3/3)

Flavor: Pils-malt-like sweetness up front with lactic sourness taking over. Hop bitterness balances this well-attenuated, dry finish. Noble hop flavor is low. Brett barnyard/horse blanket character has not developed much. Fermentation esters are not particularly Belgian. Alcohol flavor is subtle. No phenols. No DMS. No diacetyl. (15/20)

Mouthfeel: Medium to medium-light body. Mouthfeel is thinner due to the acidity. Carbonation was moderate; could have been higher. Dry finish in mouthfeel with only a little astringency from the lower pH. No lingering bitterness. Subtle alcohol warming creeps up on the drinker. (5/5)

Overall Impression: A very refreshing beer, like a high octane version of a radler. The Lacto has developed sourness well but the Brett has yet to fully bloom into a rich horse blanket character. The base tripel, Golden Monkey, seems to have lost a good deal of its Belgian character. Great beer for a hot day and a Cobb or seafood salad. (8/10)

Total Score: (40/50)



Aroma: A sharp lactic sour note hits the nose first, giving way to a distinct wild plum and sugar sweet aroma of tripel. No hop aroma; the sourness seems to grow stronger as the sample sits. (9/12)

Appearance: Brilliant and golden with a fine white foam that does not persist, but leaves lace on the glass nonetheless. (3/3)

Flavor: Sweet, clean malt in background and a pronounced but soft lactic sourness. No hop flavor; subdued bitterness. Balance comes from the sour, rather than bitter. A hint of yeast passes over the tongue, as though making a guest appearance. Malt emerges again and dominates the finish. (16/20)

Mouthfeel: Light bodied with somewhat soft carbonation. A tang of sour dances on the tongue, tingling where bitterness might otherwise be found. Alcohol is not evident, despite the stated 9.5 percent ABV. Crisp, dry finish, with no bitterness. (5/5)

Overall Impression: The first tang of sour wakes up the taste buds; the sweet, clean malt beguiles another foray. This beer gets more complex and enjoyable with each sip. The tripel character nearly gets lost behind the sour, but emerges as a major player as the palate adjusts. Lovely as an aperitif, this would also be wonderful with cooked, chilled shrimp or crusty bread and butter or soft cheese. (7/10)

Total Score: (40/50)

Aroma: Moderate earthy and leathery notes from Brett, followed by light metallic and stone fruit. Malt is subdued, contributing light honey and some sweetness in the background. Faint peppery and clove phenols, along with light lemony notes from the citric acid. (9/12)

Appearance: Golden color, with a robust head that stands up nicely. Excellent clarity showcases streams of CO_2 rising to the surface. (3/3)

Flavor: Pronounced sourness that is primarily lactic acid, but with lesser contributions from acetic acid. Highly attenuated, without much malt sweetness in the forefront or the finish. Brett adds pleasant earthy and leathery notes, but not the typical horse blanket character. Finish is dry with low hop bitterness. While the sourness is assertive, fermentation character balances and adds complexity. (17/20)

Mouthfeel: Moderately high effervescence, as appropriate in a Belgian-style ale. A moderate level of mouth-coating astringency from tannins, but it lends dryness without being mouth-puckering. The sourness takes care of that! Light metallic character found in many sours. Alcoholic warmth is apparent, but subtle given the listed ABV. (4/5)

Overall Impression: An enjoyable foray into the new American wild beer category. The sourness is fairly intense, but works well with the earthy and leathery notes from the Brettanomyces. Stone fruit (mainly cherries) lends complexity to the aroma and flavor. Flavor profile should evolve with aging. (9/10)

Total Score: (42/50)

Aroma: Mild but complex. Light sourness. Honey character noted. Slight tropical and fruity nose; fruit is like peaches. Not phenolic or spicy. Aroma grows as it warms, adding more fresh fruit. Impression of strength. Fruit and sour has a sweet-tart impression, but it's subtle. (10/12)

Appearance: Very clear. Moderate, cream-colored head—could be higher. Effervescent. Deep golden color. (3/3)

Flavor: Initial sourness has a clean lactic flavor. Mild honey and bready grain flavor. Medium-low bitterness but moderate sourness adds balance. Sour lactic finish, clean. Moderate peachy-fruit character. Dry finish but with a light palate fullness. Not much base yeast character (minimal phenolics, for instance). Lactic flavor has a light complexity. Brett character hasn't really developed a funky quality, but could be adding to the fruity notes. (16/20)

Mouthfeel: High carbonation. Medium body, likely some is added by tannin. Lightly warming alcohol, but not hot. Has an acidic bite. (4/5)

Overall Impression: Tripel character is mostly gone. Sourness is prominent. The balance works nicely; it is easy to drink and certainly something to try again. Not much Brett character but the sourness and peachy esters blend in nicely, especially with the honey malt flavor. Sourness is pleasant, natural, and complex. Would likely continue to evolve as it ages. (8/10)

Total Score: (41/50)

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by Charlie Papazian

I Saw It Coming

On my Facebook page a friend asked, "Does Charlie Papazian keep track of the number of people who ask for a photo with him?" Well, no, I don't keep track, but I have to admit that I never saw *those* numbers coming, whatever they are. But to the often-asked question, "Charlie, did you ever imagine homebrewing being this big?" Well, yes I did and always have.

Immersed in the past few American Homebrewers Association National Homebrewers Conferences, surrounded by several thousand homebrewers, I often found myself thinking, "Well, it's about time!" Whether it was in the founding days of the AHA in 1978 or throughout the 1970s amongst aspiring homebrewers attending my living room/kitchen homebrewing classes, I was confident that this beer thing we all were worked up about was going to grow. It was easy to observe the passions ignited by the introduction to homebrewed beer and homebrewing. Of course, there were always doubters. There are still doubters. But I'm not one of them.

Every batch of homebrew created speaks volumes about the evolution and the future of homebrewing. The passion and excitement have always existed. Perhaps being heard is much easier today than it was 30 years ago. Our means of socializing were more direct, personal, and hands

EVERY BATCH OF HOMEBREW CREATED SPEAKS VOLUMES ABOUT THE EVOLUTION AND THE FUTURE OF HOMEBREWING.

Bitter & Esters Charlie's Brown

ALL GRAIN RECIPE

INGREDIENTS

for 5 U.S. gallons (19 L)

7.0 lb	(3.2 kg) Maris Otter pale malt
1.0 lb	(0.45 kg) caramel malt (10° L)
8.0 oz	(227 g) Gambrinus Honey malt
8.0 oz	(227 g) aromatic malt
4.0 oz	(113 g) debittered black malt
4.0 oz	(113 g) chocolate malt
0.75 oz	(21 g) Liberty hops, 5% a.a. (3.4 HBU/95 MBU) 60 min
1.0 oz	(28 g) Mosaic hops, 11.6% a.a. (11.6 HBU/325 MBU) 15 min
1.0 oz	(28 g) Mosaic hops, 1 min
1.0 oz	(28 g) Nelson Sauvin hops, 1 min steep at end
1.0 oz	(28 g) Nelson Sauvin hop pellets, dry hop
0.25 tsp	(1 g) powdered Irish moss, 10 min

White Labs Cry Havoc yeast or Wyeast 2112 California Lager Yeast

0.75 cup	(175 ml) corn sugar (priming bottles) *or* 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.050 (12.5° B)
Target Extraction Efficiency: 75%
Approximate Final Gravity: 1.012 (3° B)
IBUs: about 38
Approximate Color: 26 SRM (52 EBC)
Alcohol: 5% by volume

DIRECTIONS

A step infusion mash is employed to mash the grains. Add 9.5 quarts (9 L) of 140° F (60° C) water to the crushed grain, stir, stabilize, and hold the temperature at 132° F (56° C) for 30 minutes. Add 4.75 quarts (4.5 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), lauter, and sparge with 3.5 gallons (13.25 L) of 170° F (77° C) water. Collect about 5.5 gallons (21 L) of runoff. Add 60-minute hops and bring to a full and vigorous boil.

The total boil time will be 60 minutes. When 15 minutes remain, add the 15-minute hops. When 10 minutes remain, add the Irish moss. When one minute remains, add the 1-minute hops. After a total wort boil of 60 minutes, turn off the heat, add whirlpool hops and steep 1 more minute. Place the pot (with cover on) in a running cold-water bath for 30 minutes. Continue to chill in the immersion or use other methods to chill your wort. Strain and sparge the wort into a sanitized fermenter. Bring the total volume to 5 gallons (19 L) with additional cold water if necessary. Aerate the wort very well.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F (21° C) for about one week or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary and add the hop pellets for dry hopping. If you have the capability "cellar" the beer at about 55° F (12.5° C) for about one week. Prime with sugar and bottle or keg when complete.

Charlie with Bitter & Esters founders John La Polla (left) and Douglas Amport.

on. Today's social media spreads our feelings at the speed of light. We are more connected today; in the past we were just as preoccupied with our excitement about homebrewing, but spreading the word progressed at a more "local" pace. We planted the seeds that have grown and flourished in our current landscape. What a wonderful view.

Did I see it coming? Yes, I truly did. I didn't mess around for so many years with dead-end ideas; that's just not me. It was always obvious. And it's obvious that homebrewers and their homebrewed beers are unrelenting with their mission. It's about increased enjoyment and transforming the world through introducing friends to great beer, one glass of homebrew at a time. Has any hobby had such a totally shared vision? I think not.

There's more joy to spread. Learn to Homebrew Day is in November, but there are 364 other days in which we've done so, and will continue to do so.

Here's a unique recipe for a deliciously fruity and floral, late-hopped, and malt-balanced brown ale I developed for my friends at Bitter & Esters homebrew supply shop in Brooklyn, N.Y. They've reported great success with their customers, so here's to sharing and spreading the word. Let's cut the shuck and jive and get on with the recipe.

Charlie Papazian is founder of the American Homebrewers Association and author of *The Complete Joy of Homebrewing.*

Bitter & Esters Charlie's Brown

MASH/EXTRACT RECIPE

INGREDIENTS

for 5 U.S. gallons (19 L)

5.0 lb	(2.27 kg) very light malt extract syrup *or* 4.3 lb (1.95 kg) very light dried malt extract
1.0 lb	(454 g) caramel malt (10° L)
8.0 oz	(227 g) Gambrinus Honey malt
8.0 oz	(227 g) aromatic malt
4.0 oz	(113 g) debittered black malt
4.0 oz	(113 g) chocolate malt
1.0 oz	(28 g) Liberty hops, 5% a.a. (4.5 HBU/126 MBU) 60 min
1.0 oz	(28 g) Mosaic hops, 11.6% a.a. (11.6 HBU/325 MBU) 15 min
1.0 oz	(28 g) Mosaic hops, 1 min steep at end
1.0 oz	(28 g) Nelson Sauvin hops, 1 min steep at end
1.0 oz	(28 g) Nelson Sauvin hop pellets, dry hop
0.25 tsp	(1 g) powdered Irish moss, 10 min

White Labs Cry Havoc yeast or Wyeast 2112 California Lager Yeast

0.75 cup	(175 ml) corn sugar (priming bottles) *or* 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.050 (12.5° B)
Target Extraction Efficiency: 75%
Approximate Final Gravity: 1.012 (3° B)
IBUs: about 38
Approximate Color: 26 SRM (52 EBC)
Alcohol: 5% by volume

DIRECTIONS

Heat 3 quarts (3 L) water to 172° F (77.5° C) and add 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 extract and 60 minute hops and bring to a boil. The total boil time will be 60 minutes. When 15 minutes remain, add the 15-minute hops. When 10 minutes remain, add Irish moss. When one minute remains, add the one-minute hops. After a total wort boil of 60 minutes turn off the heat, add whirlpool hops and steep one more minute. Immerse the covered pot of wort in a cold water bath and let sit for 15 to 30 minutes or the time it takes to have a couple of homebrews.

Strain out and sparge hops and direct the hot wort into a sanitized fermenter to which 2.5 gallons (9.5 L) of cold water has been added. If necessary add cold water to achieve a 5 gallon (19 L) batch size. Aerate the wort very well.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F (21° C) for about one week or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary and add the hop pellets for dry hopping. If you have the capability "cellar" the beer at about 55° F (12.5° C) for about one week. Prime with sugar and bottle or keg when complete.

Photo courtesy Charlie Papazian

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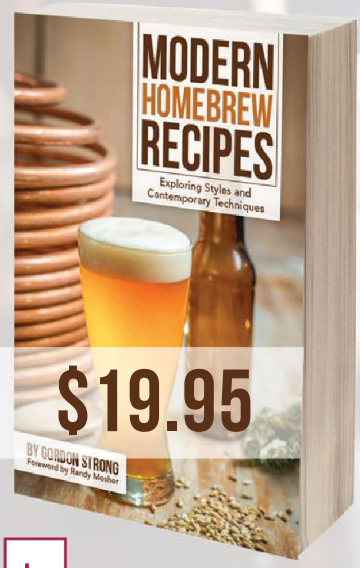

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ABOUT THE AUTHOR

Three-time winner of the American Homebrewers Association Ninkasi Award, **Gordon Strong** is president and highest ranking judge in the Beer Judge Certification Program, and principal author of the BJCP Style Guidelines.

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By Clint Cherepa

Bad Homebrew: What to Do?

Admit it: at some point in homebrewing, you've brewed some bad beer. Whether as a beginner or as an old pro, we have all suffered from the bad batch blues at some point.

There is way too much immaculate homebrew out there to waste time drinking swill. I recall getting into the homebrew game and thinking that anything I brewed was worth its weight in hops. But after lining up some batches side by side with a good beer, I was sorely mistaken.

What about that funky six-pack your buddy sent over? Yeah, I guess you could call it beer—it contains the essential hops, malt, yeast, and water—but after one swallow you know the next five bottles need a new home. The age-old conundrum raises its head: what to do with bad homebrew?

I asked a longtime brewing buddy about his solution. "I usually can't bear to throw it away," he admitted. "But I won't give them away either, because I know the taste is off. I will let a few months go by, then try one, imagining it has improved. I know better, of course. It's so hard to let go, and you don't want to believe that every bottle is bad! Finally, after up to two years later, down the drain they sadly go, one by one."

It doesn't have to be such a sad state of affairs. Here are some ways to put bad beer to good use.

Cook with It

Countless recipes call for beer. I had a batch that was "off" and it quickly became the official batch used for making beer muffins. The muffins always turned out great; you would never know the beer used was not so tasty. You can use beer in breads, for cooking bratwursts, or for marinating. You'd better get started on those vanilla porter cupcakes.

Garden with It

Beer is full of nutrients that are reportedly great for fertilizing your lawn, flowers, or vegetable garden. Barley and hops are a great source of energy for the lawn. The carbohydrates energize the microbes in the soil and help your grass grow.

Make Vinegar

Many homebrewers have used less than tasty homebrew to make malt vinegar. It's the perfect condiment for fish and chips. Of course, you can only use so much vinegar. Why not perfect the recipe and give out bottles as gifts?

Find a Taker

Sometimes, a beer that isn't to your liking may taste great to someone else. If you find a friend who actually likes the batch, send him or her home with a few complimentary six-packs.

Learn from the Brew

One of the best uses for bad brew is learning from our mistakes. What went wrong? As homebrewers, none of us want to waste the time and energy on a bad batch. Study your brewing notes. What did you do differently that might have spoiled your beer?

A bad batch is not the end of the world. Learn from it, be willing to part with it, or put it to good use elsewhere.

Clint Cherepa is currently living, running, and homebrewing in Nicaragua.

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