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The Journal of the American Homebrewers Association®

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Hobbybrauenweh

In case you haven't gathered by now, I'm a big geek. Not so much a fantasy and sci-fi kind of geek as a Linux, EDM, and studying-German-for-fun sort of geek. I'll spare you the details of the first two, but you'll have to bear with me on the third.

I love how German speakers can string words together to create imposing neologisms. A great example is *Zusammengehörigkeitsgefühl*, which is assembled from words meaning "together," "belonging," and "feeling." It's the sense of inclusion and kinship you feel from being part of a group.

Another quintessentially German word, *Fernweh*, refers to an almost painful longing to be traveling in a distant land. It's literally "away woe," the opposite of homesickness (*Heimweh*). And the language's wonderful propensity to incorporate English without missing a beat means that the word for "homebrewing" comes about by attaching an English prefix to a German word: *Hobbybrauen*.

What's the point of this polyglot prat-tle? Well, lately I've been experiencing what in German might be described as *Hobbybrauenweh*, or a longing to home-brew. You see, for the past several months, I've been hard at work on a forthcoming book. Between editing *Zymurgy* and writing a manuscript, I've not had much time to brew, and I miss it.

So, having finally completed the manuscript in early October, I decided to brew something big to celebrate, something that I could age for a year and enjoy when the book drops next fall. Since my book is about lager, I decided to make a huge doppelbock. And since I happened to have some Zürich lager yeast on hand, I brewed Falconclaws, the Maltose Falcons'

clone of the famous Swiss holiday lager Samichlaus. You can find the recipe at homebrewersassociation.org, and if you brew it right now, it'll be ready for the 2017 winter holidays.

Switching gears, if you follow the AHA on social media, subscribe to our emails, read *Zymurgy*, or enjoy the benefits of a pulse, you've no doubt heard about our new app, Brew Guru. We're rather proud of it because it offers a convenient way to take advantage of AHA member benefits. If you're like me—and let's hope for the sake of your loved ones you're not—then you usually remember to ask about your AHA discount just as you're walking out the door.

Brew Guru won't let you off so easily. As soon as you're within about 100 meters of a participating establishment, you'll receive a push notification telling you that there's a discount to be had (assuming you've enabled geo-location). Tap the screen to find out the details, and then use the app to flash a digital member card at your server.

Under the guidance of the AHA Governing Committee, we've invested some of your member dues to develop this app, so we want to deliver the best experience possible. Download Brew Guru, give it a spin, and let us know what you think. And be sure to tell your friends. Once they've tasted the sweet victory of the member discount, I'm confident they'll join the AHA and enjoy all the *Zusammengehörigkeitsgefühl* we have to offer.

For more details on Brew Guru, see Gary's "From the Glass" column in this issue.

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

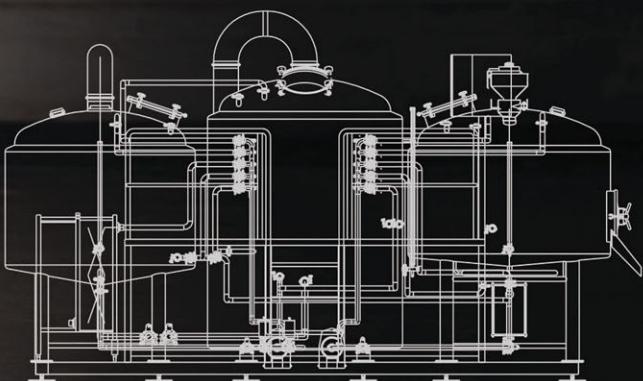
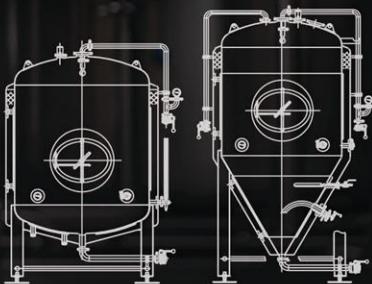


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By Zymurgy Editors



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Baby, it's cold outside—and the perfect time to brew a faux lager.

By Dave Carpenter

To read this special, members-only online feature,
go to HomebrewersAssociation.org/nd16

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



>> GET THERE!

PORTLAND HOLIDAY ALE FESTIVAL

There are beer cities, and then there are Beer Cities. And while beer nerds have been known to engage in some friendly debate surrounding the relative merits of their respective hometowns' beer scenes, few among us would think twice about ranking Portland, Ore. among the best.

The Holiday Ale Festival is everything you imagine a Portland beer festival should be. Held in downtown Portland at Pioneer Courthouse Square from November 30 to December 4, it celebrates what organizers call "potent winter ales...all of which are created specifically to bring warmth and cheer to the holiday season."

At press time, the list of confirmed breweries included Bear Republic, Bridgeport, Deschutes, Fat Head's, Fort George, Full Sail, Ninkasi, Rogue, Stone, and more than 40 others. But it's the limited release beers that really induce the Pavlovian drool response. Last year's festival included Stone's Suitable for Cave Aging, Firestone Walker's Helldorado, and a four-year vertical flight of Deschutes' The Abyss.

Proceeds from the Holiday Ale Festival benefit the Children's Cancer Association, a Portland-based not-for-profit organization that promotes care and quality of life for children and teens with cancer and other life-threatening illnesses in Oregon and throughout the United States.

For more information, go to holidayale.com.

For more craft brewing events, go to CraftBeer.com

November 5

Learn to Homebrew Day 2016

Sites worldwide

HomebrewersAssociation.org

November 13

Kane Brewing Company AHA Rally

Ocean Township, NJ

HomebrewersAssociation.org

December 10

Beer Conn

Bridgeport, CT

beer-conn.com

November 5

National Beer Mile Nashville

Nashville, TN

nationalbeermile.com

November 19

National Beer Mile

San Diego, CA

nationalbeermile.com

December 10

The Great St. Louis Czech Beer Festival

St. Louis, MO

stlpiovo.com

November 12

Stone Liberty Station AHA Rally

San Diego, CA

HomebrewersAssociation.org

December 3

Valley Forge Beer & Cider Festival

Philadelphia, PA

valleyforgebeerfest.com

December 31

Brew Year's Eve

Chicago, IL

brewyearseve.com

>> YOU'VE GOTTA DRINK THIS

PACIFIC BREWING AND MALTING RED FRONT SESSION RED

Tacoma, Wash. is known for being home to the world's largest automobile museum and a burgeoning craft beer industry. Today we sampled Red Front Session Red by Pacific Brewing and Malting. Copper-red in color, light in body, and lightly carbonated, the grain bill of 100 percent Best Malz Red X malt is offset by 100 percent Cascade hops. This creative pairing of hops and malt delivers a well-balanced beer.

Reviewed by Tom and Lars Vedick,
a father and son team from
Federal Way, Wash. and Cardiff, Calif.,
respectively.



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

>> BEERCATION DESTINATION

CHARLESTON, S.C.

By Danele Bova

Editor's Note: This story is condensed from a feature that originally appeared on CraftBeer.com. To read the piece in its entirety, head over to CraftBeer.com.

It's not hard to see why the average traveler is attracted to Charleston, South Carolina. It's a Southern city full of charm, harboring historical landmarks, shopping, and restaurants galore. Now the craft beer revolution is bringing new light to this city, making Charleston a beercation destination. Charleston boasts more than 10 breweries with several more in planning.

Palmetto Brewing, the veteran of breweries, has been operating just outside of downtown for more than 20 years. Right down the road you'll find Revelry Brewing, a hip spot not too far from downtown where locals like to hang outside and enjoy a pint and a cheese plate. Cooper River Brewing recently opened in 2015 and has received love from the locals looking for new establishments to explore.

Holy City Brewing boasts a huge tap list with up to 20 different beers. You will find a variety ranging from core beers to more experimental brews for those who enjoy interesting and different flavors.

Coast Brewing, open since 2007, has been brewing honest, straightforward beers that will impress anyone's palate. Coast Brewing is family friendly, as are all of the breweries in Charleston. On any given Saturday, you'll find families from all walks of life sitting outside the brewery enjoying a 32/50 Kolsch or HopArt IPA.

Frothy Beard Brewing is the darling brewery of Charleston. Their most exciting beer is Andale!, a jalapeño cilantro pale ale. This beer is savory and spicy, and will coat your tongue with pepper

flavor. Another favorite among locals is the seasonal Melon Collie & The Infinite Seedless. This watermelon wheat beer has a strong watermelon taste without being artificial or candy-like.

Two Blokes Brewing, in neighboring Mount Pleasant, boasts a spacious taproom with bar seating, couch seating, and even a fun little play area designed specifically for children. You'll probably meet the owners/brewers behind the bar, proudly pouring their beer to patrons. Bushfire, a chipotle amber ale, stands out among the rest with its smoky back note and spiciness at the forefront.

Right down the street from Two Blokes is Ghost Monkey Brewery. A trip to this newbie is worth it just to discover what the name Ghost Monkey means. And to finish your Mount Pleasant brewery tour, stop by Westbrook Brewing Co. for a tour of their impressive production facility and taproom. Westbrook has one of the largest barrel programs in the state, and if you're lucky you might even see Mexican Cake aging in one of those barrels.



Photos courtesy of Danele Bova

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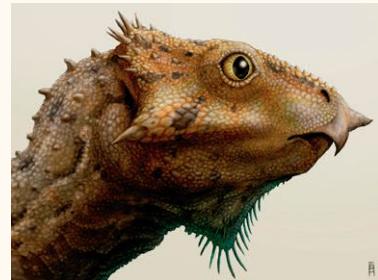
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>> GREAT RECIPE EAGLE FACE OATMEAL STOUT

Contributed by Andy Farke



Andy Farke, a homebrewer and paleontologist (see Last Drop "Homebrew for Dinosaurs" in the Sept/Oct 2016 issue of *Zymurgy*), crafted this recipe to celebrate the new dinosaur *Aquilops* that he and several colleagues announced in 2014. The name *Aquilops* translates from Greek and Latin to "eagle face," referring to the sharp beak on this distant cousin of Triceratops. Andy served this beer at the 2015 National Homebrewers Conference with his club, the Horse Thief Brewers Association.

Batch Volume: 5 U.S. gallons (18.92 L)

Original Gravity: 1.060 (14.7° P)

Final Gravity: 1.022 (5.5° P)

Color: 40 SRM

Bitterness: 38 IBU

Alcohol: 5% by volume

MALTS

8.5 lb.	(3.86 kg) 2-row malt
1.25 lb.	(0.57 kg) old-fashioned or flaked oats
1 lb.	(0.45 kg) 80° L crystal malt
1 lb.	(0.45 kg) Victory malt
0.75 lb.	(0.34 kg) chocolate malt
0.5 lb.	(0.23 kg) roasted barley
0.3 lb.	(0.14 kg) rice hulls

HOPS

1.5 oz.	(43 g) Northern Brewer, 7.8% a.a. @ 60 min
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YEAST

White Labs WLP002 English Ale Yeast

ADDITIONAL ITEMS

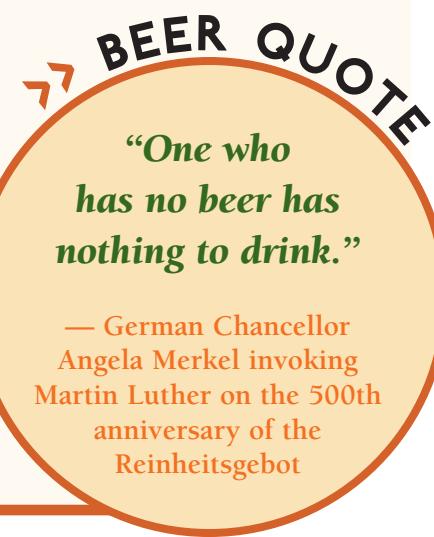
1 tsp.	Irish moss @ 10 min
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BREWING NOTES

Single-step infusion mash at 156° F (69° C) for one hour. Mash out at 168° F (76° C), sparge, and boil for 60 minutes, adding hops as indicated. Ferment for 14 days at 68° F (20° C).

PARTIAL-MASH VERSION

Decrease 2-row to 3 lb. (1.36 kg) and mash with oats and specialty malts for one hour at 156° F (69° C). Collect runoff, add 4 lb. (1.8 kg) of pale malt extract syrup, and boil for 60 minutes, adding hops as indicated. Ferment for 14 days at 68° F (20° C).



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By Gary Glass



Brew Guru AHA App

Hopefully by now you have downloaded the AHA's new free app, Brew Guru, available for Apple and Android devices. If not, get on it, because you are not using your AHA membership to its full potential! For members living outside the USA, note that the original version of the app was available only in the United States, but the latest release is available internationally.

My favorite feature of the app is the map, which includes all of the breweries and homebrew shops in the Brewers Association's extensive database. It also highlights AHA Member Deals participants. Users can get geo-located push notifications to let them know when they are within 100 meters of an AHA Member Deals location. The app includes a digital member card, shown along with any nearby AHA Member Deal discount offers, making it exceptionally easy to redeem discounts. Now you don't have to worry if you've left your member card at home.

Brew Guru uses geo-location for the map and for Member Deals push notifications, and users of the first version of the app could turn geo-location either on (and receive notifications at all times) or off (and receive no Member Deal alerts). But some members let us know they wanted location services to run when the app was active but not continue in the background at other times. We listened. Brew Guru for iOS now offers this capability, and users who select this third option will only receive push notifications for nearby deals when the app is in use (Android handles location services differently and doesn't currently allow this option). The app's location service feature is specifically designed for low power usage, and, consequently, you may not be notified of a location if you're only in the 100-meter radius for a short time.



The AHA's new Brew Guru app gives you mobile access to curated content, a brewery and Member Deal locator, a digital membership card, and more.

In addition to the map function, the app gives users access to curated collections of AHA articles and recipes drawn from Zymurgy magazine and HomebrewersAssociation.org on a wide range of homebrew-related topics. The app's search function lets you find this content easily, or allows you to look up a brewery you've always wanted to visit.

We are continuing to push new content to the app, and a recent upgrade now allows us to add rich multimedia content, from Homebrew Con seminar recordings to Zymurgy Live presentations and much more.

When it's time to renew your membership, no problem—you can do that right from the app.

For those who have never been members, the app includes a free 15-day trial membership with no strings attached or credit card required, so anyone can experience what the AHA has to offer before committing to paying dues. Brew Guru makes it really easy to introduce your friends and homebrew club members to the awesome benefits of AHA membership without commitment. Once they've had a taste, I'm sure they'll want to pay for the membership that pays them back in Member Deals.

discounts. (Note that the app doesn't perform properly on some older devices. See HomebrewersAssociation.org/brew-guru for a list of supported devices.)

Download Brew Guru from the Apple and Google app stores now!



Learn to Homebrew Day

Speaking of Brew Guru, the app has a whole lot of content relevant to new

homebrewers, making it a great tool for the newbies you'll be teaching on November 5 for Learn to Homebrew Day. You can find the AHA's *Zymurgy: An Introduction to Homebrewing* as a collection in Brew Guru. Encourage your homebrewers-in-training to download the app, get the information they need, and start a free 15-day AHA trial membership. Don't you wish it were that easy when you started homebrewing?

You're reading my column in *Zymurgy* right now, so you're probably really into homebrewing. Wouldn't it be great if even more of your friends were into the hobby so you would have that many more people to talk to about homebrewing? Learn to Homebrew Day is the solution! Take the time on November 5 to teach your friends, family, and/or neighbors how to brew their own beer. By teaching others the joy of homebrewing, we help keep our favorite hobby alive and vibrant, and help keep your local homebrew shop in business. See HomebrewersAssociation.org for more details on Learn to Homebrew Day, to register a site, or to find a registered site in your area.



Hop & Brew School

For the last several years, I've had the privilege of presenting on the state of homebrewing during YCH Hops' annual Hop & Brew School, which takes place during hop harvest in Yakima, Wash. I always learn a lot from the presenters, but the highlights for me are trips to hop farms to witness the harvesting, picking, drying, and baling of hops, and to the hop processing and storage facilities where hops are pelletized or turned into extract and then packaged for both professional and amateur brewers.

This year, during a tour of YCH's Sunnyside plant, we were shown a new piece of equipment that uses nitrogen to cryogenically separate lupulin glands from the hop flowers to create two new products: lupulin powder and de-bittered hops. The hop powder contains most of the resins and essential oils but leaves behind the rest of the plant material, meaning you get great hop flavor and aroma with less wort loss and less vegetal character in the finished beer. The hop flowers that remain after the lupulin powder is removed are also usable, supposedly having a low alpha acid, noble hop character, even though the original hops were American Northwest varieties such as Cascade, Simcoe®, and Mosaic®. At this time, these new hop products are in limited supply and only available to select breweries, but hopefully they'll hit the homebrew market within the next few years.

AHA Governing Committee Call for Nominations

The AHA Governing Committee is taking nominations for candidates for the 2017

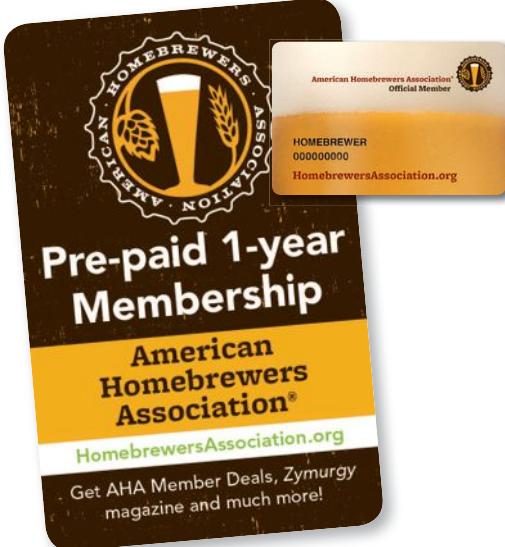


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election, which takes place this February and March. There are six open seats on the Governing Committee to be filled in the 2017 election. The members of the AHA Governing Committee provide guidance and advice to AHA staff and play a direct role in setting the path for our organization's future. Members of the Governing Committee participate in monthly conference calls and an annual in-person meeting at Homebrew Con. The Committee members also serve on various subcommittees focused on particular areas of interest, such as clubs, diversity, communications, and so on. If you are interested in running for election or know someone who would make a great candidate, please submit a nomination. For more information, see the Governing Committee pages under the Membership section of HomebrewersAssociation.org.



Give the Gift of Membership

The holidays are fast approaching, which means it's time to brew holiday beers and find the perfect gifts for friends and family. I've got a great idea for everyone on your list: an AHA membership gift card. Gift cards are easy to ship (they conveniently fit into an envelope) and are sure to please. With an all-time high of 1,500 businesses now offering discounts to members, even recipients who aren't the most active homebrewers will still get a lot out of an AHA membership. Plus, during the holiday season, you get your choice of one of three additional free gifts (that can be passed on or kept for yourself—they'll never know): a copy of the newly released *Wood & Beer*:

A Brewers Guide by Dick Cantwell and Peter Bouckaert, a copy of the venerable *Designing Great Beers* by Ray Daniels, or an AHA bar towel. Your gift will support the AHA and our mission to protect and promote homebrewing. See HomebrewersAssociation.org for more details.



2017 Homebrew Con Speaker Proposals

Homebrew Con 2017, the AHA's 39th annual National Homebrewers Conference, takes us to Minneapolis June 15–17, and the AHA Governing Committee's Conference Subcommittee is now accepting proposals for seminars and poster presentations. We expect to have 50 or more seminars for the anticipated 2,500+ attendees to choose from in Minneapolis. Seminars last one hour, with

approximately 45 minutes of presentation and 15 minutes of Q&A. If you're looking to share your brewing knowledge with your fellow homebrewers, let us know. Seminar presenters get complimentary passes to the full conference. Proposals are due by November 28. Go to HomebrewCon.org for more information and to submit your proposal.

Legislative Update

On September 24, California Governor Jerry Brown signed bill AB 2172, which becomes law on January 1. The AHA has supported the California Homebrewers Association on this bill, which allows homebrew to be brought onto the premises of businesses licensed by the California Department of Alcoholic Beverage Control (such as breweries and restaurants) for homebrew club meetings and competitions. Thanks to all of the California homebrewers who helped get this important piece of homebrew legislation passed!

Until next time, happy brewing!

Gary Glass is director of the American Homebrewers Association.



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By Our Readers

Where's the Session Beer?



Dear *Zymurgy*,

There's a real lack of information out there on brewing low-alcohol beers. If you search the forums, people are interested and are throwing around recipes and suggestions, but there's little in the way of solid help other than to brew a mild or ordinary bitter. I realize that, aside from session IPA, the craft industry isn't moving in the direction of low alcohol, and that makes sense. But as individual brewers, plenty of us would love to be able to make a great 3-percent ABV session beer.

It would be fantastic if *Zymurgy* could run an article on this, complete with solid advice and recipes in both all-grain and extract forms so that brewers who want to do this have a solid foundation for getting started beyond just trolling the forums and hoping for the best.

Happy brewing and thanks for putting together such a great magazine.

Josh Prokopy
West Lafayette, Ind.

Editor-in-Chief Dave Carpenter responds:
You're in luck, Josh! It just so happens that this very issue includes an article by Lew Bryson on session beer. See "It Takes a Lot of Beer" on page 24. There's a recipe for a Berliner weisse that clocks in south of 3 percent ABV, as well as a cream ale and a pale ale that, with a bit of tweaking, I bet you could get to the sub-4-percent range.

Where are the Old Issues?

Dear *Zymurgy*,

I am going through my old beer files from the 70s, 80s, and 90s and stumbled across a few old issues of *Zymurgy* from the 1990s. Why do you stop at year 2000 for back issues online? There's lots of fun stuff to see in the old magazines.

Howard Lorenz
Campbell, Calif.



Visit *eZymurgy* on your desktop at HomebrewersAssociation.org/magazine/ezymurgy/ or download the app for mobile and tablet devices.

Editor-in-Chief Dave Carpenter responds:
Sounds like you've come across some old gems, Howard. We'd love to include pre-2000 issues of *Zymurgy* in our digital archive, but those 20th-century issues were published in formats that would be expensive and cumbersome to convert to modern standards at this time. The really old stuff is just hardcopy! It's

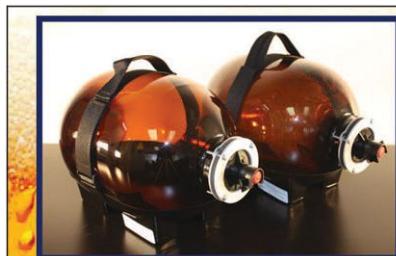
important that we preserve *Zymurgy*'s heritage, though (especially as we approach our 40th anniversary!), so rest assured that it's on our minds. And don't forget: back issues of *Zymurgy* are available in the online store at BrewersAssociation.org.

More Praise for Madees!

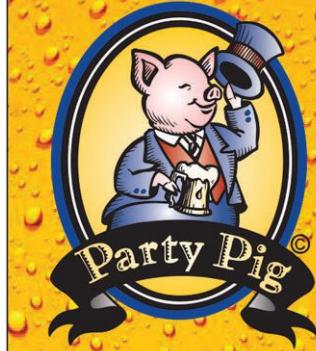
Dear *Zymurgy*,

Like most who read your magazine, I am an avid homebrewer, and I found your article "The Brewster of the Middle East" most fascinating for two reasons. First, being active duty military and having served in the Middle East on numerous occasions, it was refreshing to see Ms. Khoury break through glass ceilings, not only as a woman, but also as a woman brewer. Kudos to her!

Second, I had the distinct pleasure of serving in Israel and the West Bank, where I worked daily with Palestinians and drank (nearly daily) Taybeh wheat beer. Moreover, I was able to celebrate Oktoberfest in



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Taybeh with Madees' business and watch as the passion of brewing beer came to life in a region that desperately needed something to celebrate. If only I could partake once again. Well done, Madees, and please keep us posted as you expand your market because I will be first in line.

Benji Croom
Fort Leavenworth, Kan.



Four-Legged Friends of Zymurgy

Dear *Zymurgy*,
I wanted to share my brewing partner, Lugnut. He is a Boston Terrier with a lot of energy but no taste for beer. Here is a photo of him helping me brew a Belgian dubbel.

Mark Flores
Milton, Fla.



Dear *Zymurgy*,
I am a proud subscriber to *Zymurgy* through my AHA membership and really enjoy reading each issue. One of my favorite sections is the pics of brewers with their dogs. I decided to send a pic of my dog Madi hanging with me as I brew my Nut Brown Ale. Thank you for all you do!

Ariel Figueroa
Albuquerque, N.M.



Dear *Zymurgy*,
Lilly was an amazing boxer who we rescued or, as they say, rescued us. Lilly loved beer and loved to help me make it. She would spend the entire brew day with me, and we miss her so much. I always wanted to send her picture to you, just not after she was gone. We miss you, Lilly!!

Cheers,
Cody Knox
Murrieta, Calif.



Dear *Zymurgy*,
I love seeing the pictures of brewers with their pups in *Zymurgy*. This is our golden retriever, Barley. He loves help-

ing during the brew day (OK, he mainly sleeps in the garage waiting to snack on some spent grain). After getting a first place ribbon at the NHC first round, I thought I would show it off next to his "pupticipation" chew toy.

C'est bon bière,
Taylor & Samantha Pellerin
Gonzales, La.



Dear *Zymurgy*,
This is my pup Ellie, a lab mix rescue, on her first brew day. Her name is inspired by Avery Brewing's Ellie's Brown Ale. She is a bit more chocolate and brindle, so for her first brew I made a brown porter with dehydrated peanut butter and cocoa nibs inspired by her unique colors.

Thanks, and keep up the great work at *Zymurgy*!

Cody Gabbard and Jennifer Handley
Denver, Colo.



Dear *Zymurgy*,
Here are our brew dogs Elmer (left) and Henry (right) at our old house in Columbus, Ohio. Both are shelter rescues who love the smell of mashing grain and boiling wort.

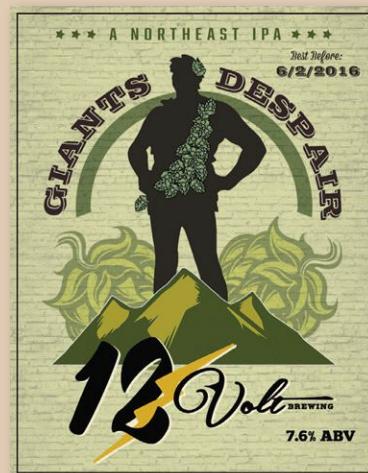
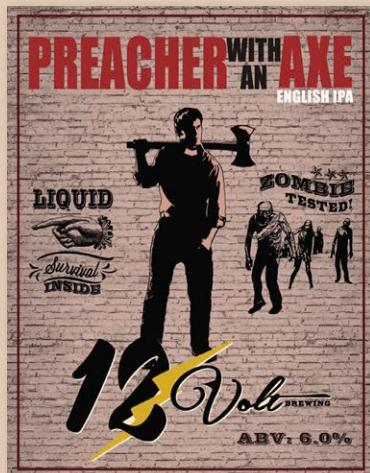
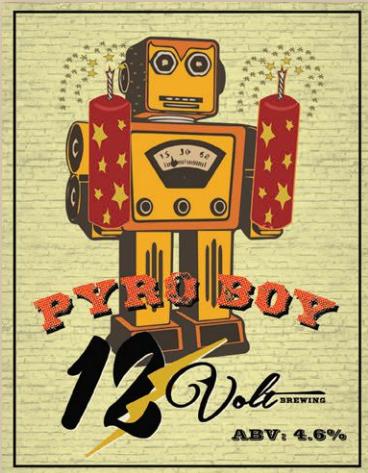
William Overko
Cleveland, Ohio

READER-SUBMITTED HOMEBREW LABELS

Here are few labels I created for my homebrew. I brew 5-gallon all-grain recipes, and my brother-in-law got me into homebrewing three years ago.

Gary Cook

Wyoming Valley Homebrewers Club in Northeast Pennsylvania
Plains, Pa.



Hey homebrewers! Send your Dear Zymurgy letters to zymurgy@brewersassociation.org. Letters may be edited for length and/or clarity. And 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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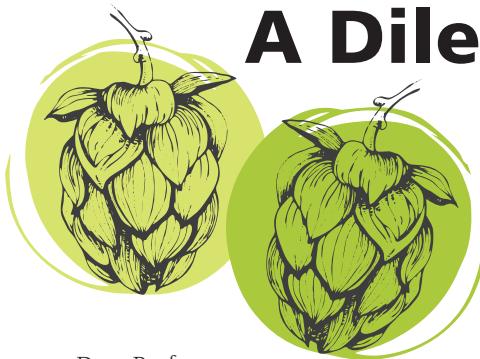
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Patagonia Malt

By Professor Surfeit



A Dilemma of Two Hops



Dear Professor,

In theory I know the answer to this, but I wanted some experienced advice. I usually use Magnum hops for the bittering addition for my IPAs. I wanted to try Chinook and was wondering what the difference will be, all else being equal. Specifically, will there be any taste difference (increased pine?) or just a different (less mellow) bitterness?

Thanks for the advice,

Tony Rapae

Huntington Beach, Calif.

Dear Tony,

Your question goes to the core of understanding how hops can vary. Chinook hops usually range from 12 to 14 percent alpha acids, are fair at keeping their freshness, and are described as imparting intense bitterness, but with excellent citrus and floral characters. Magnum hops are also in the 12 to 14 percent alpha range, maintain their freshness very well, and are said to be one of the mellowest high-alpha hops, delivering a less aggressive perception of bitterness. Magnum hops are grown in both Germany and the USA, and there are probably regional differences in their flavor and aroma characters.

Your question is a bit vague, so I'll make some assumptions and discuss my thoughts. If we presume that you exclusively use one or the other hop in the boil and you don't late or dry hop, then the net result will be that the Chinook hop will have a more intense sensation of bitterness even if the bitterness units are equal. You won't get elevated pine or citrus with either hop variety unless you late hop or dry hop.

In brewing, all things are never equal. The amount of flavor and aroma you extract through late hopping depends on so many other variables. Hop aroma and flavor in beer depend on things like yeast in suspension, alcohol content, specific gravity, temperature, circulation, variety of yeast, mineral content, and much more. But you do say "...all else being equal." But what's equal for you isn't going to be equal for others who are reading this dissertation.

Given the limited amount of background info you've offered and the limited amount of hop information I have provided above, I would use Magnum for bittering, and dry hop or whirlpool with Chinook. This to me reads on paper like a great combination.

But ultimately every homebrewer out there who really wants to know needs to try this for him- or herself and experience what it's like to bitter with Magnum versus Chinook. They both could be very, very good.

So many hops, so little time,
The Professor, Hb.D.



A Bottle Fill Question from the Inside

Dear Surfeit,

I have noticed that under-filled bottles tend to become more carbonated than those that are filled to the proper level.

Similarly, overfilling seems to suppress carbonation. Can you explain why this might be the case? I've tried to work out the math using Henry's Law and ideal gas properties, but I must be missing a key piece of the puzzle, as my theoretical prediction is the opposite of what I observe in practice. Why does increasing headspace seem to promote carbonation and vice versa?

Truly yours and others' too,
That Mugshot on Page 1
Editor's Desk, Zymurgy

Dear Mugshot,

That's a question I had at one time, but I think you're observing something other than what you're asking about. I'll answer your question directly, but first I'll respond to what I think you are asking.

Why do under-filled bottles "pop" more aggressively than over-filled bottles when opened? That popping sound is the release of pressure. If the pressure in an under-filled bottle is the same as that in an over-filled bottle, the reactive pop when opened will be significantly less in an over-filled bottle. There is simply less pressurized gas to pop out of the bottle. Another example is that if both an under-filled and over-filled bottle were way over-pressurized and they both exploded, there would be much more flying glass from the under-filled bottle: more gas moving outward to carry broken glass in every direction.

Now let's assume my explanation seems like a bad baloney sandwich. Here's another explanation of what you may perceive. An over-filled bottle has little space for gas to creep out of the liquid. It pressurizes much more quickly. Every yeast strain is different, but it's safe to say that yeasts are sensitive to pressure. When the pressure gets too high in



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their environment, they have a tendency to shut down.

On the flip side, if you have an under-filled bottle, there is more space for gas to creep out of the liquid and, in effect, it takes more fermentation to fill that space with pressure. Thus, more fermentation due to less inhibition from pressure on the yeast.

Both of my explanations are a bit convoluted, but I encourage both young and old scientists out there to think about it and verify or vilify my theories.

At least for now,
The Professor, Hb.D.
(Better sometimes to take a shot than not take one at all.)

Shelley Child
Mountain Brew Club
Lake Arrowhead, Calif.

Dear Shelley,
Charlie Papazian tells me he was trying to keep the extract version true to the original, which was a success for many homebrewers who seemed to win more competitions with it than with any other recipe in his book, *The Complete Joy of Homebrewing*. The original had no honey aroma or flavor (boiling drives away those delicate honey characteristics) and was a

dry, well-attenuated, crisp beer, as close as early homebrewers could get to a good Pilsner before the advent of quality lager yeast and cold lagering. The all-grain recipe is a modern version that, through an end-of-boil addition, showcases more honey flavor and aroma than the original.

Differences matter,
The Professor, Hb.D.

Have a question for The Professor?
Send it to professor@brewersassociation.org.



Shooting for the Moon with Rocky Raccoon

Dear Professor,
I want to make the Rocky Raccoon Honey Lager found in the recent July/August edition of *Zymurgy*. The extract version says to add the honey at the beginning of the boil. The all-grain recipe states in bold type, "DO NOT BOIL HONEY," and the honey is added at the end of the boil. Why the difference? I am looking to do the extract recipe, but I am confused after reading not to boil the honey. Thoughts???

Illustration by Amanda Lenz/Lenz Illustration and Design

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By Amahl Turczyn

Pre-Prohibition Porter

Porter has a long history in England from the early 18th century as a working-class beverage that quenched the thirst of the London masses. It became so popular there that it soon graduated from a troublesome blend of old and new beers at the hands of publicans tending bar in small ale houses to mass production of a single “entire butt” formulation by breweries like Whitbread and Barclay Perkins. By the middle of the 19th century, however, the pale ales of Burton began cutting into porter’s dominant popularity, eventually overtaking it entirely by 1870. Porter brewing slowed, grinding to a near halt after World War II.

American porter, by contrast, remained much more consistently popular, even weathering the dark years of Prohibition without fading out of public view as it had in the UK. American colonists brought the style with them from England, but with the relatively high cost and low availability of good malting barley, porter on our shores was soon a different beast entirely. US brewers made heavy use of adjuncts like molasses and corn, and even pumpkins and squash, to fill in. This distinction became the major differentiator between Old World and New World porter, at least until home- and craft brewing arrived, making high-quality malting barley available to American brewers across the country.

Porter enjoyed its own surge in popularity in the US as it did in London, though its brewing center, from the late 1700s through the mid 1800s, was Philadelphia. Robert Hare began the first commercial production of porter in that city, with political endorsement by George Washington and Thomas Jefferson; they called on Americans to support local business by drinking porter, and as Philadelphians rushed out to do their

patriotic duty, other commercial porter breweries soon cropped up. But while other styles like pale lager also surged in popularity, spurred on by German immigration, porter’s clientele remained loyal: by 1857, production of pale ale, porter, and stout reached 170,000 barrels.

Even German lager breweries in the Philadelphia area recognized porter’s popularity by brewing their own versions, albeit with their house lager yeasts. This sub-class of pre-Prohibition porter was later dubbed “Pennsylvania porter” and was often no more than what we now call Classic American Pilsner, corn adjunct and all, with the addition of a black coloring syrup called “porterine.” This syrup allowed breweries that made mostly Pilsner beers to keep consistent stocks of 6-row lager malt and adjunct, rather than separate inventories of dark and ale malts, yet still allowed them to cater to public fondness for the dark brew. Pennsylvania’s



Yuengling brewery still offers a version of this sub-style, and Narragansett carried on with its own version well into the 1970s.

With the craft brewing movement, production of porter continued to spread from Philadelphia to both coasts, with Sierra Nevada, Anchor, and Alaskan brewing their own iconic versions of American porter. But that brings us to an interesting historical brewing question. Alaskan Smoked Porter is a modern classic, but did pre-Prohibition porter have any smoked character? Many claim that 18th- and 19th-century malt kilning methods were crude by today's standards, often using a wood fire to provide the necessary heat—but did this translate to wood-smoke notes in the finished beer?

According to Dr. Terry Foster, who has written several articles and the Brewers Publications book *Porter*, the answer is, probably not. In his research, malt for



porter was kilned at such high temperatures that the grains would burst, popcorn-like, giving rise to the term “blown malt.” In his estimation, however, smoke from the malt kiln wood fires was not sufficient to produce smoked character in the beer. There were toasted, biscuit-like flavors introduced, and a certain level of burnt grain character, and in order to capture these flavors with modern malts, Foster proposes a blend of brown, amber and black malts in addition to the British pale base malt.

Dan Martich, winner of a gold medal in the most recent National Homebrew Competition’s porter category agrees, and, in fact, based his winning recipe on “1744 Porter,” which Foster published in the December 2013 issue of *Brew Your Own*.

He then collaborated with Foster on tweaking the recipe to perfect their shared vision of what a pre-Prohibition porter should taste like. “I met Terry at a book signing at a local homebrew shop, Maltose Express,” said



Old Hound Dog

Pre-Prohibition Porter

2016 NHC gold-medal winning recipe contributed by Dan Martich

This recipe appeared in the Sept/Oct 2016 issue of *Zymurgy*. The partial-mash version is new for this issue.

Batch Volume: 5 U.S. gallons (18.93 L)

Original Gravity: 1.066 (16.25° P)

Final Gravity: 1.022 (5.5° P)

Color: 34 SRM

Bitterness: 45 IBU

Alcohol: 5.8% by volume

MALTS

11 lb. (4.99 kg) British pale malt

1.75 lb. (0.79 kg) amber malt

1.75 lb. (0.79 kg) brown malt

12 oz. (340 g) black patent malt

HOPS

1 oz. (28 g) Columbus/Tomahawk/Zeus, 16.3% a.a. @ 60 min

YEAST

Wyeast 1028 London Ale (1 L starter)

WATER

Use John Palmer’s water spreadsheet for brewing salt adjustment if using soft, calcium-deficient water.

ADDITIONAL ITEMS

Yeast nutrient @ 10 min

BREWING NOTES

Mash grains at 152° F (67° C) for 60 minutes with 26.88 qt. (25.4 L) strike water at 160° F (71° C). Mash out at 165° F (74° C). Fly sparge with 3.59 gal. (13.6 L) water at 168° F (76° C) for no less than 30 minutes. Boil for 90 minutes. Ferment in primary for 3 weeks at 66° F (19° C), then rack to a keg and mature for 4 weeks in the low 40s °F (4-7° C).

PARTIAL-MASH VERSION

Decrease UK pale malt to 3 lb. (1.36 kg) and mash with remaining malts at 152° F (67° C) for 60 minutes. (Brown and amber malts must be mashed, as they contain starches but no enzymes.) Rinse grains, add 5 lb. (2.27 kg) pale malt extract syrup to the resulting wort, and sparge grain bed until desired boil volume is reached. Proceed with boil as above.

Martich. “I brought over a version of his 1744 Porter to taste, and we spoke at length about how the brown malt addition contributes a licorice note. That version placed first in several competitions.”

However, Martich continued to make minor changes. He liked the combination of amber and brown malts in the origi-

nal version but decided they interfered too much with the black patent malt in the recipe, so he scaled them back a bit. This allowed a subtle coffee character to emerge. In fact, Martich claimed that on several occasions, people who tasted this beer claimed he’d added coffee. He didn’t seem to mind these accusations, however, as his response was, “I like that!”

While many of Foster's porter recipes rely on the sweetness, body, and reddish hue contributed by crystal malt, there is none in the more historically accurate pre-Prohibition recipes. Any sweetness comes from base malts and relatively low hopping rates. As for hop character, Martich feels the grain bill should really be responsible for the majority of this beer's character—in 1744, hops were expensive, mostly imported from England, and therefore sparingly used. Martich uses just one bittering addition with a high-alpha variety like Columbus.

Water was also not a huge concern. Since the dark kilned malts of the day contained sufficient acidity to produce a pH-balanced mash, adjustment was unnecessary in most cases. And with the level of understanding brewers had regarding water chemistry, this was a good thing. For modern brewers, the black, amber, and brown malts will all contribute acidity to the mash, so neutral, soft, filtered water should be all that's necessary. For those who have to mess with water adjustments, a London water profile would also be suitable. Partial-mash brewers will want to stick with distilled or reverse-osmosis water when reconstituting extract.

As for yeast, Martich changed from the original British ale to Wyeast 1028 London Ale. "It adds a creamier mouthfeel and roundness."

Finally, conditioning is critical to allow for all the strong flavors in the beer to mellow and mingle. "Mature and cold condition in the keg or bottle," Martich suggested. "This beer conditioned for a few months before I bottled it and sent it to the final round of the NHC." For a brewer whose beer beat out 298 competing entries in the Porter category, it would seem sage advice.

Resource

1. Foster, Terry. "Perfect Porter," *Brew Your Own*, Jan/Feb 2003.

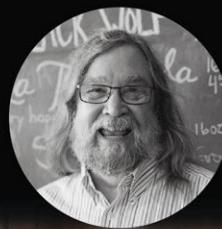
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A photograph showing a row of six brown beer bottles in the background, slightly blurred. In the foreground, on the right side, is a tall, clear glass filled with light-colored beer, with a thick white head of foam at the top.

IT TAKES
A LOT
OF BEER



“

I love having a few pints and not hurting the next day. When I walk in a place that's all double-digits and double IPAs, my head's already hurting.

JOE DAKNIS

By Lew Bryson

Winemakers have a saying: “It takes a lot of beer to make good wine.” This refers to the beer they drink during and after the hard work of winemaking. Setting aside what that says about the relative refreshment values of the two beverages, it’s notable that the brewer’s equivalent would most likely be “It takes a lot of beer to make good beer.” And quite often, when you’re talking about drinking a lot of beer, you’re talking about session beer.

Session beer is a good choice for your brew day mug for a few reasons: It’s usually quick to make and ferment (and often cheaper than a full-strength brew); it is safer to drink while you’re brewing; and on a hot day—or in a hot kitchen—a session beer is great for quaffing in thirst-quenching quantities.

SMALL BEER, BIG BENEFITS

Homebrewer, writer, and American Homebrewers Association Governing Committee vice chair Drew Beechum almost always has a session-strength homebrew on draft at home. “I started putting together session beers as a festival defense mechanism,” he says, “to produce a lot of beer for a fest. But then I realized it was really handy to have a tap that I could go pour a beer on and never have to worry about for long-term party consumption purposes. Ever since then, I’ve made it a point to make something more manageable than the ‘homebrew’ typical gravity. These days it also has the advantage of having fewer calories!”



“

Where I think session beers shine and play right into the hands of crazy homebrewers is as great big starters for your great big honking beers.

DREW BEECHUM

BRETT C BERLINER WEISS

BERLINER WEISSE

Recipe courtesy Chris Holst

Batch Volume: 5 U.S. gallons (18.93 L)

Original Gravity: 1.030 (7.5° P)

Final Gravity: 1.009 (2.3° P)

Color: 2 SRM

Bitterness: 7 IBU

Alcohol: 2.8% by volume

MALTS

2.5 lb.

(1.13 kg) German
Pilsner malt

2.5 lb.

(1.13 kg) wheat malt

HOPS

0.5 oz.

(14 g) Willamette
@ 20 min

YEAST

White Labs WLP645 Brettanomyces
claussenii (very large starter)

BREWING NOTES

Mash at 142° F (61° C) for 30 minutes and then 149° F (65° C) for 30 minutes. Collect 3 gallons (11.36 L) of wort, and

Bob Rescinito, a longtime member of Oklahoma City's High Plains Draughters club, notes, "[While] I do like to make bigger beers—tripels, barleywines, IPAs, imperial stouts—I like having a beer that is easy to drink while I'm outside cooking. A lot of my friends prefer beers that are less hoppy and easier to drink, so I try to keep my cream ale on tap. Plus, it gets hot in Oklahoma, and session beers are good, cold, and refreshing, and you can drink more of them without feeling full or getting too tipsy."

Bob mentions cream ale, a popular thirst-quencher of a brew, and mild

and bitter are classics that always pop to mind for many homebrewers. It's curious that these beers haven't really caught on as commercial brews in America, given the number of homebrewers who often mash in a double IPA with a mug of mild in hand.

Joe Daknis has been brewing in the quiet town of Ferndale, Pa. for about nine years and started out with session beers. "I was inspired by Chris Leonard's Churchill's Mild at the General Lafayette Inn (the brewpub has closed; Leonard is now the head brewer at Heavy Seas in Baltimore). He was kind enough to share some recipe guidelines with me. My first take on it won a blue ribbon in that year's War of the Worts, my first entry in a competition."

Leonard's advice focuses on getting more body and flavor from lower-alcohol beers (see accompanying sidebar, Getting More out of Your Session Beer). "You have to mash high to get that residual sweetness," Daknis says. "You might think, 'Oh, that's going to be under-attenuated,' but man, that beer was good, and it's been a favorite of mine. I love having a few pints and not hurting the next day. When I walk in a place that's all double-digits and double IPAs, my head's already hurting." While he does make double IPAs, Daknis says 30 to 40 percent of what he brews is session-strength beer.

Brett C is alleged to behave differently based on oxygen availability and how much it needs to grow. Ferment in a stainless keg if possible to minimize oxygen uptake. You want the yeast to hit the ground running, so making a large starter is vital, at least 1 qt. (946 mL). Treating the yeast this way yields a fast fermentation and a nicely tart, bready wheat beer. Adding fruits into the ferment works well—I've had success with chardonnay juice and raspberries.

EXTRACT VERSION

Substitute 4 lb. (1.81 kg) wheat malt extract syrup for Pilsner and wheat malts. Dissolve syrup completely in enough water to make a 3-gallon (11.36 L) boil volume and proceed as above.

So there are milds and bitters, and there are low-gravity Pilsners for cold-stored pleasure. But there are other styles that qualify as "beer-making beers," and a brewer can always stand the "imperial" mindset on its head by brewing a session version of a bigger brew. Sour beers are hot in the commercial beer market right now, but session-strength types are often overlooked. If you're looking for a mouthful of flavor while still keeping things light, it's hard to beat wild yeasts and bacterial brewing.

Chris Holst has been a homebrewer since 1994. "I lived in England in '91 and '92 and liked the beer; I wanted to replicate it here." But as he brewed his own and sampled the rapidly growing variety of beers available in the

CLUSTER'S LAST STAND

CREAM ALE

Contributed by Bob Rescinito

Batch Volume: 7.5 U.S. gallons (28.39 L)

Original Gravity: 1.042 (10.5° P)

Final Gravity: 1.010 (2.5° P)

Color: 3 SRM

Bitterness: 42 IBU

Alcohol: 4.2% by volume

MALTS

8 lb.	(3.6 kg) Pilsner malt
2.5 lb.	(1.1 kg) six-row malt
2 lb.	(907 g) flaked maize
3 oz.	(85 g) acidulated malt

HOPS

1 oz.	(28 g) Cluster, 7% @ 60 min
1 oz.	(28 g) Cluster, 7% @ 30 min
1 oz	(28 g) Cluster, 7% @ 10 min

YEAST

White Labs WLP029

German Ale yeast

ADDITIONAL ITEMS

2 Tbsp.	(50 g) gypsum
1 tsp.	(5 g) Irish moss @ 10 min

BREWING NOTES

Treat water with gypsum and mash grains for one hour at 157° F (69° C). Boil for 70 minutes total, adding hops as indicated. To increase alcohol and dry out the beer, optionally add honey or corn sugar at the end of the boil.

PARTIAL-MASH VERSION

Mash six-row and acidulated malt with flaked corn at 157° F (69° C) for one hour. Substitute 5.5 lb. (2.5 kg) Pilsner malt extract syrup for the Pilsner malt. Drain mini-mash and sparge to desired boil volume; dissolve extract into wort, then proceed with boil. Note that partial-mash version may be slightly darker than the all-grain recipe.

EXTRACT VERSION

For a lighter, drier beer, substitute 7.5 lb. (3.4 kg) Pilsner malt extract syrup and 1 lb. (0.45 kg) dextrose for acidulated malt, six-row, Pilsner malt, and flaked maize.

Philadelphia area, he discovered a love for the varied sour styles of Belgian and German brewing. He found a ready source of advice on the well-known Burgundian Babble Belt's homebrewing forum (babblebel.com).

with a Brett C [*Brettanomyces claussenii*] culture, and a few brewers decided to do a group brew with "lots of different microbial approaches. When the tasting happened, it was clear to me that the Brett C beer was the tastiest of the bunch...and I've kept a Brett C culture going ever since." The Brett C and sour cultures are handy to have in healthy condition when Holst is brewing bigger-bodied sour beers, and he has a nice supply of quenching session-strength sour to sup while he works.

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FUNGIUS FEEDING FRENZY

But Holst's experience points to another benefit of brewing small beers in between the big ones: yeast health. One of the best ways to keep yeast healthy is to keep it growing, alive, and active, and the best way to do that is to keep it busy chomping away on wort.

“ During the light beer fermentation, I am growing my yeast for something stronger.

VITALY FOROV

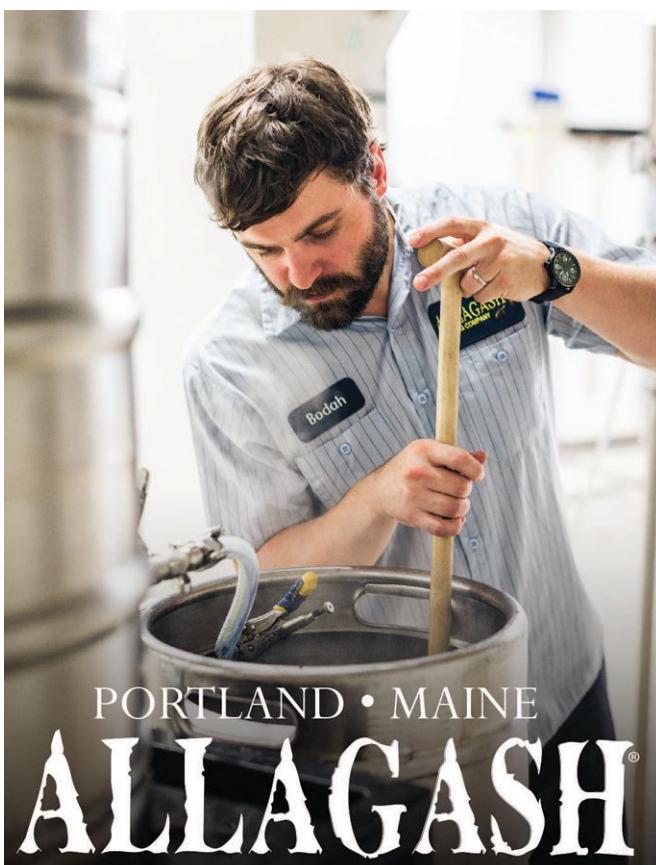
Ukrainian homebrewer Vitaly Forov, who hopes to open a commercial brewery soon, brews session beers for the same reason many of us do (“I like session beers because I like to drink a lot, but I don’t like to get drunk!”), but he’s also thinking ahead to the next beer when he does. “This is a technical trick,” he says. “During the light beer fermentation, I am growing my yeast for something stronger. I do a natural yeast propagator.”

Beechum finds this kind of approach

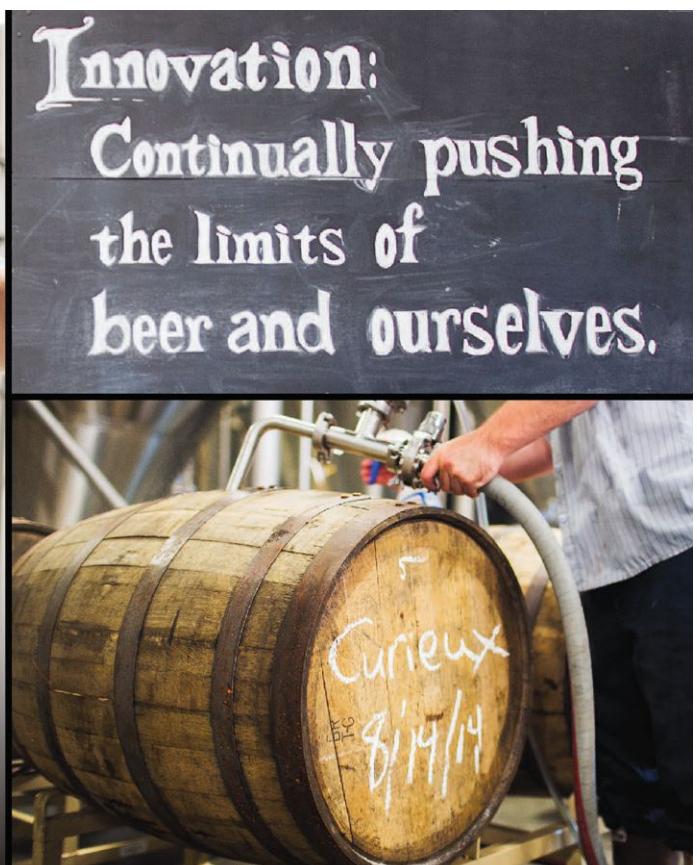
helpful with his favorite saison yeast. “I almost inevitably have some variety of session beer on draft at home,” he says, then notes that it’s “usually a table saison of some sort because I’m always doing something with the style or yeast.”

“I will use a session beer as a propagator beer to keep the yeast going,” he says. “For instance, I have that going on with a strain of Brett that The Bruery kindly gave me. It makes a wicked good saison and just isn’t available to me regularly. Since I’m too lazy to slant/plate/streak things, I just cheat and keep it going for a while before going and asking nicely for some more.” There’s a lot more you can do with a session beer than with a slant, after all; you can drink it, for one thing!

“Where I think session beers shine and play right into the hands of crazy homebrewers,” Beechum adds, “is as great big starters for your great big honking beers. If I’m making a monster brew (say 10-plus percent ABV), I’ll almost always make a 5- to 10-gallon batch of session strength beer [first] and use



A man with a beard and a name tag that reads "Bodah" is stirring a large metal keg with a wooden spoon. The background shows a brewery setting with pipes and equipment. The text "PORTLAND • MAINE ALLAGASH®" is overlaid on the bottom left.



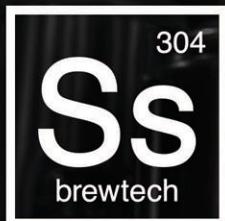
A wooden barrel is being tapped with a hose. The text "Innovation: Continually pushing the limits of beer and ourselves." is overlaid on the top half of the image. The barrel has "Curieux" and the date "8/19/14" written on it.

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GETTING MORE OUT OF YOUR SESSION BEER (WHILE GETTING LESS)

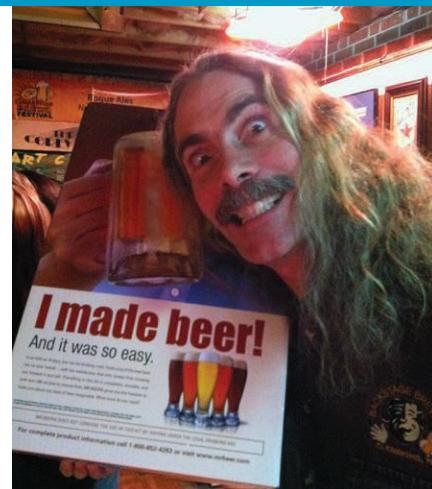
Ray McCoy of Clemmons, N.C. is a pretty well-known beer drinker; he was named Wynkoop's 2003 Beer Drinker of the Year two years after his wife Cornelia Corey had won the same honor. But Ray is also an accomplished homebrewer. "I actually have an American Brewers Guild diploma," he says, with his rumpled chuckle. "Steve Parkes [the Guild's owner and lead instructor] says I'm no longer a homebrewer: I'm an unemployed brewer."

Ray likes to make session-strength versions of styles that are traditionally higher in alcohol; the trick is retaining the characteristics of the base style. "One of the key points in the procedure for my 'Studio Session' is the mash temperature," he says. "My target [temperature] is a bit higher than with my 'standard' IPA, to produce more non-fermentables, to provide more mouthfeel from the resulting complex sugars rather than a thin body from a lower initial gravity that attenuates more fully."

Ray explains the tradeoffs in mash temperature and time affected by the opti-

mum operating temperatures for alpha and beta amylase mash enzymes. "Beta nibbles at starch chains and breaks off a maltose molecule," he says. "Alpha amylase chops the large chains into smaller but still complex carbohydrates. You're never going to convert everything to fully fermentable [sugars], but between the two enzymes you'll get a fermentable mash.

"In a perfect world, alpha would work at a lower temperature so you could break up the starches first, and then the beta could get to work at a higher temperature," he says, but life's not like that. "Alpha works best at the higher temperature. There are two bell curves [for the efficiency of the two enzymes], and they intersect at 154° F [68° C]. For a traditional gravity beer, six percent or so, that's the target temperature for a reasonably fermentable mash. By bumping that up into the alpha amylase optimal range, you get



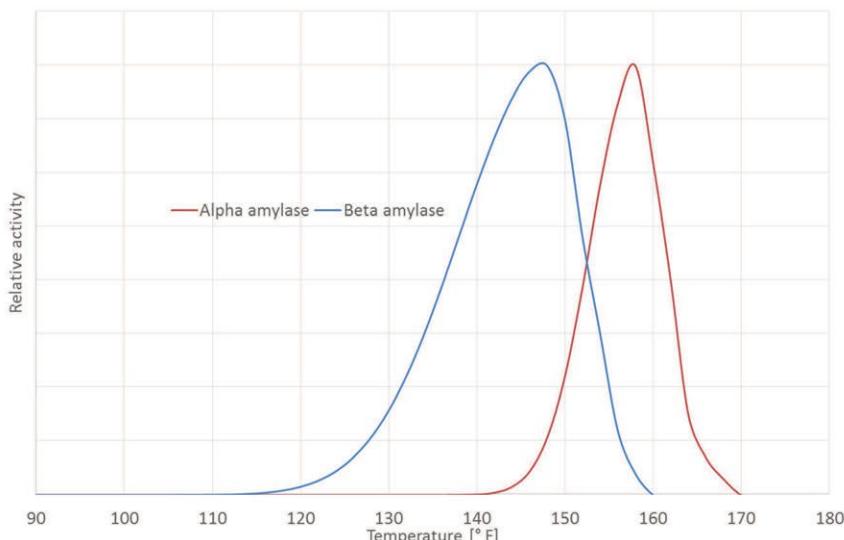
"A subtle change of a few degrees can affect the beer you produce. People say brewing is an art; no, it's a science. But it's how you apply that science. It's the art of applied science."

RAY MCCOY

more of the complex, non-fermentable sugars, the dextrins. So once your beer ferments out, those dextrins give you the viscosity, the mouthfeel that would be lacking if you simply cut your mash bill and went through your normal mash schedule."

So what's that magic temperature? "That's where the art comes in," he says. "You don't want to push it too hard—the beta curve drops off pretty quickly at higher temperature. So, I would say, 157°, 158° F [69°, 70° C] is going to nudge things to dextrins. Push it too high and you'll wind up with syrup. A subtle change of a few degrees can affect the beer you produce. People say brewing is an art; no, it's a science. But it's how you apply that science. It's the art of applied science."

He adds that the grain bill can affect mouthfeel as well. "Carapils® [malt] adds it, or the proteins you can get from oatmeal," McCoy says. "Wheat is fairly high in those proteins as well. There's not just one correct answer."



10A.35

AMERICAN PALE ALE

Recipe courtesy Vitaly Forov

Batch Volume: 17 U.S. gallons (64.35 L)

Original Gravity: 1.045 (11.3° P)

Final Gravity: 1.009 (2.3° P)

Color: 7.4 SRM

Bitterness: 33 IBU

Alcohol: 4.8% by volume

MALTS

21.4 lb.	(9.7 kg) German Pilsner malt
4.4 lb.	(2 kg) German dark Munich malt
2.2 lb.	(1 kg) German Vienna malt
1.1 lb.	(0.5 kg) German pale wheat malt
7 oz.	(200 g) German CaraPils or similar*
2.5 oz.	(70 g) Belgian roasted barley

HOPS

2.3 oz.	(64 g) Chinook, 12.3% @ 60 min
4.7 oz.	(134 g) Cascade, 5.7% @ 0 min
3.5 oz.	(100 g) Mandarina Bavaria, dry hop 14 days
1.8 oz.	(50 g) Cascade, dry hop 14 days

YEAST

Fermentis Safale US-05 (0.75M cells/mL/°P)

WATER

Ca 7 ppm, Mg 3 ppm, Na 2 ppm, Cl 5 ppm, SO₄ 5 ppm, HCO₃ 14 ppm

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 10 min

BREWING NOTES

Mash for 90 minutes at 154° F (68° C) at a thickness of 1.4 qt./lb. (3 L/kg). Boil for 60 minutes.

PARTIAL-MASH VERSION

Substitute 15.75 lb. Pilsner malt extract syrup for Pilsner malt. Omit water salts. Mash remaining grains in reverse osmosis or distilled water at 154° F (68° C) for 60 minutes. Rinse grains, sparge to desired boil volume, and dissolve extract in wort.

*The Weyermann product available as CaraPils in the European Union and other markets is sold as CaraFoam in North America.

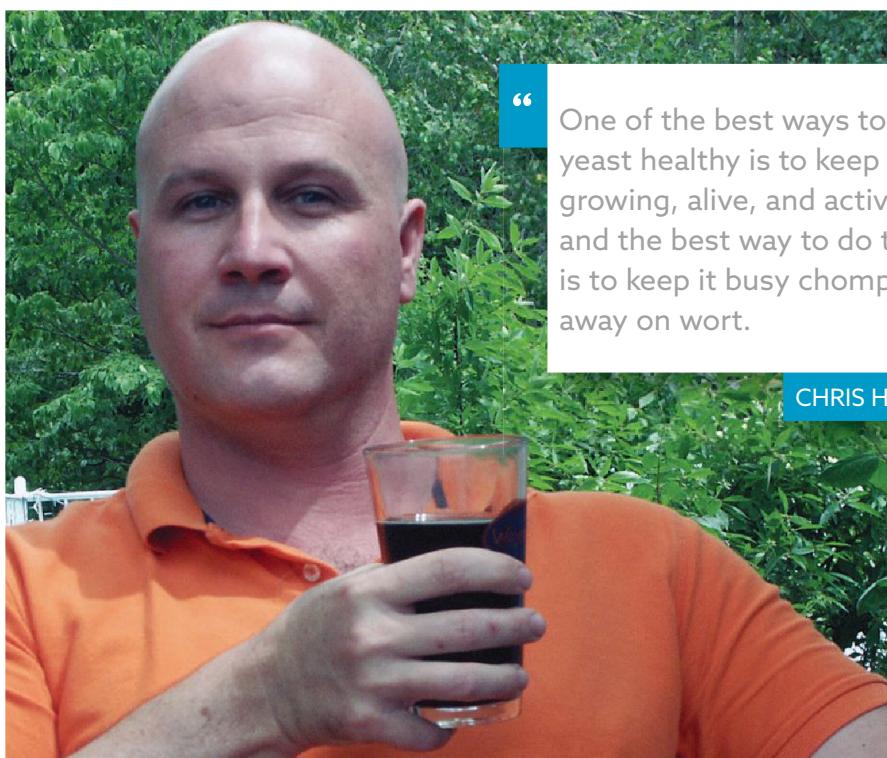
the yeast cake from that to ferment my bigger beer. It guarantees I have enough yeast and get a rocking healthy fermentation.

"In fact," Beechum notes, "it was this process that taught me that I actually really liked the more simply-designed beers I

was using to grow yeast, despite the fact they were 'throwaway' beers and not the main attraction. Instead they came off cleaner, more approachable, and, frankly, more enjoyable."

There's one more plus Beechum noted to brewing session-strength beers in parallel with your bigger beers. "You'll have something to drink while waiting for the 'main attraction' to be quaffable," he says with a grin. "It increases the likelihood that your big beer will make it to the finish line without sampling!"

Lew Bryson lives near Philadelphia, writes about beer and whiskey, and loves drinking beer in big glasses.



“One of the best ways to keep yeast healthy is to keep it growing, alive, and active, and the best way to do that is to keep it busy chomping away on wort.

CHRIS HOLST



Download the free Brew Guru app on your mobile device to read more about session beers while you enjoy one!



YOU NEED A BEERCATION

*Strategic Tasting Tips
for the Curious Beer Traveler*

BY JARED LONG AND BOB HALL



*The global beer landscape is vast,
and BEER-CENTRIC TRAVEL
offers an interesting lens through
which to see the world.*

GOOD NOTES formalize your sensory evaluations through written descriptions of a beer's aroma, flavor, and mouthfeel.

There are invaluable lessons to be learned from drinking iconic styles AT THE SOURCE.



Embrace the LOCAL BEER CULTURE and immerse yourself in it.

One of the best ways to improve your brewing is to taste a lot of beer. But just going to the local liquor store and buying samples from across the country and around the world may result in your tasting beer that isn't even close to what the brewer intended. Oxidation and age can transform even the most sublime beer into a dull, papery mess. So, whenever possible, follow Michael Jackson's example and travel to the beer instead of making it travel to you. A beercation is a fun, rewarding experience that, with the right approach, can dramatically improve the beer you brew when you come home.

Beer travel might be a life-list trip to Europe, a long weekend in another part of the country, or, even just a short drive from Wyoming to Denver. The global beer landscape is vast, and beer-centric travel offers an interesting lens through which to see the world. Beer cultures are as different as the cities, regions, and countries that nurture them, and experiencing culture from a tourist's perspective while enjoying the local beer offers the best of both worlds: food, museums, and architecture paired

with delicious beer. We recently traveled to Germany and Belgium to do just that.

TASTE WITH INTENT

One of our primary beer travel goals is gaining knowledge and inspiration for judging and recipe development. Proper note-taking is a must: you won't remember what you sampled or how it tasted without good notes. Notes are great for two reasons. First, they help you re-live your beer adventure after you return home and recall the tasting experiences that made the biggest impressions on you. Second, good notes formalize your sensory evaluations through written descriptions of a beer's aroma, flavor, and mouthfeel. What surprised you? What did you like? What was lacking? How would you brew it?

A particularly useful exercise is to create a recipe based on the beer that's in front of you. In Germany and Belgium, we logged our sensory notes beer-by-beer for nearly everything we tasted. That allowed us to ask the next logical question: "How do we brew something like this at home?" This is where artistic interpretation and brewing science intersect. The intent isn't

ALTitude ALT *Sticke altbier*

Contributed by Jared Long and Bob Hall

ALTitude Alt is a bigger, brasher version of the standard Düsseldorf altbier and more similar in presentation to the elusive *sticke altbiers* that roll out once or twice per year. Stylistically, this beer is similar to that from Zum Uerige, which makes a darker, more bitter alt than the other Düsseldorf brewpubs. This recipe garnered a gold medal at the 2014 World Beer Cup for Düsseldorf-style altbier.

Batch Volume:	5.75 U.S. gallons (21.8 L)
Original Gravity:	1.052 (12.8° P)
Final Gravity:	1.012 (3° P)
Color:	15 SRM
Bitterness:	66 IBU

MALTS

6.5 lb. (2.95 kg) Weyermann Pilsner
 1.3 lb. (590 g) Weyermann Munich Type I
 1.3 lb. (590 g) Weyermann Munich Type II
 8 oz. (227 g) Weyermann CaraAroma
 4 oz. (113 g) Weyermann Caramunich III
 2 oz. (57 g) Weyermann Melanoidin Malt
 1 oz. (28 g) Weyermann Carafa Special II
 (de-husked)

HOPS

1.5 oz. (43 g) Perle 8% a.a., first wort
 2.5 oz. (71 g) Mt. Hood 6% a.a. @ 10 min

YEAST

Wyeast 1007 German Ale

BREWING NOTES

Mash in with 14 quarts (13.25 L) of strike water to achieve a starch rest at 147° F (64° C) and hold for 30 minutes. Heat mash, or boil a 6 quart (5.7 L) decoction and return to the main mash, to raise mash temperature to 154° F (68° C) for a 75-minute alpha amylase rest. Sparge with 6.5 gallons (24.6 L) and boil for 75 minutes. Cool and ferment for 10 days at 61° F (16° C). Rack and lager for 4 weeks at 37° F (3° C).

EXTRACT VERSION

Substitute 2 lb. (0.9 kg) Munich malt extract syrup for Munich malts and 5.6 lb. (2.54 kg) Pilsner malt extract syrup for Pilsner malt. Steep remaining grains in 155° F (68° C) water for 30 minutes. Drain, rinse grains, add extract to wort, and top up to desired boil volume with reverse osmosis or distilled water. Commence boil as above.

FORBIDDEN CITY ALT *Düsseldorf altbier*

Contributed by Jared Long and Bob Hall

Forbidden City is based on the clean, snappy, immensely drinkable altbier served at the Düsseldorf brewpubs. Perhaps our favorite was brewed by Schumacher, where the overall presentation was a relatively light, bready, and not overly hoppy version of alt.

Batch Volume:	5.75 U.S. gallons (21.8 L)
Original Gravity:	1.048 (12° P)
Final Gravity:	1.010 (2.6° P)
Color:	10 SRM
Bitterness:	45 IBU
Alcohol:	5% by volume

MALTS

6.0 lb. (2.7 kg) Weyermann Pilsner malt
 2.5 lb. (1.1 kg) Weyermann Munich Type II
 0.5 lb. (227 g) Weyermann Caramunich II
 1 oz. (28 g) Weyermann Carafa Special II
 (de-husked)

HOPS

2 oz. (57 g) Sterling, 6% a.a. @ 60 min
 1 oz. (28 g) American Saaz @ 5 min

YEAST

Wyeast 1007 German Ale

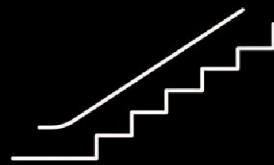
BREWING NOTES

Mash in with 14 quarts (13.25 L) of strike water to achieve a starch rest at 147° F (64° C) and hold for 30 minutes. Heat mash, or boil a 6 quart (5.7 L) decoction and return to the main mash, to raise mash temperature to 156° F (69° C) for a 75-minute alpha amylase rest. Sparge with 6.5 gallons (24.6 L) and boil for 75 minutes. Cool and ferment for 10 days at 61° F (16° C). Rack and lager for 4 weeks at 37° F (3° C).

EXTRACT VERSION

Substitute 2 lb. (0.9 kg) Munich malt extract syrup for Munich malt and 5.25 lb. (2.38 kg) Pilsner malt extract syrup for Pilsner malt. Steep remaining grains in 155° F (68° C) water for 30 minutes. Drain, rinse grains, add extract to wort and top up to desired boil volume with reverse osmosis or distilled water. Commence boil as above.

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to nail precisely what hop varieties give Westmalle Tripel its distinctive zing or what exact yeast strain is used in Reissdorf Kölsch, but rather to create a blueprint for achieving certain outcomes. Our conversations evolved from "What do you taste?" to "How do we make something like this?"

It's important to remember that a recipe—a list of ingredients—is just a framework. Procedure, time, and clear intent are just as vital. A well-executed beer is, in our minds, predicated on simplicity. When writing a recipe, you should be able to justify what each raw ingredient contributes. If something doesn't have a clearly identifiable role, take it out.

When designing the beer you want to make, work backwards. In other words, what did it taste like? Describe the malt flavors. Many beers we enjoyed in Belgium had a grainy softness to them and were quite cloudy. Consider using malted wheat or flaked grains to round out the complex layers of flavor that characterize excellent Belgian beers. Identify the specific hop aromas you pick up: resin, tea, jasmine, peach, melon, and so on.

It would be inaccurate to describe Belgian beer as lacking hop character. Drink a Duvel in Brussels and you'll understand the point. Some of our favorite Belgian beers presented hop aromas on par with American pale ales and IPAs. Quite often these aromas fade when they travel across the ocean. Citra and Amarillo are not necessarily inappropriate for Belgian styles—not all Belgian brewers limit themselves to Styrian Goldings and Saaz. Belgians scoff at the idea of labeling their beers with specific styles, preferring instead to target specific flavor profiles. Use this approach for your own Belgian-inspired beers.

Also think about fermentability. To give your Belgian-style beer an appropriately dry finish, ensure that a high percentage (at least 85 percent) of the grist is base malt, and consider a lower saccharification temperature. And don't forget simple sugars. What role does yeast play? Is fermentation character an indelible part of the beer or does it sit in the background? Our favorite beers in Belgium had a distinctly "Belgian" yeast profile, but the esters and phenols were rela-

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One of our primary beer travel goals is
GAINING KNOWLEDGE AND INSPIRATION
for judging and recipe development.



tively subdued. Düsseldorf altbiers, on the other hand, were noticeably rich with esters.

Consider carbonation, too. How fizzy is the beer you're drinking? To match similar levels, will you force carbonate or bottle condition for higher volumes? To achieve what you're looking for, you need to systematically describe each component of the beer you taste.

TRAVEL STRATEGICALLY

Enjoy new up-and-comers, but don't ignore the classic styles just because you

can buy them at home. A region's standard bearers may surprise you. One eye-opening experience on a recent trip to Belgium was enjoying draft Chimay Red and Westmalle Dubbel side-by-side in a café. We had had these beers many times, but we didn't really understand the difference until a side-by-side tasting. Westmalle had a burnt sugar note, low floral hop flavor, and spicy phenols. Chimay had no hop flavor and was much bolder, with dried fruit and bubble gum esters. Both were fantastic and two of the more memorable beers of the trip, despite their ubiquity in the States.

The same, of course, can be said for domestic beer travel. When you find yourself in San Francisco, a pint of Anchor Steam is a must. Don't come home from Maine until you've had fresh Allagash White. The point here is that there are invaluable lessons to be learned from drinking iconic styles at the source. In the age of online beer swapping and "whale hunting" (more on this later), beer changes a lot on its way from grain to glass. We joke that American IPA tastes best while standing near the brite tanks and talking with the brewer.

It's also fun to seek out new (to you or to everyone) breweries. Allow for the unex-

pected, and don't just hit the classics or most famous bars. The allure and rewards of travel come from finding your own spots and beers and passing your experiences along to others. Every stop you make on a beer vacation involves beer, and that beer becomes part of the story you tell your friends and family upon returning home. Travel guides have their place, to be sure, but eschew them occasionally in favor of finding new things.

In America, breweries nearly always have tasting rooms that serve both flagships and specialties. There, beer tourists get the absolute freshest beer and, more often than not, someone who is willing to talk at length about their beers on a tour or in the tasting room. Visiting breweries in Belgium is more difficult, though, because they usually have a minimum tour size and require a reservation (Cantillon is a notable exception).

It is much easier, and certainly more productive, to visit Belgian bars and cafés. Some of these cafés boast huge beer lists. Bars in other countries tend to have far fewer. Prague's cafés usually feature four to eight different draft beers. In Düsseldorf or Cologne, you can visit brewpubs, but you'll find just one or two kinds of beer. To taste a variety of Kolsch in Cologne requires a lot of walking. Embrace the local beer culture and immerse yourself in it.

Companionship for beer travel can make the experience even more rewarding, and it's helpful if you want to taste as many beers as possible during your trip. Each round ordered brings new entries in your rapidly expanding beer log and a renewed opportunity to dissect what you smell and taste. The key is buzz maintenance. Drink throughout the day, and drink lots, but don't get drunk. The cheapest thing you can do on a beer trip is drink beer. The most expensive thing you can do on a beer trip is get drunk. If you find you're no longer logging and describing the beer in front of you, it's probably time to switch to water.

Plan each day with the game plan firmly in mind. A strategy we found to be particularly useful was to revisit our beer log over several shots of morning espresso to identify any glaring gaps. Themed tasting

sessions—tasting only tripels or focusing on hop-forward beers—were also quite helpful in maintaining focus. Which bars do you go to? What breweries do you visit? What beers do you order? Be strategic and thoughtful about when and where you drink certain beers. If public transit is on the agenda and drinking on board is legal where you are, keep a couple of beers in tow. It's a golden opportunity for extended conversation with your travel partner, with local beer enthusiasts, or with other beer pilgrims.

Try to have the first beer of the day as early as possible. For professional brewers, that first beer is an important one because it's usually consumed when your palate is freshest. Use this to your advantage to intimately describe and think about the beer you're consuming. Travel provides the opportunity to drink at times of day that our normal lives don't allow. Just make sure to have a good breakfast first, and be measured in your approach.

Consult the internet for guidance, but remember to try both classics and lesser-known beers. Working with servers is essential. A good server knows the local beer well and can guide you to his or her favorites. A *really* good server will guide you to *your* new favorites based on a few questions. Light or dark? Dry or sweet? Hoppy or sour? Good rapport with a bartender, server, or brewer can create a magical afternoon of tasting.

An empty café, bar, or brewery can be a great thing, but understand that a café that is low-key by day may host a loud goth-punk band later in the evening (this happened to us). Bartenders won't have time to answer questions about specific beers when the place is crowded. Plus, late-night drinking can be counterproductive. Staying up late for another beer when you're already tired just comes back to bite you the next day when you want to try new things. Nothing good happens after midnight on a beer vacation.

Not all bars are created equally, and if you don't get good beers or service at one, pay up and leave. Thanks to the internet, finding another good bar or brewery is simple. Go to it, and then ask the staff

HOPPY BELGIAN TABLE BEER

Contributed by Jared Long and Bob Hall

Batch Volume: 5.75 U.S. gallons (21.8 L)

Original Gravity: 1.044 (11° P)

Final Gravity: 1.008 (2° P)

Color: 3.5 SRM

Bitterness: Varies

Alcohol: 4.5% by volume

MALTS

6 lb. (2.7 kg) Weyermann Pilsner

1.5 lb. (680 g) Weyermann Vienna

12 oz. (340 g) flaked wheat

4 oz. (113 g) Weyermann CaraHell

2–3 oz. (57–85 g) acidulated malt*

HOPS

0.5 oz. (14 g) Bittering hop @ 60 min

1 oz. (28 g) Aroma hop @ 10 min

1 oz. (28 g) Aroma hop @ 5 min

2 oz. (57 g) Aroma hop, whirlpool

YEAST

Wyeast 1388 Belgian Strong Ale

BREWING NOTES

Mash in with 12 quarts (11.4 L) of strike water to achieve a starch rest at 152° F (67° C) and hold for 60 minutes. Sparge with 6.5 gallons (24.6 L) of water and boil for 75 minutes. Hold fermentation at 67° F (19° C) for 48 hours, then let free rise. This yeast can take a while to finish, so be patient. Given adequate time and temperature this beer will finish nice and dry.

*Use acidulated malt as needed to adjust mash pH.

PARTIAL-MASH VERSION

Substitute 5.25 lb. (2.38 kg) Pilsner malt extract syrup for Pilsner malt. Omit acidulated and CaraHell malts. Mash Vienna malt and flaked wheat at 155° F (68° C) for 45 minutes. Drain, rinse grains, add extract to wort, and top up to desired boil volume with reverse osmosis or distilled water. Commence boil as above.

HOPPY GRISSETTE

Contributed by Jared Long and Bob Hall

Batch Volume: 5.75 U.S. gallons (21.8 L)

Original Gravity: 1.047 (11.6° P)

Final Gravity: 1.006 (1.5° P)

Color: 3 SRM

Bitterness: Varies

Alcohol: 4.8% by volume

MALTS

5 lb. (2.3 kg) Weyermann Pilsner malt

3 lb. (1.4 kg) wheat malt

1 lb. (454 g) Weyermann Vienna malt

2 oz. (57 g) Weyermann acidulated malt

HOPS

1 oz. (28 g) Sterling, 6% a.a. @ 60 min

1.5 oz. (43 g) Aroma hop @ 10 min

2 oz. (57 g) Aroma hop, whirlpool

YEAST

Wyeast 3711 French Saison or your favorite saison strain

BREWING NOTES

Mash in with 12 quarts (11.4 L) of strike water to achieve a starch rest at 151° F (66° C) and hold for 60 minutes. Sparge with 6.5 gallons (24.6 L) of water and boil for 75 minutes. Hold fermentation at 68° F (20° C) for 3 days, then let free rise. Rack after 10 to 14 days (many saison yeasts, including Wyeast 3711, can be slow to fully attenuate).

EXTRACT VERSION

Substitute 5 lb. (2.27 kg) Pilsner malt extract syrup and 2.75 lb. (1.25 kg) wheat malt extract syrup for Pilsner, Vienna, acidulated, and wheat malts. Dissolve extract completely in reverse osmosis or distilled water and top up to desired boil volume. Commence boil as above.

there where they drink on their days off. No matter where you find yourself, there are plenty of fantastic places to drink. Just because a beer bar or brewery has a great reputation or seems promising from the outside doesn't necessarily mean it's worth spending a lot of time there. Some well-known places just get too crowded to be much fun.

SEIZE THE MOMENT

There is always a beer to add to your list or a hidden gem to be discovered, so try letting someone else choose your beers for you. We fell into ruts and might have missed great beers were it not for friends we met in homes or bars. Belgian beer menus often make little sense to Americans. The brewery may or may not be listed, and style names are the exception, not the rule. Just letting your beer-tender know that you prefer bitter, dry, malty, or sweet styles can unlock a whole suite of examples that you may not have ever heard of.

Don't obsess over the beers you can't find, but appreciate those you do. Whale hunting—seeking out rare beer to check off a bucket list—can easily derail a beer-centric vacation. We had poked fun at the practice before leaving for Belgium and Germany and were quickly reminded of it when the first question several fellow travelers asked us was, "Have you had Westvleteren 12 yet?"

Drink what's in front of you and drink what is fresh. In Belgium, this means finding a solid beer bar and letting your server guide your tasting. In Düsseldorf, it means visiting each of the altbier brewpubs and enjoying the many variations among them. Closer to home, it means focusing on what's locally available and saving Pliny the Elder for your visit to California. Had we confined our beer consumption to *only* drinking the likes of Westvleteren 12 and Cantillon Fou' Foune, our discoveries would have been far less rich. Some of our most rewarding outings on the trip came at establishments whose beer offerings were unfamiliar.

GET TO BREWING

When you return home, use what you learned to inspire new recipes or improve the way you brew established ones. The

recipes accompanying this article are for beers that we brew and are, in part, inspired by our recent and past trips to Germany and Belgium. These represent the outcomes of our trips; yours will no doubt be different.

ALTitude ALT and Forbidden City Alt are tried-and-true beers that we have brewed many times at the Altitude Chophouse and Brewery in Laramie, Wyoming. ALTitude took gold medals at the 2014 World Beer CupSM and North American Beer AwardsTM. Our Belgian-inspired recipes represent more of an approach than a

specific set of instructions. We hope you enjoy them and make them your own.

Jared Long is a brewer at Black Tooth Brewing Company in Sheridan, Wyoming. When not making or talking about beer, Jared enjoys listening to the Wu-Tang Clan, shopping at Asian grocery stores, and drinking lagers. Bob Hall is a homebrewer of 26 years, a BJCP Grand Master II beer judge, and a limnologist at the University of Wyoming. He is always planning his next trip to Europe or Fort Collins.



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FOUR SCORE AND SEVEN BEERS AGO

CROWDFUNDING A COMMUNITY BREWERY

BY EFRAÍN VILLA

“WE THE PEOPLE OF THE ALE REPUBLIC are a community of beer enthusiasts who here-forth seek to found a new beer establishment that strives to bring quality New Mexican beers from all corners of our great state, to establish a community-oriented atmosphere and to build an educational environment in which our members can learn about beer and brew their own recipes.”



With only five days left in the online fundraising period, the month-long Kickstarter drive to launch the community-centric brewhouse was nearing what appeared to be a disastrous end. Support had floundered, leaving the Ale Republic with pledged funds that totaled just half of the \$25,000 goal.

"The entire time we were raising seed money through the Kickstarter campaign, we kept asking ourselves if we were crazy," recalls Zach Gould, cofounder of the Ale Republic, which he describes as a cross between a brewery, a community center, and an innovation incubator.

Kickstarter, the popular online crowdfunding platform, allows users to pitch projects to a virtual marketplace of potential donors, but each campaign is built on an "all or nothing" proposition. If the Ale Republic failed to reach its stated funding objective, it meant that the \$12,500 already pledged as contributions would be lost, along with the months of work it took to research, plan, and implement the campaign strategy.

A REVOLUTIONARY CONCEPT

The original idea that led to the Kickstarter campaign had germinated three years earlier when Patrick Johnson, the other cofounder of the Ale Republic, was completing a yearlong study abroad program

in France. While overseas, Johnson had joined a beer club that introduced him to an inclusive community of brewers who nurtured his passion for homebrewing. Upon returning to his hometown of Albuquerque, N.M., he decided to import what he learned from the beer club model.

"It started as a small group of beer enthusiasts getting together to share brewing ideas, experiment, and enjoy drinking good beer," says Johnson. "Before long we were having a monthly get-together that we called First Thursday Beer Underground, which is as literal as it gets: we had it on the first Thursday of every month in my basement."

Over the next three years, the monthly gatherings drew more and more brewers eager to share their latest creations. The experimental beers and welcoming vibe, accompanied by local musical acts, also began attracting larger numbers of thirsty tasters, many of them students at the nearby University of New Mexico, the largest university in the state.

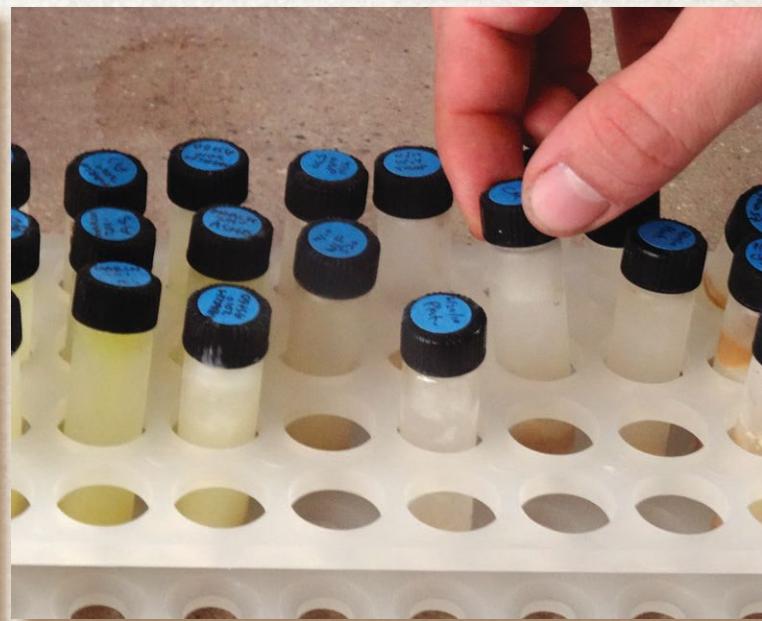
Eventually, the crowds filled not just the basement, but the ground floor and backyard of the house. "It started getting too big," says Johnson. "We never wanted it to be just a big house party. The focus was always supposed to be on brewing beer and creating a community of beer enthusiasts."

Johnson and Gould began floating the idea of turning their beer club into a formal business. "We already had this community in the Beer Underground," says Gould. "So we started asking them what they thought about our business idea and they were really supportive. That's how the Ale Republic Kickstarter was born."

But getting by with a little help from friends is not easy. "Now we say that our biggest capital is that we know a lot of people because we grew up here," Gould continues. "But at first it felt weird asking our friends to contribute. I think because of how our culture is set up, we're ashamed to ask for help. Then when you do ask, you realize that there are tons of people who want to lend a hand whenever they can."

Gould and Johnson assembled a team of volunteers with diverse professional backgrounds to begin developing the business plan. A local graphic artist created the logo, friends in New Mexico's thriving movie industry set up a film crew to shoot the video for the Kickstarter, and financial analysts contributed their expertise in drafting an initial budget.

They estimated they would need approximately \$100,000 to get the Ale Republic up and running. "We always had the idea we'd have to take out a



loan," says Johnson. "We wanted to ask for enough money through the Kickstarter to get the ball rolling, but not so much that it was unrealistic."

SUPPORT FOR THE CAUSE

Gould and Johnson followed the best practices of crowdfunding. They contacted the press, promoted their cause through social media, and created incentive packages for donors that included swag, beer tastings, and even a custom engraving on the brewhouse's patio with the donor's choice of text.

Then the contributions began trickling in...slowly. Very slowly.

"In New Mexico, Land of *Mañana*, people were thinking: 'We'll donate later,'" says Johnson.

In the last week before the conclusion of the Kickstarter campaign, when the numbers clearly showed a projected failure to get funded, Gould and Johnson took to social media with videos and posts appealing to friends' generosity. One of their pleas read, "Don't put it off. Don't wait. Don't say you'll come to the bar and buy a beer. Right now, right here, we need your love, sugar, and attention!"

It worked. They watched on their phones as the Kickstarter's funding progress graph began to register a spike

in contributions. As people responded to their desperation and urgency, the graph continued on a new trajectory that put the goal within reach. "I feel like I'm watching the Kentucky Derby!" wrote Johnson in response to a Facebook message of support.

But then with two days to go, the contributions once again stalled.

"Check out this awesome progress chart!" wrote Johnson on a Facebook post containing a graph. "See that flat line at the end? Let's stop that flat-line trend or we are dead!"

Then it happened. The day before the funding deadline, they reached their \$25,000 goal, and since the funds kept coming in, they started promoting a "stretch goal" of \$30,000. In the end, the Kickstarter campaign succeeded, receiving a total of \$28,885 from 305 backers from the US, and even six from abroad.

The dramatic unfolding of the Ale Republic's Kickstarter is typical of the bandwagon effect that drives most crowdfunding projects. The daily updated statistics on Kickstarter's website show that even in a virtual marketplace, the axiom that it takes money to make money holds true. Approximately 65% of all launched Kickstarter projects fail, but failure rates dramatically diminish the closer projects

get to their goal. Projects that reach more than 80 percent of their goal make up less than 1 percent of the total number of failed projects. By contrast, projects that do not reach 20 percent of their goal make up 84 percent of all failed campaigns.

NATION BUILDING

I caught up to Johnson and Gould a year and a half after their successful Kickstarter campaign.

They were busy digging trenches behind a building located in Cedar Crest, a small community nestled in the mountains that flank Albuquerque's east side. A handwritten sign near the dirt road leading to the parking lot read "Brewery Coming." The property had already been outfitted with brewing equipment, a yeast laboratory, and refrigeration room, but the dangling wires, scattered two-by fours, and littered pieces of sheetrock were reminders that this was still very much a work in progress.

"The permitting and zoning bureaucracy has really sucked," said Gould, as he worked his shovel around a pipe. "We're the first brewery in Bernalillo County that is outside of the city (Albuquerque), so we've had to endure their learning curve. I think the county thought we were going to be pouring gallons and gallons of boiling water down the pipes. They didn't

NEW MEXICO WILD MOUNTAIN ALE

AMERICAN WILD SPECIALTY BEER (BJCP 2015 28C)

CONTRIBUTED BY PATRICK JOHNSON

YEAST IS SOMETIMES UNDERAPPRECIATED for its flavor contributions, especially with the continuing trend toward hoppy and, more recently, sour beers. However, these styles use a fairly small set of available microbes, so we have paid a lot of attention to capturing and culturing our own yeast and bacteria. This recipe is based on a Belgian blonde ale but uses locally sourced hops and locally cultured yeast to deliver a beer that's truly—well—local! Adapt it to take advantage of whatever is local to you.

Batch Volume: 6 U.S. gallons (22.7 L)

Original Gravity: 1.072 (17.5° P)

Final Gravity: Depends on your particular blend of bugs

Color: 6 SRM

Bitterness: 14 IBU

Alcohol: 8% or more by volume

MALTS

13 lb. (5.9 kg) Pilsner malt

1 lb. (454 g) CaraPils

2 oz. (57 g) Special B

1.5 lb. (680 g) clear Belgian candi sugar or table sugar

HOPS

1 oz. (28 g) Tettnang @ 90 min

1 oz. (28 g) Neomexicanus (native to New Mexico) @ 15 min

YEAST

Pitch 50 to 200mL of active cells.

BREWING NOTES

Collect a wild blend of yeasts and bacteria from your local environment. Culture through many generations until you have the desired trait (we like a homogeneous flavor profile). Save your culture and propagate it up to a pitchable starter. If not culturing your own microbes, choose your favorite mixed-fermentation blend.

Mash at 150° F (66° C) for 30 minutes. Raise mash temperature to 162° F (72° C) for another 30 minutes and mash out at 172° F (78° C) for 10 minutes. Sparge and then boil for at least 90 minutes and up to 120–180 minutes. Pitch starter at 60–65°F (16–18° C) and ferment at 60–70° F (16–21° C) for 5 to 10 days. For a more flavorful beer and a longer maturation time, ferment at 60° F (16° C) for 5 days and then at 80° F (27° C) or higher for 5 days. When fermentation is finished, add any desired additional ingredients (dry hops, local fruit, fresh juniper berries, etc.). Rest under cellar conditions or in the refrigerator for two weeks before serving. Use bottle conditioning or force carbonate at medium to high carbonation.

EXTRACT VERSION

Substitute Pilsner malt with 9.75 lb. (4.42 kg) Pilsner malt extract. Steep dextrin and Special B malts at 155° F (68° C) for 30 minutes. Drain, rinse grains, and dissolve extract and sugar completely. Top off to desired boil volume with reverse osmosis or distilled water. Proceed with boil as above.

know anything about brewing processes on a septic system because city breweries are on a sewer system, so we had to educate them. Right now we're putting in a wastewater test so we can test the pH and check if there's any solids or proteins going into the septic system."

"We've had to learn a lot, too," admitted Johnson, wiping away sweat. "Before you even begin going through the permitting process, you have to have an address, which means you have to be paying rent. The permitting process takes more than a year, though, so you're paying rent on a property you can't even use."

They originally wanted to locate the brewhouse within Albuquerque, but with the recent boom of new breweries and taprooms in town, they were seen as just another newcomer jostling for space in an increasingly competitive market. "When we would talk to brewery owners about a center where everyone comes together to brew beer and we would ask them to partner with us to serve their experimental beers," explains Gould, "some would say, 'Great! As long as it's not within a certain radius of our place.'"

Johnson's father offered to let them use a vacant property he owned just outside of Albuquerque, and they accepted. "It's far away enough that we're not infringing on anyone," Johnson says, "and it gives us the opportunity to do something different from everybody else. It also allows us to be a destination brewery for the greater Albuquerque area and at the same time be a local's bar for this mountain community."

Although they have now turned their attention to the physical structures of the Ale Republic, the virtual components continue to be important. "We're doing homework online," says Johnson. "We talk to experts. Get on internet forums. It's a lot of trial and error, but we're not rushed, so we're able to be flexible to other things when something doesn't work the first time."

There is an Ale Republic mobile app in development that will allow patrons to see which beers are on tap. The platform will also allow users to critique and rate what

they sample. This feature is designed to complement the brewing benefits included in the top tier of membership, which include on-site brewing privileges. Members' experimental brews will be tasted, rated and critiqued by patrons and the brewer can then tweak the recipe based on feedback.

However, the prospect of brewing can be intimidating to newcomers. To help people get started, the Ale Republic and its supporters have started creating original instructional videos. "We want to educate people on how to brew and taste at all levels," says Gould. "So if they just want to enjoy good beer, that's great. And if they want to talk philosophical about beer with their pinkies up, they will be able to do that with the best of them."

The optimism of these two brewpreneurs is contagious as they talk about their plans for expansion, the home-grown strains of yeast they hope to one day sell, and yet-to-be-built beer gardens. Although it seems incredibly technical, Gould is quick to note that beer was for a long time made in people's kitchens.

"Brewing in general is a perfect marriage between cooking and baking," he says. "Half of it is very technical. You have to be precise and even a little anal retentive. The other half is winging it and just giving it a shot. If you can bake bread and make soup, that's it—you can brew beer."

It is easy to see how Gould and Johnson rallied 305 people around their cause. As founders, they brought forth on this nation a new brewery, conceived in a basement and dedicated to the proposition that all men and women are capable of brewing. Now they hope that others will also pledge allegiance to the craft and to the Ale Republic.

Efrain Villa is a photographer, actor, columnist, and global wanderer whose quest for randomness has led him to jobs in tourism marketing, police de-escalation training, and blogging for AimlessVagabond.com. When not running his consulting firm in Albuquerque, he is busy devouring exotic foods and avoiding adulthood.

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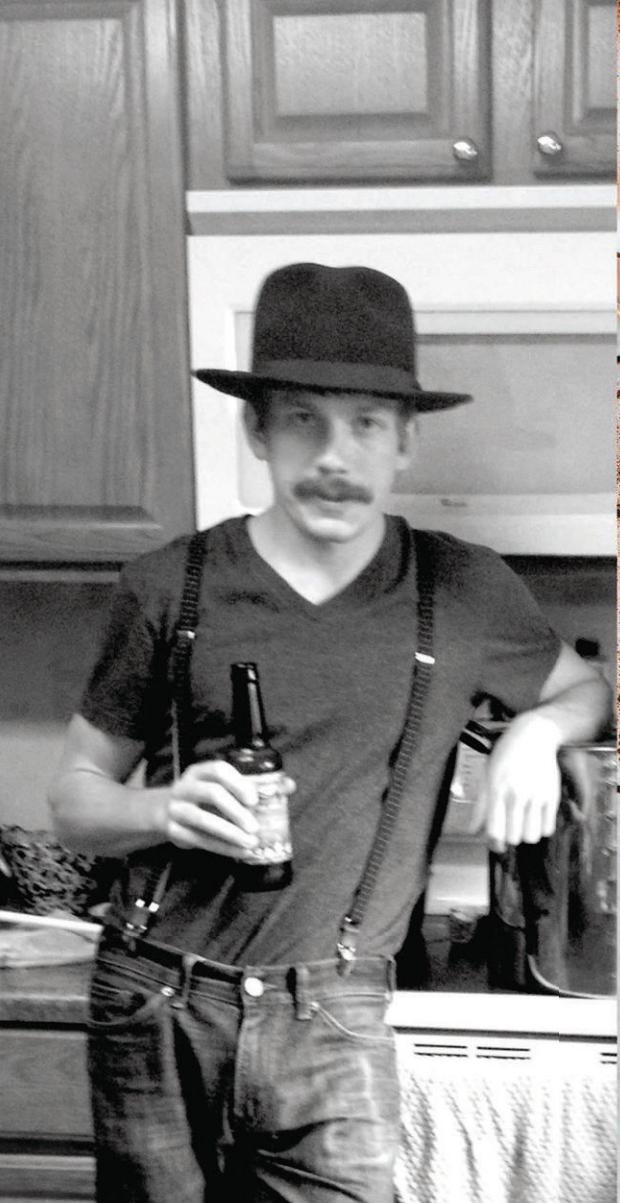


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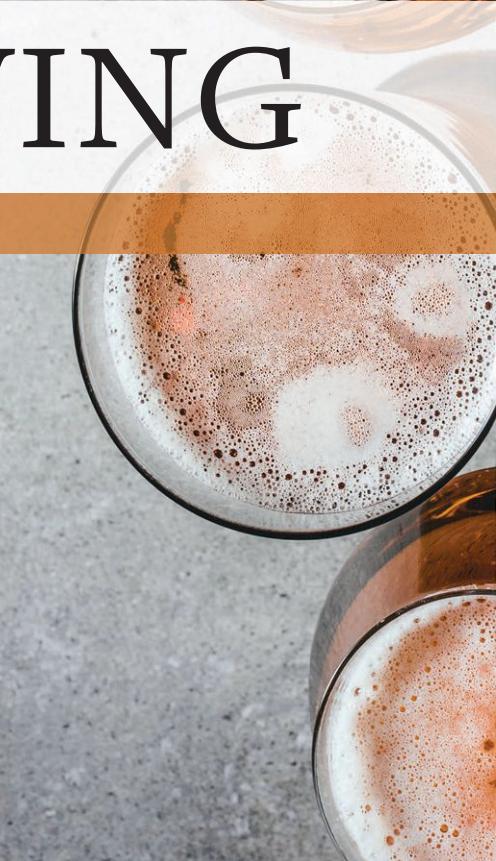
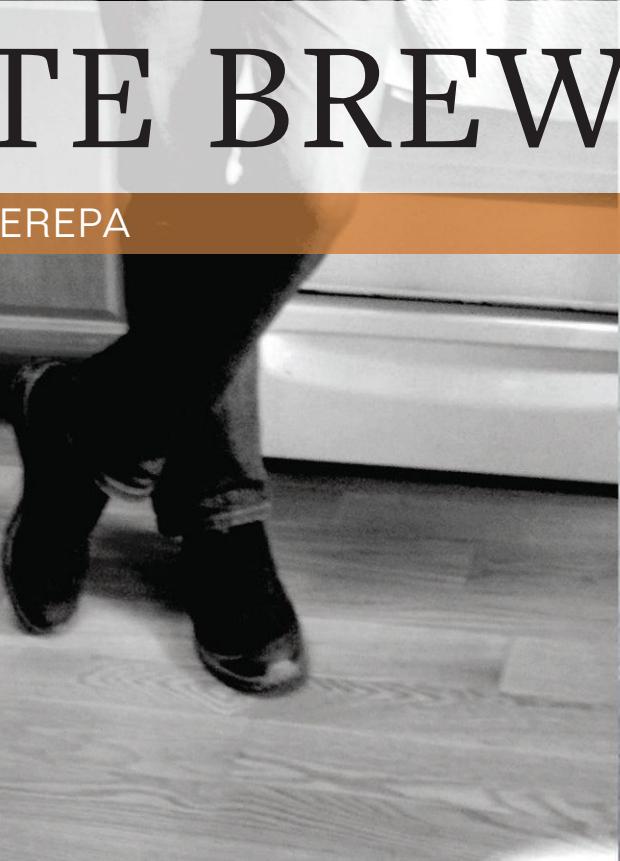
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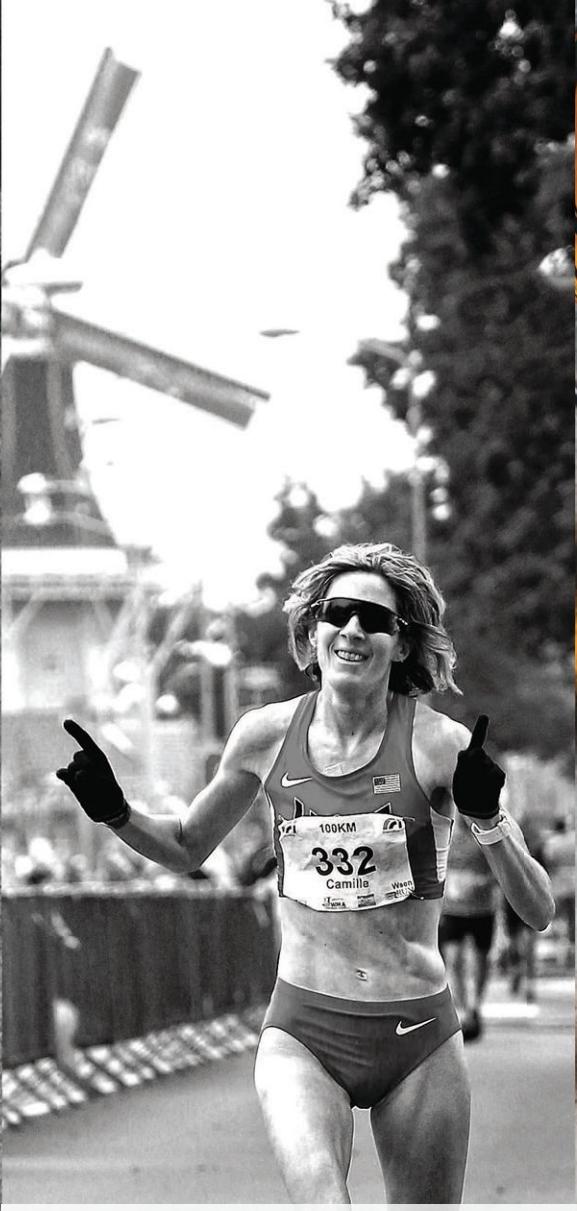




ELITE BREWING

BY CLINT CHEREPA





“Beer makes me happy, and that carries over into happy running.”

—CAMILLE HERRON, ELITE RUNNER & HOMEBREWER





In the world of ultra-distance running, good beer isn't just something to sip and savor; it's a staple of reward and recovery. Spend time at any ultramarathon finish line, and it won't take long to witness the partnership between ultrarunners and great brews. And now breweries are taking advantage of this happy marriage by sponsoring ultrarunners.



For example, Avery Brewing Company of Boulder, Colo. has recently sponsored Sage Canaday, one of the world's best trail and ultrarunners. "It's been really awesome and a dream come true," Canaday said in a recent interview with iRunFar.com. And Wanderlust Brewing Company in Flagstaff, Ariz. now sponsors Rob Krar, last year's winner of the 100-mile (161-km) Western States 100.

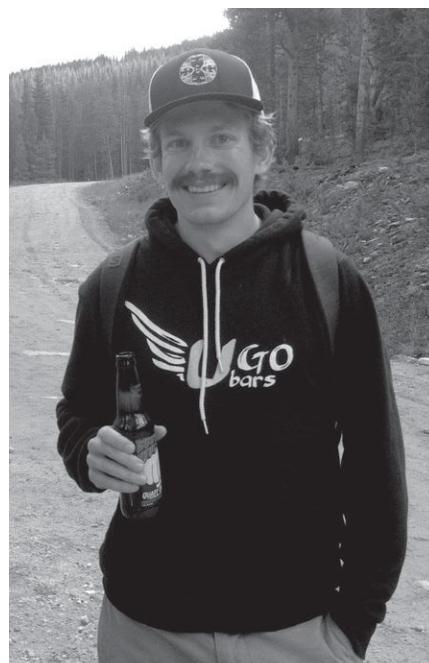
Of the connection between ultrarunning and beer, elite runner Matt Flaherty said, "Most folks in ultrarunning seem to love good beer. More recently, we've seen microbreweries getting more involved in the sport. A handful of athletes (including me) now have microbrewery sponsors. Mine also sponsors trail races and a local racing team."

Flaherty, who represented Team USA at the 100 km World Championships in 2014 and 2015, is sponsored by Quaff ON! Brewing Company in Nashville, Ind. Matt also won the USA 50 Mile Road National Championship in 2013.

Another successful ultrarunner with a strong thirst is Camille Herron. Herron has qualified for the Olympic Marathon

Trials three times and has won 20 marathons. "In 2015, I stepped up to the ultramarathon distance and really found my passion. In my first year on the ultra scene, I was honored to represent the United States again and brought home three World Championship titles (the individual titles for 50K and 100K and the team gold for the 100K). I also won two National titles, both the U.S. 50 Miles (setting a World Best performance for 50 Miles, 5:38:41) and the 100K Championship," Herron said.

Herron and Flaherty do more than run very fast for long distances and drink good beer. They also happen to be avid homebrewers. I had the opportunity to learn more about Flaherty's and Herron's homebrewing histories, their thoughts and opinions on the connections between



"If you go too hard at one thing, you're ripe for burnout. Slowing down to brew beer and enjoy it helps me relax and enjoy the moment."

—MATT FLAHERTY, ELITE RUNNER & HOMEBREWER



MT. BRANDON *Irish stout*

Recipe courtesy Matt Flaherty

Batch Volume: 5 U.S. gallons (18.93 L)
Original Gravity: 1.042
Final Gravity: 1.006
Color: 28 SRM
Bitterness: 32 IBU
Alcohol: 4.7% by volume

MALTS

3.3 lb. (1.5 kg) light malt extract syrup
1 lb. (0.45 kg) corn sugar (boil 15 min)
12 oz. (340 g) Munton's pale 2-row malt
12 oz. (340 g) 500° L roasted barley
4 oz. (113 g) 90° L crystal malt
4 oz. (113 g) 350° L chocolate malt

HOPS

1 oz. (28 g) Target, 11% @ 60 min
0.5 oz. (14 g) UK Kent Golding, 5.7% @ 15 min

YEAST

White Labs WLP007 Dry English Ale Yeast

ADDITIONAL ITEMS

1 tsp. (5 g) Irish moss @ 15 min
2/3 cup (100 g) corn sugar to bottle prime

BREWING NOTES

This recipe makes 5 gallons and is brewed using a concentrated boil of 3 gallons (11.36 L). If you boil the full volume, you may wish to decrease the 60-minute Target hop addition by 25–33 percent to account for the improved hop utilization of a larger, thinner boil.

Steep 2-row, crystal malt, chocolate malt, and roasted barley at 150° F (66° C) for 30 minutes. Remove specialty grains and add liquid malt extract. Boil for 60 minutes, adding hops at the indicated times, and adding the corn sugar and Irish moss 15 minutes before knockout. Chill to 68° F (20° C), pitch yeast, and ferment to completion. Bottle with 2/3 cup priming sugar or keg.

ALL-GRAIN VERSION

Increase pale 2-row malt to 6 lb. (2.72 kg), decrease corn sugar to 8 oz. (227 g), and omit malt extract. Mash grains at 150° F (66° C) for one hour, sparge sufficient volume of wort to result in 5 gallons (18.93 L) after a 1-hour boil, and proceed as above.

ultrarunning culture and beer culture, and how they balance their love of beer with the rigorous training necessary to compete at an elite level.

GOOD HABITS START AT HOME

Camille Herron got interested in homebrewing when she was in graduate school. “The lab I worked in did research on alcohol and its impact on our bones,” she said. “It turns out alcohol in moderation is great for bone.” A few of her classmates were homebrewers, and when one of them decided to sell his homebrew kit, Herron bought it and started brewing in 2009.

Flaherty was also in college when he headed down the road to homebrewing. In 2006, he and a friend started getting into craft beer as well as exploring styles from Germany, Belgium, England, and elsewhere. He said, “We became very interested in challenging our palates and learning all about beer. The craft beer industry was growing rapidly, though it was nothing compared to the scene

today.” Flaherty continues, “For my first two brews, I used kits, but after that it was either the occasional clone, or, more often, my own recipe creations.” He collaborated with a friend on their first batch in 2008, and the two still co-brew a batch for an annual Christmas party.

As any homebrewer understands, finding time to brew can be a challenge. Elite ultrarunners often cover more than 100 miles in a week, so how do they find the time? “We usually try to brew a new batch every month,” said Herron. “We've gotten a bit busier with life over the past two years, but we just got back into consistent homebrewing. We usually try to do it on the weekends when my husband and I are both home and have more time. We just brewed a coffee stout last weekend and bottled a nut brown ale last week.”

Once the novelty of homebrewing wore off for Flaherty, he started to streamline his process. He mostly brews from extract these days, which makes it easier for some-

one who is on the move and lives in a small apartment. He said, “I now do a concentrated boil, compensating with extra hops when needed, and bottle in all flip-tops.”

“I drank a lot of Grolsch to get them,” he adds.

ULTRA BEER

Flaherty said that the trail- and ultrarunning scene “fits squarely within the greater outdoor culture,” pointing out that most people who bother to run trails don't take themselves too seriously. “We're out there to enjoy the woods, the mountains, and other wild places. Sitting around a camp fire or a barbecue with a couple of homebrews is the end to a perfect day of running or racing. We're not much different than other hikers or campers. We appreciate the simple things, distilling life to its basic elements. To me, this goes hand in hand with taking great appreciation in your food and drink. And if you're a beer drinker, that means quality homebrew or local craft beer.”



JOCASSEE Belgian Pale Ale

Recipe courtesy Matt Flaherty

Batch Volume: 5 U.S. gallons (18.93 L)

Original Gravity: 1.068

Final Gravity: 1.015

Color: 11 SRM

Bitterness: 21 IBU

Alcohol: 6.9% by volume

MALTS

7 lb.	(3.18 kg) Briess Pilsen Light dry malt extract
8 oz.	(227 g) GoldSwaen 20° L red caramel malt
8 oz.	(227 g) Weyermann 30–38° L Caramunich malt
4 oz.	(113 g) Dingemans 18–27° L biscuit malt

HOPS

2 oz.	(57 g) German Tettnang, 3.9% @ 60 min
2 oz.	(57 g) German Perle, 5.3% @ 15 min
2 oz.	(57 g) German Hallertau (whole leaf), 4.5% @ 0 min

YEAST

White Labs WLP530 Abbey Ale Yeast

ADDITIONAL ITEMS

1 tsp.	(5 g) Irish moss @ 15 min
2/3 cup	(100 g) corn sugar to bottle prime

BREWING NOTES

This recipe makes 5 gallons (18.93 L) and is brewed using a concentrated boil of 3 gallons (11.36 L). If you boil the full volume, you may wish to decrease the 60-minute Tettnang hop addition by 25–33 percent to account for the improved hop utilization of a larger, thinner boil.

Steep biscuit malt, caramel malt, and Caramunich malt at 150° F (66° C) for 30 minutes. Remove specialty grains and add malt extract. Boil for 60 minutes, adding hops at the indicated times, and adding the Irish moss 15 minutes before knockout. Chill, pitch yeast, and ferment to completion. Bottle with priming sugar or keg.

ALL-GRAIN VERSION

Substitute 11 lb. (4.99 kg) Belgian pale malt for dry malt extract. Mash grains at 150° F (66° C) for one hour, sparge sufficient volume of wort to result in 5 gallons (18.93 L) after a 1-hour boil, and proceed as above. Finish may be slightly drier and color may be slightly lighter than extract recipe.

Herron is new to the ultra scene, and she shared that it was a nice surprise to find out that ultrarunners love their beer as much as she does. During her training and racing she sometimes daydreams about her post-run libation. She has even been known to sneak a beer during a race.

"There's nothing more refreshing, and it's a great reward for the work," said Herron. "For some reason, it seems a lot of ultras are held in places where there's a concentration of outstanding craft beer, so understandably, there's a close relationship."

NUTRITION & STAYING IN SHAPE

Herron learned in graduate school that moderate alcohol consumption can benefit musculoskeletal health. She notes,

"Yeasty beer is especially good and has a lot of valuable micronutrients. I drink some form of alcohol five or six days a week, usually just a pint and occasionally two if I'm really thirsty. Beer makes me happy, and that carries over into happy running."

Flaherty is a big advocate for living a balanced life. He said, "If you go too hard at one thing, you're ripe for burnout. Slowing down to brew beer and enjoy it helps me relax and enjoy the moment."

Of course, running for hours on end most days adds up to a serious calorie burn. Could this be one of the roots of the unlikely partnership?

"The amount of training required to stay near the top of my sport means that I don't feel guilty about a couple of beers at the end of the day," Flaherty said. "I drink most evenings. Good beer is just something I really enjoy—while cooking, with friends, wherever. I'm much more about living a balanced, enjoyable life than a monastic, training-only existence. I work hard, but I also enjoy life." When asked about his everyday nutrition, he quoted famed food writer Michael Pollan: "Eat food, not too much, mostly plants."

Flaherty avoids processed foods and cooks most of what he eats. With a background working in commercial kitchens, he enjoys cooking. Although not a vegetarian, he said, "I only eat a small

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amount of well-sourced meat and animal byproducts. Eating mostly plants is better for me and for the environment, so it's what I strive for in my diet. That said, I don't have anything truly off limits and I'm happy to indulge from time to time."

Herron tries to minimize the amount of supplements she takes, but she does take extra iron, B vitamins, vitamin D, and other minerals. She also feels that alcohol in moderation does not hinder her running and fitness. She said, "If anything, it makes me happier, healthier, faster to recover, and generally more laid back. If you drink regularly, your body creates the enzymes necessary to metabolize it quickly. Occasionally, maybe after a big race, I drink a little more to celebrate."

A HOPPY FUTURE

Ultrarunning and craft beer would appear to be looking forward to a long and happy road ahead. "I think more brands will get involved in sponsoring runners and races as the sport grows," notes Flaherty. Added Herron, "I definitely encourage other runners to give homebrewing a shot—it makes you appreciate the art and science of everything that goes into good beer."

Matt Flaherty and Camille Herron may be reached at mattaflaherty@gmail.com and runcamille@yahoo.com, respectively.

Clint Cherepa lives in Nicaragua with his wife, Kate. He keeps himself busy volunteering, trying to get his hands on homebrewing supplies, and training to complete 100-km and 100-mile runs while back in the United States this fall.

The image shows a yellow can of Hop Nosh IPA beer. The label features a green banner with the words "HOP NOSH" in large, stylized letters, with "IPA" below it. Below the banner is a colorful illustration of a person in a hat and vest harvesting hops from a large pile. At the bottom of the label, there's a small circular logo for "UINTA BREWING CO." and the text "EARTH, WIND AND BEER". To the right of the can is a graphic with the text "HOP out for a NOSH" in a large, hand-drawn style, with "HOP" and "NOSH" being the most prominent. Below this text is the Uinta Brewing logo, which is a red circle containing a white mountain range and the words "UINTA BREWING CO.".

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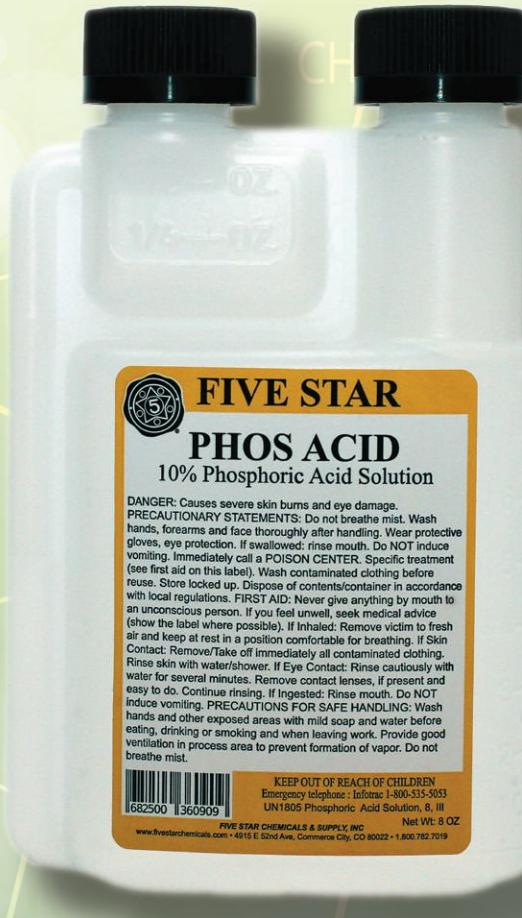
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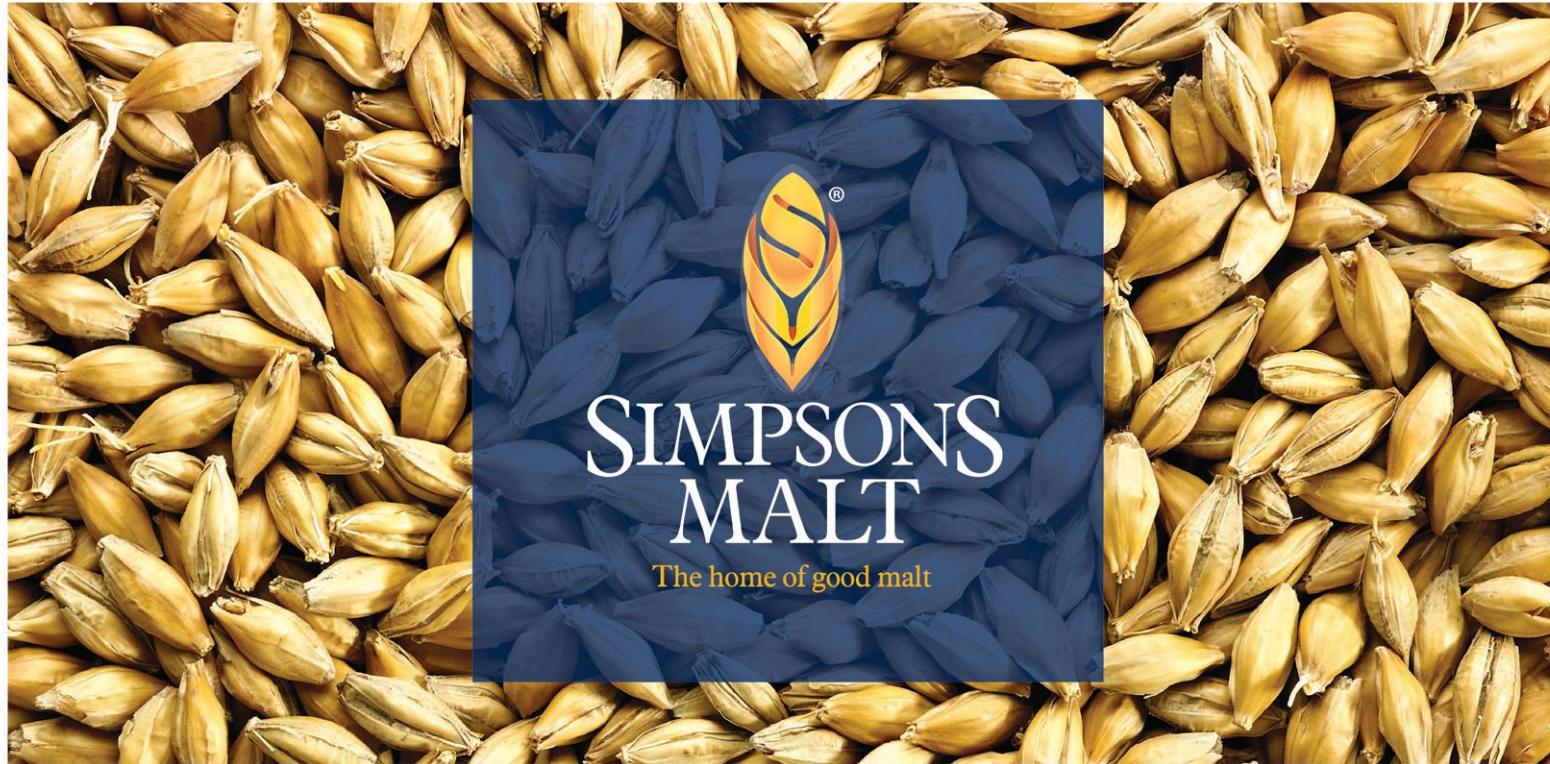
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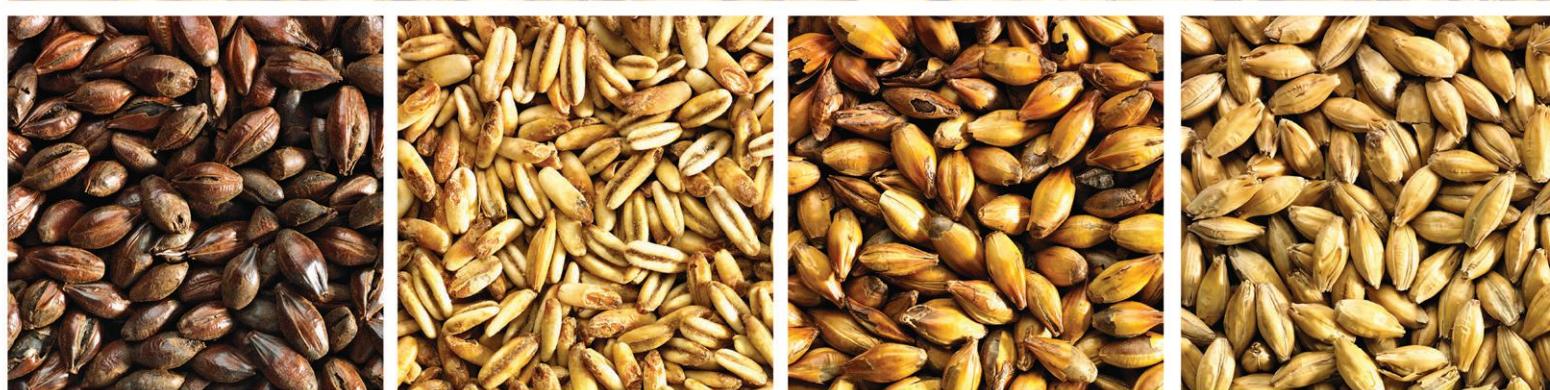
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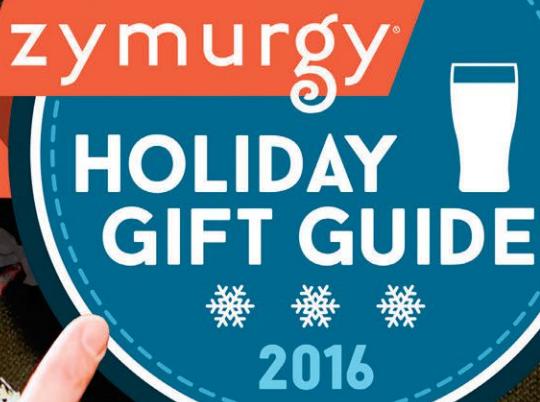
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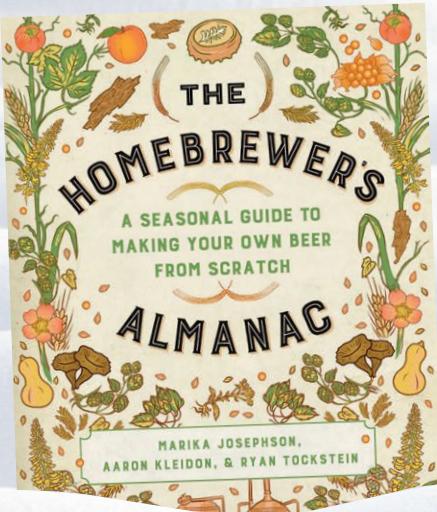


24 new and/or noteworthy items for the homebrewers and beer lovers on your list. Be sure to check out your local homebrew supply shop for many of these items and more gift ideas!

by the Zymurgy Editors



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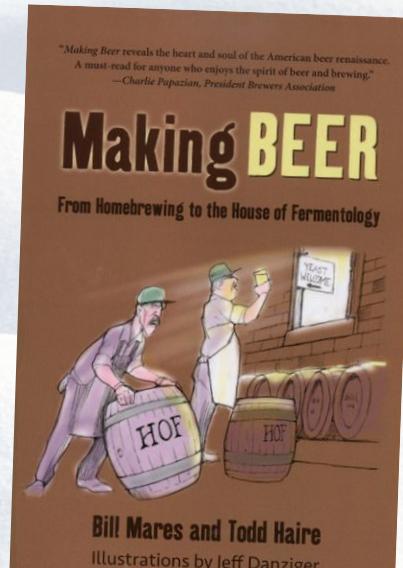
**THE HOMEBREWER'S ALMANAC**BY MARIKA JOSEPHSON, AARON KLEIDON,
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From the agricultural aces behind southern Illinois' Scratch Brewing Company comes this encyclopedia of botanical brewing. *The Homebrewer's Almanac* is chock-full of formulations for such unique pints as Cedar IPA, Sweet Potato Vienna Lager, Arugula Rye Porter, and Green Tomato Saison. Alongside the recipes, you'll find practical tips for harvesting and foraging natural ingredients for your homegrown beer.

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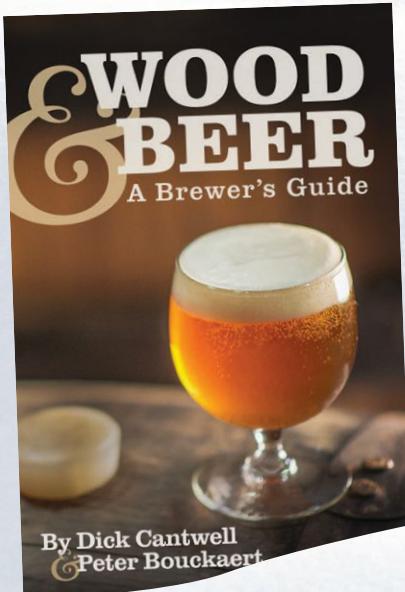
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**MAKING BEER**

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What do Charlie Papazian, Michael Jackson, John Kimmich, and Jim Koch have in common? They've all praised the authors of this book, that's what. *Making Beer* tells the history of homebrewing and craft beer through a series of witty, reflective, and at times philosophical personal vignettes. Contact the authors at houseoffermentation.com to get a signed copy in time for the holidays!

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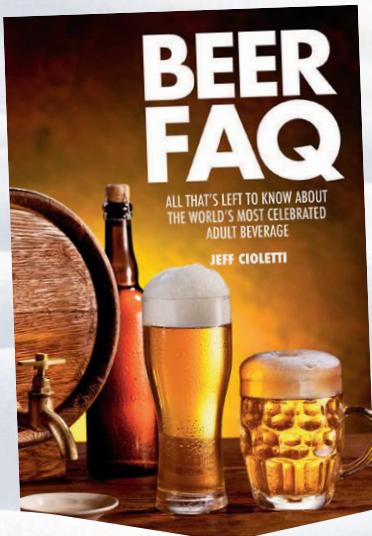
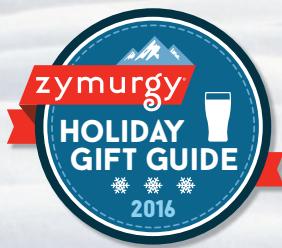
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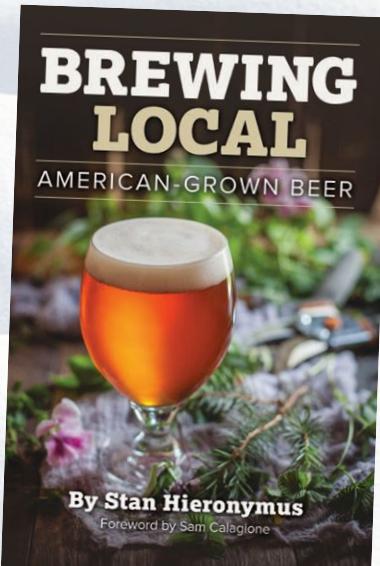
**BEER FAQ**

BY JEFF CIOLETTI

How many times have you read an FAQ only to discover that your Q isn't A all that F? This one's different. In *Beer FAQ*, author Jeff Cioletti explains "all that's left to know about the world's most celebrated adult beverage." Dispensing craft beer knowhow that includes history, festivals, glassware, styles, beer cocktails, and more, this book is more like a miniature *Oxford Companion to Beer* than it is that three-letter link at the bottom of your wireless carrier's website.

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**BREWING LOCAL:
AMERICAN-GROWN BEER**

BY STAN HIERONYMUS

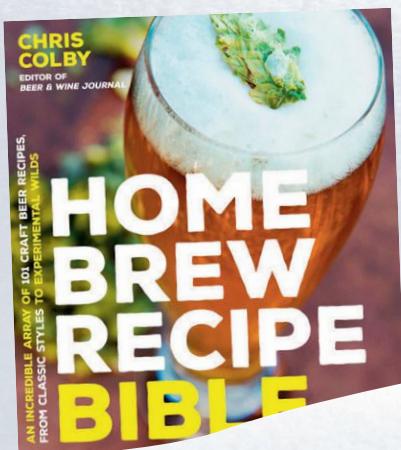
First he taught us to brew like a monk.

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Now Stan Hieronymus is at it again, guiding us through fields, forests, and our own backyards, all in the name of true local color. Readers of *Brewing Local* will be inspired to brew with everything from agave to yarrow. Mushrooms of the world, be afraid. Be very afraid.

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**HOME BREW RECIPE BIBLE**

BY CHRIS COLBY

In addition to contributing to *Zymurgy* (see "Brewing a Monster" on page 81 of this issue), Chris Colby has served as editor of *Brew Your Own* and now oversees content at *Beer & Wine Journal*. The title of his new *Home Brew Recipe Bible* is a little understated. You'll find no shortage of great homebrew recipes here—101 to be precise—but it's the brewing techniques sprinkled throughout that really make this book shine.

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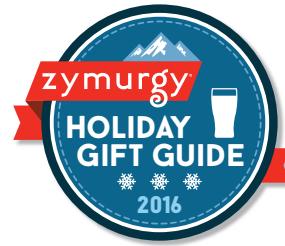
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The chest freezer and temperature controller is a tried-and-true standby of homebrewing, but let's be honest—what we all really want is a dedicated walk-in cooler. Well, get ready to start living the dream with CoolBot, an innovative little gadget that converts a standard window air conditioner and spare room (or garden shed) into your very own cold box for fermentation, lagering, and keg storage. Paired with a CoolBot and good insulation, a standard-issue 10,000 BTU (10,550 kJ) window unit A/C can easily take a guest room down to Kölsch territory, while larger A/Cs will get you close to freezing. Cool, huh?

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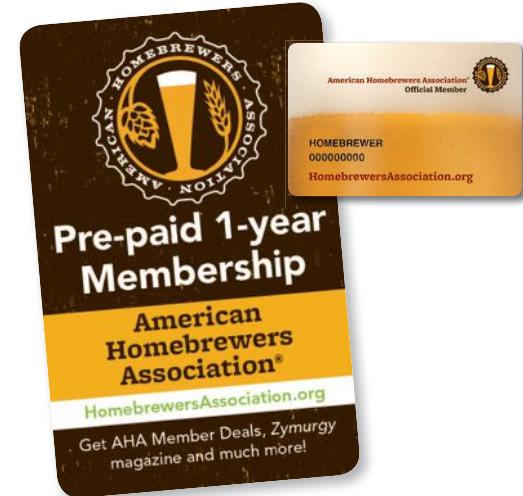
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Russian River's Pliny the Elder has won *Zymurgy's* Best Beers in America reader survey for the last eight years, but getting your hands on a bottle of the stuff is notoriously difficult. Brewmaster Vinnie Cilurzo has graciously shared his recipe with the homebrewing community for years, and MoreBeer! packs up the ingredients nice and neat for you to brew your own clone at home. If you can't find it, brew it!

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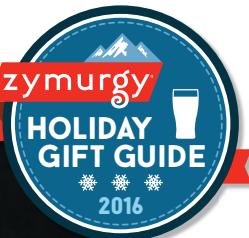
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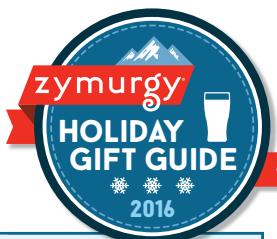


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0.75lbs Honey Malt (25 SRM) Grain
0.75lbs Crystal 60 (60 SRM) Grain
0.75lbs Flaked Barley (1.75 SRM) Grain
0.5lbs Chocolate Malt (350 SRM) Grain
0.5lbs Carafa II (412 SRM) Grain
0.4oz Magnum (12%) - 60 minutes
0.5oz East Kent Goldings (5%) - 20 minutes
0.5oz East Kent Goldings (5%) - 5 minutes
1 PurePitch® WLP004 Irish Ale Yeast
1 vial Clarity Ferm

DIRECTIONS:

Add grain to 164°F water. Mix until 149°F. Rest for one hour. Boil for 60 minutes. Cool wort to 67°F. When pitching yeast, add Clarity Ferm. Ferment for two weeks at 67°F. Transfer to secondary fermentor for two to four weeks, then force carbonate or bottle.

Est. Original Gravity: 1.046 SG

Est. Final Gravity: 1.012 SG

Est. Alcohol By Volume: 5.6%

Bitterness: 32.8



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Water treatment is frequently the final frontier for homebrewers looking to give their beer that extra push from good to great. Unfortunately, water chemistry also tends to be unforgivingly complicated, and that's where Waters Brewer comes in. Each packet is a custom blend of brewing salts that, when added to distilled or reverse osmosis water, yields brewing liquor that's ideally suited to a particular style. At press time, products were available for brewing porter, IPA, stout, Scotch ale, Pilsner, and other common beer styles.

watersbrewer.com

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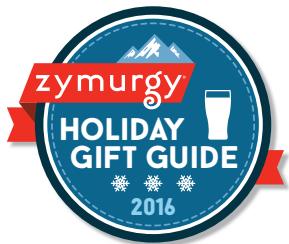
AHA SOCKS

These American Homebrewers Association socks are a big hit at AHA rallies when Matt Bolling gives them away as raffle prizes. If you have never been to an AHA rally, make a New Year's resolution to do so in 2017. And until then, stay warm in these comfy AHA foot holders.

HomebrewersAssociation.org/store/

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Wouldn't it be great if you could take all the goodness that hops have to offer and squeeze it into a little jar? Well, you can't, but you don't need to because the folks over at MicroHops already did. Each 1 oz. (30 ml) jar contains enough premium hop essence to dose 50 servings of beer. Use Hop-Shine to soup up your own homebrews, or add it to cocktails for a charge of hoppy flavor. Pro tip: keep a vial on hand in case you need to improve the beer at your company holiday party.

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By Amahl Turczyn

The First Annual Caribbean Homebrew Cup

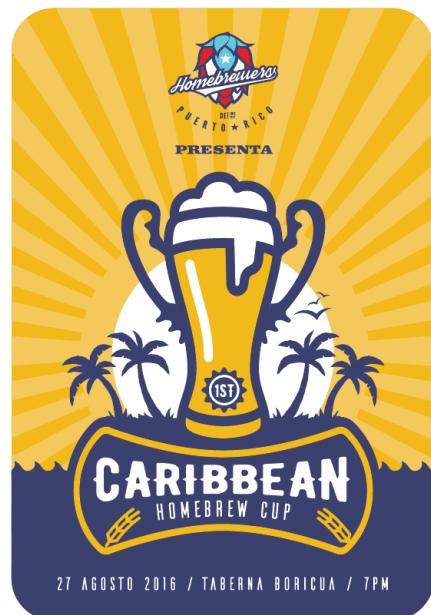
The inaugural Caribbean Homebrew Cup is yet another sign of the surge in interest in both craft and amateur brewing in Puerto Rico and was judged August 25 at San Juan craft beer bar Taberna Boricua. Organized by the club Homebrewers de Puerto Rico, the event drew 40 entries, most of them local, but with a few from the Dominican Republic. Club vice president Enrique Fernandez provided some background on his club, the event, and the growing local passion for homebrew and craft brew.

"Homebrewers de Puerto Rico [HPR] was founded in 2012 by Raymond Perez," Fernandez said. Perez is a very experienced local homebrewer with a reputation for IPAs. According to Fernandez, one of Perez's favorites, which he dubbed "Simcoe Jones," is already a recognized name among the Puerto Rican homebrewing community. "Every time he whips up a batch everyone wants a sip." But beyond his skills at recipe design, Perez also spearheaded the club's formation: he was president for its first three years. Said Fernandez, "He did an awesome job getting people together and giving us the chance to share our love of homebrewing here in Puerto Rico." Perez still works closely with HPR, though he has since reprised his role, taking charge of the club's Judging Committee.

Now led by Jorge Ramos, the club boasts 60 active members, all of whom have taken it upon themselves to spread the love of homebrewing around the island and to grow the membership and community. "Our goal is to allow homebrewers and fans of craft beer in general here in Puerto Rico to share their passion with

other enthusiasts," Fernandez said. "We have meetings and events several times a year where we encourage people to bring their latest creations to taste and share amongst members and others who may be interested in learning more about craft beer."

Much of the club's efforts involves educating the minds and palates of existing and potential members. "We also have educational gatherings such as off-flavor kit tastings, basic homebrew lessons, and every now and then we get lucky and are able to do special talks and presentations. One example happened a few years ago when Chris White, founder of White Labs, graced us with his presence at one of our meetings and gave an awesome presentation on yeast and other brewing-related themes."



Some of the winners at the first annual Caribbean Homebrew Cup show off their hardware.

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CLOCKWISE FROM TOP:

Awards table; American IPA judges; Best of Show judging round; Best of Show and 1st, 2nd, 3rd place awards; gathering of some of the judges.

Fernandez said the craft beer movement in Puerto Rico is still relatively new but has gathered speed recently. While many craft brewers on the mainland recognize their origins as homebrewers and work to support the amateur brewing community accordingly, Fernandez takes a different perspective. In Puerto Rico, it's the homebrewers who are leading the way, and he sees it as his club's duty to support craft brewing on the island.

"One major area for growth is to support the local craft breweries here on the island by educating people on what good beer really is and should be. By doing this we hope to create more awareness

for people and politicians to support laws that lower the currently overwhelming taxes that local micro craft breweries have to pay to be able to produce and sell their brews here on the island. Our taxes for beer production here in PR are astronomical compared to the US and are a major hurdle for aspiring microbrewery owners."

When the club decided to organize its own competition, they wanted it as polished and professional as possible. They were no strangers to competitions, but most comps they'd participated in had been collaborative efforts. As with all-grain brewing, they wanted total control

Cariño Sour

Contributed by José Rivera

Batch Volume:	2 U.S. gallons (7.6 L)
Original Gravity:	1.025 (6.3° P)
Final Gravity:	1.008 (2° P)
Color:	3 SRM
Bitterness:	4 IBU
Alcohol:	3% by volume

MALTS

1 lb. 8 oz.	(680 g)
2-row malt	
1 lb.	(454 g)
wheat malt	
4 oz.	(113 g)
rye malt	

HOPS

0.25 oz.	(7 g) Willamette @ 15 min
-----------------	------------------------------

YEAST

Fermentis Safbrew F2 (hydrated)

ADDITIONAL ITEMS

8 oz.	(227 g) unmilled pale 2-row malt
1 tsp.	Irish moss @ 10 min
3 lb.	(1.36 kg) fresh raspberries
1.67 oz.	table sugar for priming

BREWING NOTES

Mash at 152° F (67° C) for one hour and sparge at room temperature. Once the temperature of the wort reaches 120° F (49° C), add the unmilled 2-row to inoculate with Lactobacillus. The original recipe calls for 3 days in an electric smoker at 120° F (49° C), but I leave it at room temperature (average of 85° F, or 29° C) for 7–10 days. When the pH reaches 3.1–3.3, add the hops and boil wort for 15 minutes. Cool wort, transfer to a clean, sanitized carboy, and add hydrated yeast and raspberries. Leave the fruit for 4–6 weeks, depending on the color and level of activity. Prime with the table sugar, targeting 3 volumes of CO₂. It usually carbonates in two weeks. Chill, pour and enjoy.

PARTIAL-MASH VERSION

Substitute 1.4 lb. (635 g) wheat malt extract syrup for pale, wheat, and rye malts. Dilute to 2 gallons (7.57 L) of wort at 120° F (49° C) and add 8 oz. unmilled malt to inoculate as above.

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The advertisement features a large stainless steel brew kettle with a handle and a gauge, positioned on the right. To its left is a digital scale with the Anvil logo. Above the scale is a close-up of a flame on a burner. To the left of the flame is a coiled stainless steel hose. At the bottom left is a circular logo for Palmer Brewing Solutions with the words "APPROVED" and "PALMER BREWING SOLUTIONS". The background is dark wood paneling. The Anvil logo is prominently displayed at the bottom center.

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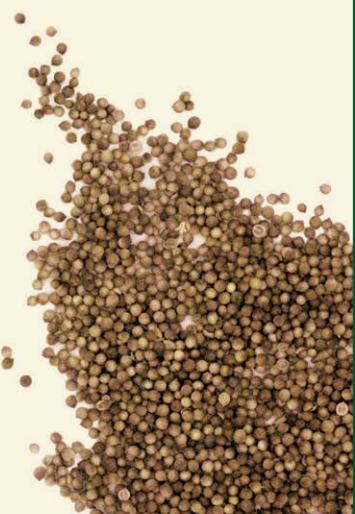


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from start to finish. Fernandez explained, "Since the club began in 2012, we have usually had one or two homebrew competitions per year of varying sizes and participation. Most of these were organized in cooperation with other entities and businesses here in PR—at local beer fests, for example, or smaller-scale competitions hosted by the club itself. We had always wanted to have a bigger, more official competition hosted completely by the club that was open to anyone including people outside of PR. This year we decided to go ahead and give it a try.

The result was the first annual Caribbean Homebrew Cup."

Using an online entry and management system tailored specifically to homebrew competitions brought the level of polish and user friendliness the club was looking for. "We opened up a site with the good people at brewcompetition.com that allowed us to be able to organize things in a more professional manner, and also made it easier for people to register and submit entries. Things worked out and we can say we

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truly recommend Brew Competition as a competition management system for any other club or group that wants to organize a similar event."

The club still kept its goals for the scope of the competition realistic, however. "We decided to limit the competition to five categories under the 2015 BJCP guidelines," Fernandez continued. Categories included 10: German Wheat Beer, 13C: English Porter, 19C: American Brown Ale, 21A: American IPA and 28: American Wild Ale. "We had a total of 42 entries with a good balance among all the categories. IPA is always a crowd favorite here in Puerto Rico, so naturally that category had a few more entries than the rest." Given the success of this year's event, the organizers anticipate an even bigger and better Caribbean Homebrew Cup next year. "Our goal is to spread the word about this contest, and with any luck have a lot more entries for 2017 that hopefully include a couple from the states and other countries. We plan to have the second iteration sometime during the summer next year."

Best of Show winner José Rivera got into homebrewing after tasting the same IPA mentioned above: Raymond Pérez's Simcoe Jones. "This beer has become a classic among our homebrewing community," Rivera said, "and Raymond really encouraged me and others in our club to brew and to perfect recipes." Rivera loves the camaraderie and sense of community his club offers. "The club meetings and events present excellent opportunities to learn, share experiences, get feedback on your brew, and drink great beer from fellow homebrewers."

Rivera's raspberry wild ale, based on a Berliner Weisse recipe, is named Cariño Sour and was inspired by an article from James Spencer of Basic Brewing Radio (beerandwinejournal.com/sour-wort-berliner/). It maintains the original grain bill and batch size, but with some modifications to the procedure. And, of course, it adds a whole lot of fresh raspberries.

Amahl Turczyn is associate editor of *Zymurgy*.

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KUDOS—BEST OF SHOW

AHA/BJCP Sanctioned Competition Program

April 2016

Concurso do III Encontro Cervejeiro, 11 entries—
Carlos Henrique Menezes, Vitória, Brazil

May 2016

Aurora Brewing Challenge, 398 entries—Paul
Heslop, Calgary, AB

June 2016

Santa Clara County Fair Home Brew Competition,
80 entries—Stan Gardner, Fremont, CA

Red River Valley Fair, 36 entries—Nicholas McCoy,
Alliance, NE

2º Concurso de Cerveja da ACervA Candanga, 37
entries—José Carlos Ribeiro Reino & André Augusto
Braga, Brasília, Brazil

Summer Sizzler, 177 entries—Ryan Jackle,
Kernsville, NC

If It Ain't Beer, Enter It Here, 47 entries—Billy Beltz,
San Diego, CA

Beer Quest Triple Hop 2016, 21 entries—Nick &
Jim Langtry, Lincoln, NE

July 2016

Copa Cerveza Regia, 27 entries—Hector Marroquin,
Monterrey, Mexico

Brew Brighton: USA Edition, 79 entries—Phill
Turner, London, UK

Indiana State Fair Brewers' Cup Competition,

1,491 entries—Jason Behenna, Lafayette, IN

Amador County Fair Home Brew Competition,

114 entries—Brett Winquest, West Sacramento, CA

Lane County Fair, 64 entries—Albert DeVita, Silverton, OR

Antelope Valley Home Brew Competition, 49

entries—Street Begul, Lancaster, CA

8th Annual All American Brew Off, 113 entries—

Matt & Beth Conner, Edmond, OK

Hopkins Home Brew Competition, 39 entries—

David Eustice, Hopkins, MN

War of 1812 Homebrew Competition, 94

entries—Keegan Panjer, Chatham, ON

Boom Days Belgian-Style Homebrew Competition,

34 entries—Randy Asher, St. Paul, MN

Home Brew League: Railtown Challenge, 32

entries—George Lawlar, Grand Rapids, MI

Primera Copa Nacional de Cerveceros en Valpo,

124 entries—Carlos Carrasco, Los Angeles, Chile

El Paso County Fair Homebrew Competition, 60

entries—Matthew Eckhart, Highlands Ranch, CO

Segundo Concurso de Cervezas Caseras del

Paraguay, 33 entries—Enrique Jose Duarte Casaccia,

Asuncion, Paraguay

Indian Summer Wheat Beer Comp, 12 entries—

Jason Besuiken, Red Deer, AB

E.T. Barnette Homebrew Competition, 44

entries—Mike Cragen, Anchorage, AK

Deer River BBQ & Brew Fest, 88 entries—Paul

Anderson, Plymouth, MN

Alabama Craft Beer State Championship, 107

entries—Bo Hicks, Tuscaloosa, AL

California Mid-State Fair Home Brew, 65 entries—

Aaron Smith, Atascadero, CA

Spirits of Baker County, 13 entries—Bryan Braun,

Baker City, OR

Crystal Coast Brew Off, 156 entries—Brad Schuler,

Wilmington, NC

For What It's Worth, 109 entries—John Mulligan,

Swanton, OH

2016 Los Angeles County Fair Homebrew

Competition, 283 entries—Andy Ziskin, North

Hollywood, CA

QUAFF Club Only Bohemian vs Trappist, 21

entries—Brian Trout, San Diego, CA

Brew Haven, 93 entries—Ernie Smith, Casper, WY

Maillard Beer Cup, 58 entries—Francisco Expósito

OC Mash Ups / Barley Forge Brewing Co. GABF

Pro-Am, 6 entries—Steve Severn, Lake Forest, CA

20th Annual New Jersey State Fair Homebrew

Competition, 340 entries—Christopher LaSpada,

Denville, NJ

3rd Annual MoM Hot Summer BrewOff, 261

entries—Andrew King, Kansas City, MO

2016 German Fest Stein Challenge, 202 entries—

Bill Becker, Headrick, OK

Hail the Ale, 99 entries—Marshal van Tuyl, Kansas
City, MO

Gentile's Homebrew Competition, 76 entries—

Paul, Columbuia, OH

Iowa State Fair, 288 entries—Matt Melcher, Norwalk, IA

Ventura County Fair, 85 entries—Greg Hayes,

Ventura, CA

August 2016

WNY Home Brew Competition, 35 entries—Ian

Howard & Aaron Ohar, Sanborn, NY

Plattsburgh Brewfest Home Brew Challenge 2016,

27 entries—Adam Layhee

Best of the Bay Homebrew Competition, 185

entries—Ryan Wallace, Mt. Vernon, WA

Concurso IPA Day 2016 ACCE & HomeBrewer.es,

56 entries—Francisco Plasencia, Cáceres, Spain

ASH HBOY Trappist Ales, 15 entries—Darrin

Umbaugh, Scottsdale, AZ

Montgomery County Agricultural Fair Homebrew

Competition, 96 entries—Ed Bielaus, Bethesda, MD

McHenry Rotary Blues, Brews and BBQs, 19

entries—Bill Cross, McHenry, IL

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KUDOS—BEST OF SHOW

Clash of the Carboys, 87 entries—Bruce Baker, Baton Rouge, LA
The MASH Out - Ales of Summer, 42 entries—Rob Sells, Fredonia, NY
New South Brew Off, 126 entries—Michael Wells, Kansas City, MO
Western Idaho Fair, 124 entries—Scott Allen, Boise, ID
Home Brew League: Rockford Challenge, 31 entries—Zach Dreyer, Grand Rapids, MI
Kentucky State Fair Homebrew Competition, 392 entries—Ryan Smalley, Lexington, KY
Nebraska State Fair Beer and Wine Competitions, 161 entries—Gabe Stadler, Genoa, NE
Manitowoc County Fair Beer Competition, 27 entries—Graig Stone, Manitowoc, WI
The Growler's North Mississippi Annual Home Brew Competition, 14 entries—Yerger Andre, Oxford, MS
Malt Madness X, 377 entries—David Barber, Orwigsburg, PA
Evergreen State Fair 2016, 194 entries—Brian Le Huquet, Lake Stevens, WA
3er Concurso Interno del CCCUY, 57 entries—Maximiliano Ahlers, Maldonado, Uruguay
Washington State Fair, 116 entries—Walter Hale, Gig Harbor, WA
Women's Home Brew Competition, 37 entries—Marie Annick Scott & Sandra Whitman, Edmonton, AB
Minnesota State Fair Homebrew Competition, 673 entries—Jeremy Olsen, St Paul, MN
Summer Beer Dabbler Home Brew Contest, 35 entries—Ben Thomas, St. Paul, MN
Colorado State Fair Homebrew Competition, 624 entries—Nathaniel Sullivan, Littleton, CO
7th Annual Beehive Brew-Off, 408 entries—Steve Moga, Salt Lake City, UT
Beer and Sweat, 267 entries—Malcolm Frazer, Pittsburgh, PA
Limbo Challenge, 199 entries—Robert Brown, Jr., Houston, TX
San Mateo Firefighters Chili Cookoff and Homebrew Competition, 62 entries—Danielle Hallila, Campbell, CA
Castle Hill & NSW State Competition, 546 entries—David Tetley, Sydney, Australia
iBrew Challenge 2016, 80 entries—Graham Hunt, Singapore

Continued on page 78 >

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KUDOS—BEST OF SHOW

2nd Annual Champlain Valley Fair Homebrew Contest, 52 entries—*Brian Mulhall, Winooski, VT*
 I Concurso Homebrewer del festival “El Milanito,” 33 entries—*Carlos Toquero Infante, Valladolid, Spain*
 Capital Brewers Indian Summer Competition, 43 entries—*Mark Clark, Dublin, Ireland*
 Operation Fermentation, 300 entries—*Kevin Jones, Austin, TX*
 Brew Na Bóinne, 17 entries—*Colm Clinton, Drogheda, Ireland*

September 2016

Pilsner vs Wheat Showdown, 32 entries—*Scott Eckford, Townsville, Queensland, Australia*
 High Desert Brewers Association/Eastern Idaho State Fair, 10 entries—*Tom Clements, Idaho Falls, ID*
 Deep Ellum Brewing Co. Labor of Love 5 Homebrew Competition, 131 entries—*Bruce Dean, Plano, TX*
 I Concurso de Cerveja Caseira da Armada Cervejeira, 71 entries—*Elivelton Bonato, Joinville, SC, Brazil*
 Hospice Foundation of the South SeptemBeer 2016, 24 entries—*Adam Brockhaus, Slidell, LA*
 DRAFT Brewfest, 212 entries—*Michael Wilcox, Wichita, KS*

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AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

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



November 1

Toronto Micro Brewery Challenge

Toronto, ON
 Entry Deadline: 10/20/2016
tdotbeerawards.ca

November 4

Austin Homebrew Festival

Austin, TX
 Entry Deadline: 9/9/2016
ahbfestival.org

November 5

California State Homebrew Competition

San Francisco, CA

November 5

Oregon Brew Crew Fall Classic

Portland, OR
 Entry Deadline: 10/28/2016
oregonbrewcrew.org/fallclassic

November 5

The Skirmish in the Triad

Greensboro, NC
 Entry Deadline: 10/21/2016
battlegroundbrewers.com/index.php/skirmish-in-the-triad

November 5

Wort War I

Austin, TX
 Entry Deadline: 11/4/2016
nxnbrew.com/wort_war_i

November 5

Midwest Regional Homebrewers Conference

Cape Girardeau, MO
 Entry Deadline: 10/23/2016
midwestbrewcon.com

November 5

MALT Turkey Shoot XII

College Park, MD
 Entry Deadline: 10/30/2016
maltclub.org/MALT/Home.html

November 6

Music City Brew Off

Nashville, TN
 Entry Deadline: 10/21/2016
musiccitybrewers.com

November 6

Monster Competition

Cedar Park, TX
 Entry Deadline: 10/31/2016
texascarboys.org

November 11

Battle of the Brews

South Lyon, MI
 Entry Deadline: 10/30/2016
scroogeandbarley.com

November 11

Saveurs de Génie

Montréal, QC

November 11

Joint Novembeefest and Puget Sound Pro-Am

Tukwila, WA
 Entry Deadline: 11/7/2016
wahomebrewers.org/novembeefest

November 12

2016 Brew Dat Homebrew Competition

Houma, LA
 Entry Deadline: 11/11/2016
bayoubeefest.com

November 12

Stoney Creek Homebrewers Amateur Brewing Championship 9

Phoenixville, PA
 Entry Deadline: 10/30/2016
schomebrewers.com/beer

November 12

22nd Annual Land of the Muddy Waters

Rock Island, IL
 Entry Deadline: 11/3/2016
lotmw.mugzhomebrew.org

November 12

Knickerbocker Battle of the Brews

Albany, NY
 Entry Deadline: 10/22/2016
kbotb.org

November 12

III Concurso Sul Brasileiro de Cervejas Caseiras

Porto Alegre, Rio Grande do Sul, Brazil
 Entry Deadline: 10/25/2016

November 12

IV NONECO

Natal, Rio Grande do Norte, Brazil

November 12

HopsAboard

Melbourne, Australia
 Entry Deadline: 11/1/2016
hopsaboard.com

November 12

FOAM Cup

Tulsa, OK
 Entry Deadline: 10/29/2016
foamcup.us

November 12

Op Bravo

Fort Worth, TX
 Entry Deadline: 11/12/2016
opravo.org

November 17

Uy Beer - Primera Copa Uruguayana Cervezas

Montevideo, Uruguay
copauruguayacervezas.com.uy



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

AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

November 18

Competencia WinterBeerFest Challenge

Chihuahua 2016

Chihuahua, Mexico

Entry Deadline: 11/11/2016

www.beermania.mx

November 19

Dias Oscuro

Denver, CO

Entry Deadline: 11/2/2016

fermentologists.com/DiasOscuro

November 19

Campeonato Centro de Cata de Cerveza

CABA, Argentina

Entry Deadline: 11/4/2016

centrodecatadecerveza.com

November 25

Black Friday Homebrew Competition

London, UK

Entry Deadline: 10/31/2016

mini-comp3.londonamateurbrewers.co.uk

November 26

Moravian Homebrewers Meeting

Brno, Czech Republic

Entry Deadline: 11/26/2016

mhmeeting.cz

November 27

Big Spruce Home Brew Challenge

Halifax, NS

Entry Deadline: 11/25/2016

<https://www.facebook.com/events/188137358266763>

December 3

Walk the Line on Barleywine

Dunedin, FL

Entry Deadline: 11/30/2016

dunedinbrewersguild.com

December 3

Goddesses of Beer

Mexico City, Mexico

beercups.com.mx

December 3

18th Annual Palmetto State Brewer's Open

Lexington, SC

Entry Deadline: 11/19/2016

palmettostatebrewers.com/psbo.html

December 3

Monk Melee

Langhorne, PA

Entry Deadline: 11/19/2016

aleiens.com/page/monk-melee-vi

December 3

2016 THIRSTY Classic

Amana, IA

Entry Deadline: 11/23/2016

brewcomp.thirstyhomebrew.org

December 3

CiderDays Amateur Cider Competition

Deerfield, MA

Entry Deadline: 11/19/2016

ciderdayscompetition.org

December 10

6th Annual Brewster's Cup

Dayton, OH

Entry Deadline: 11/3/2016

December 10

Happy Holidays Homebrew Competition

St. Louis, MO

Entry Deadline: 11/2/2016

stlbrews.org/competition/hhbc/index.asp

December 10

Amazing Homebrew Competition

Seoul, Korea

Entry Deadline: 11/30/2016

December 10

Pennsylvania Homebrew Open Competition

State College, PA



December 10

Concurso Casa OLEC 3 Anos

Belo Horizonte, Minas Gerais, Brazil

Entry Deadline: 11/1/2016

conursocasaolec.com.br/3anos

December 10

Ferment.Drink.Repeat Iron Brewer Competition

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fermentdrinkrepeat.com

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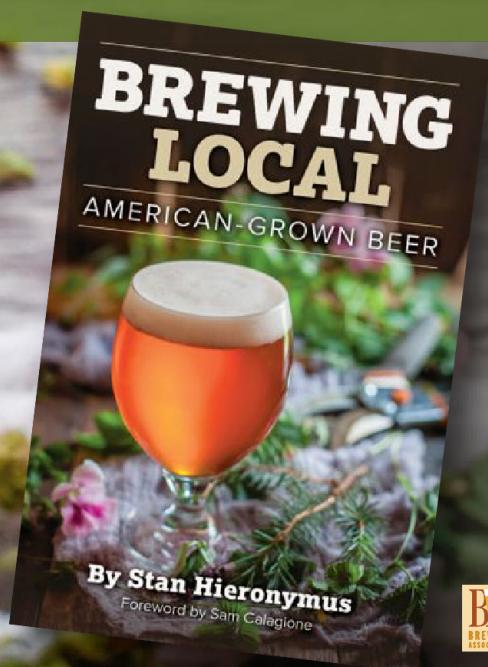


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—Sam Calagione, Founder, Dogfish Head Craft Brewery



BREWERS
PUBLICATIONS

By Chris Colby

Brewing a Monster: An Alternative Method for High-Gravity Wort

Every once in a while, I want to brew a monster of a beer. For all-grain brewers, there are a few ways to generate high-gravity wort for a very strong beer:

- Sparge the grain bed completely until there are no more sugars to be rinsed from it without also extracting too many tannins. This would yield pre-boil wort of around 11 degrees Plato (1.044 SG). The wort is boiled until it reaches the target post-boil specific gravity. This could take hours, depending on the target original gravity.
- Start with more malt and collect only the first runnings. At a normal homebrew mash thickness of 1.25 qt./lb. (2.6 L/kg), the first runnings should be in the vicinity of 22 degrees Plato (1.092 SG). This would require a shorter boil to reach the target, but would require much more malt, and a lot of sugars would be left behind in the grain bed.
- Pick any point between a completely sparged and a totally non-sparged grain bed, and boil for the required amount of time.
- Use malt extract for a portion of the fermentable sugars.

To reach a given target original gravity, more sparging means longer boils, but better extract efficiency. Less sparging means shorter boils, but requires more malt. What's a brewer to do?

Using Wort as Brewing Liquor

There is another option. What if, instead of using treated water as brewing liquor, wort is used instead? Two mashes would be required—one to generate brewing liquor, and another to generate the main batch of wort. I have experimented with this method, which I call reiterated mashing¹, and it works.



The idea behind the method is not new. The former Hürlimann Brewery used the late runnings from a previous beer as part of the strike water for Samichlaus, the 14-percent ABV holiday lager. In his book *Radical Brewing*², Randy Mosher describes a technique called doble doble that is similar to this method. But many variations on this method are possible³,

including collecting only the first wort from each mash to make an extremely high gravity wort.

The concept of reiterated mashing is to make “thick” wort not by evaporating water during the boil, but by dissolving more sugar into the wort during the mash. The advantage of this method is that you

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can make high-gravity wort without a long boil, which requires time and fuel, and can darken wort. With reiterated mashing, you can generate high-gravity wort that is significantly lighter in color. A barleywine-strength beer with the color of a Pilsner is a possibility. This can be accomplished without taking the huge hit to extract efficiency that accompanies collecting only first wort. Depending on the cost of propane and malt (or malt extract), this can be a less expensive way to hit a very high original gravity.

The drawback, as you might have guessed, is that it makes for a long brew day. However, through experimentation, I've found ways to manage this.

First Mash

The biggest time saver is realizing that the first mash serves only to generate your brewing liquor. You don't need to mash for a full hour, test for starch conversion, or recirculate the wort for clarity. Just mash for the minimal time it takes to dissolve all the starch, then run the wort off. If you have a refractometer, take a sample of the mash liquid every five minutes and note the density. It will climb rapidly at first, but will level off quickly as the starch dissolves. (This is often almost complete before the first five-minute reading.) The process can be expedited by stirring the mash and mashing at a high temperature (158–162° F, 70–72° C). The overall carbohydrate profile of the wort can be set via the mash temperature of the second mash.

Once the starch is completely dissolved, run the wort off as quickly as you can manage to your hot liquor tank. Depending on the diastatic power of your malt, some or all of the starch conversion may be complete by this time. However, the second mash will require an extended rest and full conversion will occur then.

For this stage, a typical mash thickness—around 1.25 qt./lb. (2.6 L/kg)—will work fine. Adjust your water chemistry as you normally would for a pale beer (assuming the first mash uses pale malt or Pilsner malt).

In the first mash, fully sparge the grain bed with water, but do not over-sparge (which

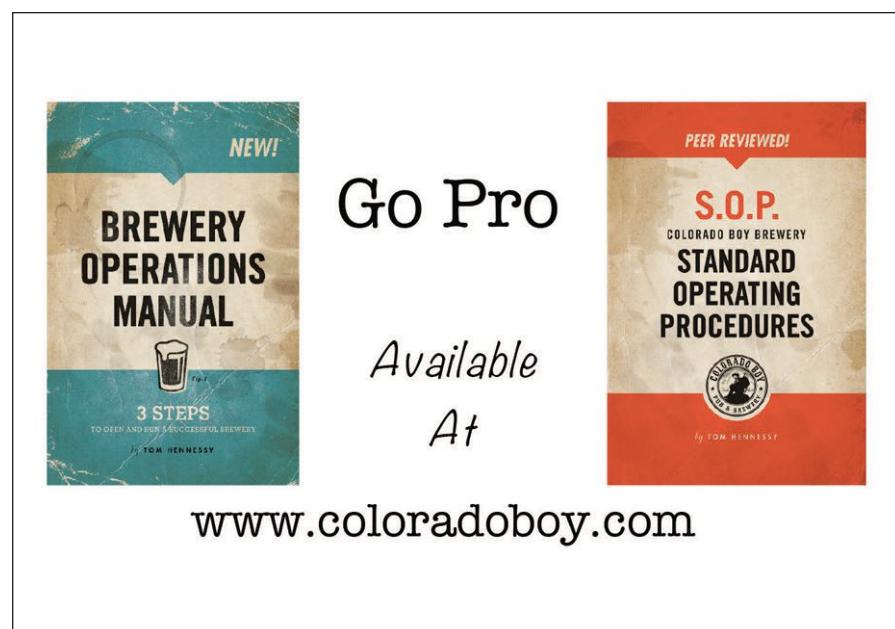
would extract an excessive amount of tannins). On my system, this yields roughly 0.65 to 0.68 gallons of wort per pound of grain (5.4 to 5.7 L/kg), given my usual extract efficiency of 72 to 74 percent. The wort density is usually right around 11 degrees Plato (1.044 SG). When using reiterated mashing, this is the last stage in wort production that water is added—from here on out, all your brewing liquor is wort.

Second Mash

Before the second mash begins, scoop the grain from the grain bed and rinse the

mash tun. For once in your brewing life, don't take the time to fully clean it; rinsing will suffice.

You should have enough brewing liquor (wort) in your hot liquor tank to mash the grains and sparge to yield your target pre-boil wort volume. (I'll explain how to plan for that later.) Heat the brewing liquor to the appropriate strike temperature and mash in as you normally would. For a very strong beer, you will likely want to make your wort as fermentable as you can so that the beer doesn't end up too sweet.



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Mashing in the 145–148° F (63–64° C) range works well, especially since this will be a long rest. As with the first mash, I've found that a "normal" mash thickness works well—even though your brewing liquor is wort. Adding between 50 to 100 ppm calcium ions, via calcium sulfate or calcium chloride, will help (assuming you had roughly the optimal amount of calcium in your original brewing liquor).

The second mash will work like a normal mash, with one major exception—the starches will take longer to dissolve into

the brewing liquor. Let the mash go for at least 30 minutes, then start taking refractometer (or hydrometer) readings. I usually recirculate a few quarts of wort prior to each reading. This helps keep particles out of the sample.

The second mash will likely take at least two hours. (You'll make up some of that time by not having to boil the wort as long.) Over that time, the wort density will rise as starch dissolves into solution. You'll probably never reach a point when the specific gravity stops climb-

ing between measurements—the rate of increase will simply slow to the point that you decide to proceed. You should, however, see the wort density climb to at least 35 degrees Plato (1.154 SG).

Stirring the second mash periodically speeds the process. If you cannot heat your usual mash tun, mash in your kettle so you can. When the mash is complete, scoop it into your mash/lauter tun for lautering. I typically stir the mash immediately after every refractometer reading.

When the specific gravity has reached a level you find satisfactory—or when you're just tired of waiting—mash out and begin collecting wort. You can check for starch conversion at this point, but that has almost certainly finished long before the end of your mash. Recirculate the wort until it is clear (or until further recirculation no longer improves clarity). Sparge with the remaining wort in your hot liquor tank. Don't "chase" the brewing liquor used for sparging with hot sparge water—you'll only dilute your final wort, something you are trying to avoid. Run your grain bed dry at the end of wort collection.

It is possible to go through further iterations of the mash. I've actually tried this—once. This made for a very long brew day, but I did get higher-gravity wort for my troubles.

The Boil and Beyond

Once the wort is in your kettle, proceed as you would on a normal brew day. The wort is likely higher in gravity (and lighter in color) than any other previous pre-boil all-grain wort, so treat it accordingly. Boil to sanitize the wort, develop the hot break, and extract the alpha acids from the hops. Adding another 50 ppm calcium should aid in developing better hot break and hitting an acceptable post-boil pH.

However, unless you're a glutton for punishment, don't boil the wort for an extended period of time. A 60- to 90-minute boil will work fine to evaporate some water (and accomplish the other boil objectives), but won't darken the wort excessively. You could try employing a shorter boil, for example, around 30 min-

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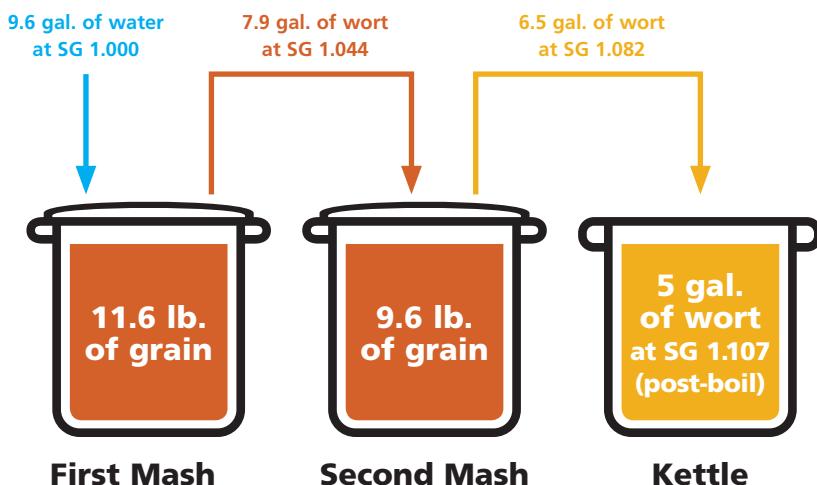
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Reiterated Mashing



utes. If so, you will need to compensate by adding more hops to reach your target level of IBUs.

Planning

When planning a reiterated mash beer, you need to work backwards. Start with how much wort you want at the end of the boil and how long you plan to boil. For example, let's say you want 5 gallons (18.93 L) of wort after a 90-minute boil. If your boil-off rate is 1 gallon (3.79 L) evaporated per hour, you will need to collect 6.5 gallons (24.61 L) of pre-boil wort. Next, calculate how much malt it will take to yield 6.5 gallons of wort, assuming the grain bed is fully sparged. On my system, this is 0.68 gallons of wort per pound (5.7 L/kg) of grain. (If you take good notes on brew days, calculate your own ratio by taking the volume of your pre-boil wort divided by the weight of the grain bed. If you collect the same amount of wort for every brew, regardless of the amount of malt you use, choose lower gravity beers for your calculations. These will likely be closer to being fully-sparged.) So, my main grain bed would require 9.6 lb. (4.35 kg) of malt. While this seems low for a high-gravity beer, remember that this is the second of two mashes.

After you calculate the weight of your grain bed and the amount of wort for the second mash, work backwards to calculate how much wort you need to generate for strike "water" and sparge "water" for

the second mash. For the second mash in my calculations, I will need 12 quarts (3 gallons, or 11.36 L) of strike water. This will give me the usual 1.25 qt./lb. (2.61 L/kg) mash thickness. I expect the grain bed to absorb 1.4 gallons (5.29 L) of wort, assuming 0.15 gallons absorbed per pound of grain (1.25 L/kg). Thus, I should expect $(3 - 1.4 =) 1.6$ gallons (6.05 L) of first wort (unsparged wort). Since I want 6.5 gallons (24.6 L) of pre-boil wort total, I will need $(6.5 - 1.6 =) 4.9$ gallons (18.54 L) of sparge "water" to generate 4.9 gallons (18.54 L) of sparged wort. If I add the volume of strike "water" and sparge "water" I will get the total amount of brewing liquor I need for the second mash. In this case, it's 7.9 gallons (29.9 L) of brewing liquor. (Note that this assumes no other losses of "water." If you have dead spaces in your system, you'll need to add those in.)

If I need 7.9 gallons (29.9 L) of brewing liquor (wort) for the second mash, it will take 11.6 pounds (5.26 kg) of malt in the first mash to generate it. This is again based on the 0.68 gallons of wort per pound of grain (5.7 L/kg) figure used earlier.

Once these calculations have been made, it's possible to start thinking about the other parameters such as original gravity. For this, we can take the 21.2 pounds (9.62 kg) of total grain and estimate the original gravity based on normal extract efficiency. Expect to

get your usual mash efficiency in the first mash. Experience has shown that the second mash is slightly less efficient (especially if you cut it short). If you plan to carry the second mash out to two hours and stir frequently, subtract about 5 percent from your usual extract efficiency when estimating the OG from the total grains. Use your favorite recipe software to predict the IBUs dependent on how many hops you add to the boil and when. In this case, I'd expect to get 68 percent extract efficiency and yield 5 gallons of post-boil wort at 25.25 degrees Plato (1.107 SG). If I can get 75 percent apparent attenuation from my yeast, that's a 10 percent ABV beer.

Given that you can make very light beer (in color if not ABV) with this method, I usually compose grain bills of 100 percent pale malt or Pilsner malt, or mixtures of pale malt and flaked maize. I would suggest going easy on crystal malts or any specialty malt that increases body in beer, as the high original gravity will ensure a high finishing gravity, and the goal is not to increase that further. Otherwise, you should be able to use any grain bill with this method.

Tips and Tricks

The first time you try reiterated mashing, be prepared to make adjustments on the fly. There are many ways to get off track in the middle of wort production. If you don't hit your target volume of wort at any stage, you can add water to make up the difference. This is the simplest solution, but it comes at the expense of a lower specific gravity.

Alternately, you can accept a lower yield (in terms of volume of wort). In that case, you might have to adjust your recipe, for example adding fewer hops in the boil to hit your target level of IBUs.

The biggest key to success when using this method of wort production is to give the second mash enough time—at least two hours with frequent stirring. The second key to success is to pitch an adequate amount of yeast for the fermentation. Take good notes along the way and your second brewing session will go that much more smoothly.

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Resources

1. Colby, Chris. "Reiterated Mashing: Multiple Mashes for Massive Brews." *Brew Your Own*, December 2007.
2. Mosher, Randy. *Radical Brewing*. Boulder, CO: Brewers Publications, 2004.
3. Beer and Wine Journal, beerandwinejournal.com

Chris Colby has been a homebrewer since the early 90s, when he studied molecular evolutionary genetics at Boston University. After receiving his PhD in 1997, he briefly worked in educational publishing before becoming a beer writer and editor. He is the author of the newly released *Home Brew Recipe Bible* and is currently editor of *Beer and Wine Journal* (beerandwinejournal.com). He lives in Bastrop, Texas, with his wife and many cats. ☺



To give iterated mashing a try, visit HomebrewersAssociation.org/asgard and brew Chris Colby's Ale of Asgard strong ale.

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COMMERCIAL CALIBRATION

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First up is Fresh Squeezed IPA from Deschutes Brewery in Bend, Ore. According to Deschutes, Fresh Squeezed has “a juicy citrus and grapefruit flavor profile. As if fresh Citra and Mosaic hops were squeezed straight into the bottle.” It’s brewed from pale, crystal, and Munich malts and showcases Citra, Mosaic, and Nugget hops. At 6.4 percent ABV and 60 IBUs, Fresh Squeezed falls right in the middle of the style guidelines.

Deschutes currently distributes to Alaska, Arizona, California, Colorado, Hawaii, Idaho, Illinois, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Utah, Virginia, Washington, Wisconsin, Wyoming, Washington D.C., British Columbia, and Alberta.

Our second example is 10/6 English IPA from Rabbit Hole Brewing in Justin, Texas. Rabbit Hole says, “10/6 English IPA features a prominent English hop character supported by a smooth, bready malt backbone. It is bold and flavorful without driving your palate completely insane.” The beer features Maris Otter and crystal malts, makes use of three kinds of English hops, has 67 IBUs, and checks in at 6 percent ABV.

OUR EXPERT PANEL 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.



Deschutes Brewery
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bjcp.org

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THE SCORES



Fresh Squeezed IPA—Deschutes Brewery, Bend, Ore.
BJCP Category: 21A, American IPA

THE JUDGES' SCORES FOR FRESH SQUEEZED IPA



Aroma: Intense, bright, citrusy, grapefruit hop aroma. Malt has a toasty, light crystal presence that supports the hop aroma. Fermentation esters are mostly covered up by the hop aroma. No overt alcohol aroma. No dimethyl sulfide (DMS). No diacetyl. Overall a crisp, bright beer aroma. (10/12)

Appearance: Orange-amber color. Thin, beige, rocky head with fair retention. Bright clarity. Moderate carbonation. (3/3)

Flavor: Malt supports the hops with some toasted, caramel complexity. Hop bitterness is high but well balanced by the malt backbone. Hop flavor is medium-high with the citrusy grapefruit profile but not overwhelming; it blends well with the malt sweetness. Moderate fermentation esters reminiscent of berries. Noticeable alcohol, but not hot. Well-attenuated but not excessively dry. Just enough remaining sweetness to balance the hop bitterness. No DMS. No diacetyl. (18/20)

Mouthfeel: Medium body. Smooth but not creamy. No astringency. Lingering bright bitterness in mouthfeel. Moderate alcohol warming. (5/5)

Overall Impression: It's easy for an IPA to focus solely on the hops, but this beer delivers the "fresh squeezed" bright citrus hop character. There's a crisp, well-balanced malt sweetness that's fully attenuated, along with complex light toast and caramel notes. Excellent complexity and balance. If ever there were a breakfast beer, this would be it! This is excellent on its own or paired with a simple cheeseburger and fries or spicy cuisine. (10/10)

Total Score: (46/50)



Aroma: Very strong, quite pronounced tangerine and ruby grapefruit with Hami melon aromas; breakfast fruit salad with a hint of black pepper. Extreme fruitiness dominates, though a low, peppery, yellow rose ester note plays in the periphery. Caramel malt emerges on a swirl of the glass, subdued though present. (10/12)

Appearance: Amber, very clear with fine, off-white foam that doesn't persist, but falls to a mist on the surface. (3/3)

Flavor: Strong melon and tree-ripened peaches dominate the first sip, which swings from a juicy ripe fruit quality to tangerine and red grapefruit zest, supported by a light caramel malt foundation. Zest gives way to firm, somewhat pronounced bitterness moderated by the rich, complex caramel malt. Hints of pear esters add complexity and balance in the ever-changing mélange of hop character. Finish is moderately dry, accented by firm, zesty bitterness. (17/20)

Mouthfeel: Medium- to full-bodied with firm carbonation that lightly melts away on the tongue. Moderate alcohol warmth accents the slightly herbal astringency and dry finish. Creamy at first, it changes to a clean, dry finish with lingering warmth. (5/5)

Overall Impression: Maybe the suggestion of juicy hop character described on the label prompts the thirst for another sip, and then another. This is a showcase for the exotic fruit qualities of 21st-century hops. Well-balanced among all components, and engaging without being too complex or bitter. A perfect cap to a work week. (7/10)

Total Score: (42/50)



Aroma: Citrus hops leap out of the glass, with notes of tangerine, grapefruit, and melon. Resinous notes speak to the freshness of the hops. Malt is light, but toast and caramel are evident. Fruity esters are higher than they are in most American IPAs. Aroma is complex and pleasant. (11/12)

Appearance: Copper color is slightly dark but within style boundaries. Excellent clarity. White head uniformly covers the surface with moderate retention. (3/3)

Flavor: Balance is slightly skewed toward flavor and bittering hops, with a light, sustained, toasted malt backbone and a hint of caramel. Hops have citrus and tropical fruit components that yield a tangerine-like character. Bitterness starts softly and crescendos to a moderately high level that lingers without harshness. Pleasant, refreshing, moderately dry finish. Esters are less apparent than in the aroma and well-integrated with the hop flavor. (18/20)

Mouthfeel: Moderate carbonation and medium-light body. Very light astringency with low but perceptible warmth. Rounded profile with a pleasant sensation on the palate. (4/5)

Overall Impression: This is an excellent American IPA with a pleasing malt backbone and interesting hops that provide a complex blend of citrus and tropical fruit. These hops do indeed have a fresh-squeezed profile. Hops don't overwhelm the malt as they do in many American IPAs; malt flavor supports and complements the hop aromatics. I would gladly have a second! (9/10)

Total Score: (45/50)



Aroma: Huge hoppy, fruity aroma. The hops are bright and juicy, with a tropical fruit (mango), stone fruit (peach, apricot), and a bit of evergreen character. Clean fermentation profile. Subdued, lightly sweet malt. Pure, hoppy aromatics have strong, fruity qualities, but there is not much citrus. Light alcohol follows. Quite a modern interpretation of American IPA. (11/12)

Appearance: Amber-orange color. Brilliant clarity. Effervescent. Moderate, off-white head with good persistence. (3/3)

Flavor: Clean hop flavor and bitterness, both of high intensity. Neutral malt in support. The flavors match the aroma, with even more emphasis on fruitiness (from hops, not yeast). Esters are like tropical fruit and stone fruit in character. Super-clean fermentation character. The high bitterness is smooth and not harsh in quality. Dry finish. Clean, fruity, bitter aftertaste. (18/20)

Mouthfeel: Medium-high carbonation. Medium body. Very smooth, almost lager-like profile. Light alcohol, barely noticeable. (4/5)

Overall Impression: Immensely drinkable. Clean, fruity, and hoppy. Bitterness is high but not harsh at all. The fruit has a great tropical and stone fruit flavor, which is a very modern take on the style. I love the balance of flavors and how the bitterness comes through without hurting drinkability. This is the kind of IPA I try to make because I enjoy drinking it so much. Great job. (10/10)

Total Score: (46/50)



THE JUDGES' SCORES FOR 10/6 ENGLISH PALE ALE



Aroma: Fruity pear, berry, and strawberry esters up front. Caramel maltiness supports the medium, earthy-spicy hop aroma. No alcohol aroma. No DMS. No diacetyl. This is somewhat yeasty. The estery caramel notes suggest oxidation of an older beer. (8/12)

Appearance: Dense, rocky, beige, long-lasting head. Orange-amber color. Very hazy—more than chill haze. (2/3)

Flavor: Assertive, somewhat harsh hop bitterness. Medium earthy-spicy hop flavor. Malt is fairly simple: low caramel with bready notes. Distracting yeasty character. Lingering bitterness in aftertaste. Quite estery with notes of pears and strawberries. Dull caramel, estery notes and remaining harsh bitterness are likely due to oxidation. No DMS or diacetyl. (16/20)

Mouthfeel: Medium to medium-thin body; thinner mouthfeel. Smooth, nearly creamy. No astringency, but hop bitterness lingers in mouthfeel. Quite warming from alcohol. Canned example has low carbonation appropriate to style. (4/5)

Overall Impression: A low to moderately malty and quite bitter English IPA that is not particularly complex. It would benefit from additional character malts. The dull, estery notes are those of an older, oxidized beer. These canned examples may have suffered from shipping across the country in the summer heat. The esters and yeasty notes dominate, leaving a lingering bitterness that is unbalanced. It's still a good English IPA that would pair well with fish and chips or an English meat pie. (7/10)

Total Score: (37/50)

Aroma: Moderate level of herbal, earthy, and black pepper hop aromas, supported by moderately strong notes of toffee malt in the background. Low alcohol rose and floral aromas are evident, though this beer is not overtly estery or fruity. (8/12)

Appearance: Deep golden amber—more burnished gold than amber. Slightly hazy, with a thick, creamy, persistent off-white head. (3/3)

Flavor: Moderately pronounced toffee caramel malt finishes with a lightly toasted note. First impression of malt evolves to a bright floral peppery and citrus zest flavor with firm bitterness mid-palate to finish. Equally balanced between toasted and lightly toffee malt backbone and hop bitterness. Hop character moves to a more herbal green, but not grassy character on subsequent sips. Finishes moderately dry with a pleasant lingering bitterness that turns lightly toasty again post-finish. Clean fermentation. (15/20)

Mouthfeel: Medium bodied with a somewhat creamy texture. Low alcohol warmth emerges at the finish. Moderate carbonation, not gassy or spritzy, but less soft than real cask-conditioned ales. (5/5)

Overall Impression: The fresh green hop flavor is beautiful and well supported by the firm, well-constructed malt backbone. Fermentation is extremely clean, with no fruity esters, suggestive of lager-like fermentation and very clean yeast, techniques associated with a few Northern California breweries. The overall presentation is of a homey, familiar, and comfortable version of a more difficult-to-find UK classic. (8/10)

Total Score: (39/50)

Aroma: Balance slightly tilted to the malt, with grainy biscuit and cracker notes supported by light caramel. Hops are earthy and tobacco-like with light floral notes. Moderate pear esters with faint alcohol notes in the background. Aroma is appropriately English but could be less sharp. (10/12)

Appearance: Medium copper color with excellent clarity. Off-white head forms easily, and is fairly persistent. Carbonation level appears appropriate. (3/3)

Flavor: Moderate maltiness with toasted notes and light caramel. Moderately high grainy character is more pronounced than in most British beers. Not unpleasant, but it detracts from the smoothness and balance. Malt gradually gives way to bitterness, which persists in the finish. Low earthy and slightly spicy hop flavors are enhanced and complemented by moderate berry-like esters. Balance is tilted slightly toward the hops, and the finish is long and fairly dry. (15/20)

Mouthfeel: Moderately low carbonation, medium body, and slight warmth—all appropriate to the style. Low to moderate astringency lingers in the finish. (3/5)

Overall Impression: This is a well-crafted beer that's easy to drink, but it has some rough edges in the grainy, somewhat husky malt character. This offsets the toasted and caramel notes typical of British strong bitters. Aroma is enticing, with a good balance between malt, earthy UK hops, and fermentation esters. Balance is appropriately angled toward hops and doesn't relegate malt to a supporting role. (7/10)

Total Score: (38/50)

Aroma: Moderately high, bready-toasty malt aroma. Somewhat dry (as in not sweet). Light alcohol. Fresh, earthy hop nose with moderate intensity. Has a very light mocha aroma in the background. Light esters, like pears and apples. Not much caramel. Has a mostly malty nose that brings out a biscuit-like, crackery dryness. (9/12)

Appearance: Medium amber color. Moderately sized, off-white head with fair persistence. Slightly hazy. (2/3)

Flavor: Initial flavors of bready, toasty malt with earthy, medium to medium-high hops are quickly overcome by hop bitterness, and accentuated with alcohol. The finish is dry and bitter with a coarse hoppiness. The malt has a dry edge, as from a little dark malt or deeply toasted grain. The initial flavor gets lost in the bitter and dry finish. Harsh, sharp, grainy aftertaste. A light caramel flavor comes out as it warms, as do some dark berry esters. (14/20)

Mouthfeel: Medium-high carbonation, pretty high for the style. Medium-full body. Mild alcohol warmth. (3/5)

Overall: It's a little hard to drink with an almost dusty, grainy malt finish and a high bitterness that has a harsh quality. The aftertaste is rough, which hurts drinkability. It has definite English qualities with the high bitterness but lacks the smoothness of the best examples. (7/10)

Total Score: (35/50)

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A photograph of two women in a brewery. One woman is wearing a purple shirt and a brown cap, while the other is wearing a black shirt and a blue cap. They are standing in front of a large stainless steel pot with various hoses and valves attached. One woman is pouring a white substance from a small container into the pot. To the right of the image, there is promotional text for the "18TH ANNUAL LEARN TO HOMEBREW DAY" on November 5, 2016.



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By Charlie Papazian



Choco Red Rye Wedding Ale

Just like you, I visit my local homebrew supply store and stock up on supplies. I always try to have a few base malts in stock, so I buy sacks of Maris Otter, German Pilsner, and Bohemian Pilsner as my mainstays. I also keep around anywhere from 3 to 10 pounds of various specialty malts, which I store in tight-lidded buckets on the brewery shelves in my garage. Some of my favorite specialty malts include:

- Chocolate malt
- Weyermann Carafa malt
- Black malt
- Roasted barley
- English brown malt
- Belgian aromatic malt
- Canadian Gambrinus honey malt
- German *sauermalz* (acidulated malt)
- English 10° L and 80° L crystal malts
- Munich 10° L malt
- Applewood- and beechwood-smoked malts
- Wheat malt
- Special B
- Caramunich

I like to use flaked corn and rice adjuncts in some of my beers, so those are in there, too. Hops? I've got plenty. Yeast? I buy yeast as needed, but I generally propagate it up from a master culture at home.

I usually try to stock up for at least four or five months at a time, so my visits to the homebrew shop are few. But when I do visit, I always enjoy learning about new products and new ideas. At Boulder Fermentation Supply, co-founder and owner Adam Kandle is always excited about new malts and tells me about ideas he is playing with. They also have a microbrewery, Vision Quest Brewery,



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ALL-GRAIN recipe by Charlie Papazian

Batch Volume: 5.5 U.S. gallons (20.82 L)
Original Gravity: 1.052 (12.9 B)
Final Gravity: 1.010 (2.5 B)

Color: 14 SRM (28 EBC)
Bitterness: 32 IBU
Alcohol: 5.5% by volume

MALTS

4 lb. 8 oz. (2.04 kg) German Pilsner malt
4 lb. (1.81 kg) Maris Otter malt
8 oz. (227 g) wheat malt
4 oz. (113 g) English brown malt
4 oz. (113 g) chocolate rye malt

HOPS

0.25 oz. (7 g) Mt. Hood 7.7% @ 60 min
(5.8 HBU/162 MBU)
0.50 oz. (14 g) Tettnang 5% @ 60 min
(5 HBU/140 MBU)
0.50 oz. (14 g) Homegrown Cascade 5% @ 10 min
(2.5 HBU/70 MBU)
0.33 oz. (10 g) Australian Galaxy dry hop 7 days
0.33 oz. (10 g) Citra dry hop 7 days
0.33 oz. (10 g) Simcoe dry hop 7 days

YEAST

American ale yeast. I used White Labs Cry Havoc.

ADDITIONAL ITEMS

1/4 tsp. (1 g) powdered Irish moss added 10 minutes before end of boil
3/4 cup (175 ml) corn sugar for priming bottles, or 1/3 cup (80 ml) corn sugar for kegging

DIRECTIONS

A step infusion mash is employed to mash the grains. Add 9.5 qt. (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 qt. (4.5 L) of boiling water, add heat to bring temperature up to 155° F (68° C), and hold for about 30 minutes. Then raise temperature to 167° F (75° C), lauter, and sparge with 3.5 gal. (13.25 L) of 170° F (77° C) water. Collect about 5.5 gal. (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 10 minutes remain add the 10-minute hops and the Irish moss. After a total wort boil of 60 minutes turn off the heat and place the pot (with cover on) in a running cold-water bath for 30 minutes. Continue to chill in the immersion or use other methods to chill your wort, then strain and sparge the wort into a sanitized fermenter. Bring the total volume to 5.5 gal. (20.8 L) with additional cold water if necessary. Aerate the wort very well.

Pitch yeast when the temperature of the wort is about 70° F (21° C). Ferment at about 70° F (21° C) for one week or until 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.

where they develop new beers from a constant flow of new ideas.

On my last visit, Adam was megaenthused about a new malt with loads of chocolate and cocoa character: chocolate rye malt. I had to try some.

In July, friends from Washington, D.C. flew to Boulder to brew a batch of beer with me. It had been three years in the planning, and it ultimately coincided with one of their weddings in the making. Unique circumstances and occasions always inspire me to put on my thinking cap and come up with a new recipe. I wanted one that reflected new frontiers as well as a unique and special occasion.

**"... WHEN I DO VISIT
[THE HOMEBREW SHOP],
I ALWAYS ENJOY
LEARNING ABOUT
NEW PRODUCTS
AND NEW IDEAS"**

Ryan started out with the idea of a session IPA. We talked and settled on Ryan & Katherine's Choco Red Rye Wedding Ale, which comes in at 5.5 percent ABV. It's a

celebratory amber ale with hints of cocoa and the refreshing dryness of roasted malt, foundation-hopped with low-alpha hops and dry-hopped with Citra and Simcoe. Ryan insisted on also using mango-tinged Australian Galaxy as a dry hop. The beer has a desirably hoppy personality and a gentle, long-lasting aftertaste that assures a good union.

So let's cut the shuck and jive and get on with the recipe.

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

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Choco Red Rye Wedding Ale

EXTRACT recipe by Charlie Papazian

Batch Volume: 5.5 U.S. gallons (20.82 L)
Original Gravity: 1.052 (12.9 B)
Final Gravity: 1.010 (2.5 B)

Color: 14 SRM (28 EBC)
Bitterness: 32 IBU
Alcohol : 5.5% by volume

MALTS

6 lb.	(2.7 kg) very light malt extract syrup or 5.1 lb. (2.3 kg) dry malt extract
8 oz.	(227 g) wheat malt
4 oz.	(113 g) English brown malt
4 oz.	(113 g) chocolate rye malt

After 45 minutes, add heat to the mini-mash and raise the temperature to 167° F (75° C). Then pass the liquid and grains into a strainer and rinse with 170° F (77° C) water. Discard the grains. Add additional water to the sweet extract you have just produced, bringing the volume up to about 2.5 gal. (9.5 L). Add malt extract and 60 minute hops and bring to a boil.

HOPS

0.75 oz.	(21 g) Mt. Hood 7.7% @ 60 min
1.00 oz.	(28 g) U.S. Tettnang 5% @ 60 min
0.50 oz.	(14 g) Homegrown Cascade 5% @ 10 min
0.33 oz.	(10 g) Australian Galaxy dry hop 7 days
0.33 oz.	(10 g) Citra dry hop 7 days
0.33 oz.	(10 g) Simcoe dry hop 7 days

The total boil time will be 60 minutes. When 10 minutes remain, add the 10-minute hops and Irish moss. After a total wort boil of 60 minutes turn off the heat. Immerse the covered pot of wort in a cold water bath and let sit for 15–30 minutes or the time it takes to have a couple of homebrews.

Then strain out and sparge hops, and direct the hot wort into a sanitized fermenter containing 2.5 gal. (9.5 L) of cold water. If necessary, add additional cold water to achieve a 5.5 gallon (20.8 L) batch size. Aerate the wort very well.

YEAST

American ale yeast.
I used White Labs Cry Havoc.

ADDITIONAL ITEMS

1/4 tsp. (1 g) powdered Irish moss added 10 minutes before end of boil
 3/4 cup (175 ml) corn sugar for priming bottles, or 1/3 cup (80 ml) corn sugar for kegging

Pitch yeast when the temperature of the wort is about 70° F (21° C). Ferment at about 70° F (21° C) for one week or until 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.

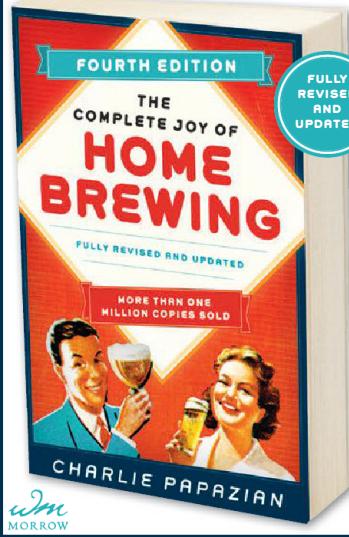
DIRECTIONS

Heat 1 qt. (1 L) water to 172° F (77.5° C) and then 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.

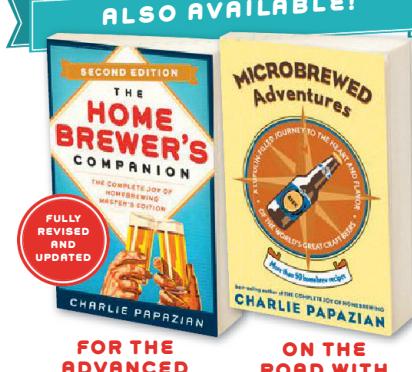
Prime with sugar and bottle or keg when complete.

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Confessions of a lazy homebrewer

I am an average homebrewer. One out of ten batches is mighty tasty, eight of ten are close enough to be refreshing after a day's work, and that last batch—the other ten percent—well, let's just call that bad luck. Right? After homebrewing for seven years, three of which were an experiment in poor sanitation and improper pitch rates, I can honestly admit I have a problem: I am a lazy homebrewer.

My story begins in graduate school, where hop vines decorated the entrance to our educational garden. It seemed to me at the time a monumental waste to compost all those hop cones (we had no clue as to the variety). So we borrowed a friend-of-a-friend's equipment, adapted a local homebrew extract recipe, and attempted to brew a wet-hopped IPA. The responses ranged from "Um, this is really...(gulp)...good?" to "Not bad. Wait, what style is this?" I was hooked, not just on my friends' patronizing responses, but also on the *attempt* to brew really good beer.

Later that year, my brother gifted me a basic extract starter kit, complete with John Palmer's *How to Brew*. I quickly flipped through this tome like one of George R. R. Martin's loyal readers and started my next batch. Same results. Then the next, and at last a breakthrough. By some miracle it was actually a drinkable, over-hopped red. Looking back, I am not sure what magical events aligned, but this batch propelled me through the next three years of a similar pattern; mostly bad, contaminated batches tasting slightly of butterscotch and the occasional "Hey, that's an IPA!"

Luckily, I helped convince a friend to start homebrewing, and he dived headfirst into all-grain brewing with tremendous enthusiasm. His quality brews launched an arms race between us. I finally read most



of Palmer's book. I watched every episode of BrewTV (why, oh why, Michael Dawson and Jake Keeler, did you leave us hanging?). I searched for obscure beer blogs and YouTube videos on sanitation techniques. Like Cold War heavyweights, we silently competed until we had both become pretty solid brewers. Hell, I even built a two-tap keezer during this period of extravagance. Unfortunately, I had to move locations due to work and, just like that, the wall crumbled and I no longer had a brew buddy.

I persevered. Working out a deal with my wife, I worked overtime shifts to set aside money for my MegaPot 1.2 and all-grain setup. Now, I have more control over my batches (or at least the illusion of control). For, you see, I remain a lazy home brewer. Despite my six-year journey into brewing, I still cut corners. I use free online software to formulate recipes and make calculations. I design recipes around four-ounce grain increments because I don't own a scale, and a quarter-pound is the smallest amount of grain some homebrew suppliers will ship. I reuse sanitizer without measuring its pH. If the mash is off by a degree or two, or if the specific gravity

is too high or low after 60 minutes, I call it good. I have never checked my water profile. My beers never exactly meet BJCP specs, and the predicted alcohol is always high—way high.

Alas, I still brew beer. More often than not, I brew good beer. I now have a growing brewing library and a stash of *Zymurgy* and *Brew Your Own* back issues. I may fuss and complain, but ultimately I love this hobby. I love the smell of the mash, the aroma of the first hop addition, and the sight of a carboy with a roiling ferment. And I have dabbled successfully in decoction mashes and lagering. I was impatient with my first sour. But fortunately, my wife still enjoys every homebrew she pours.

I am a lazy homebrewer, yes, but I am still a homebrewer.

Jon Nicholson is a park ranger in Yellowstone National Park who started brewing in 2008 shortly after his first season on the job. He brews often enough to survive the long winters at Old Faithful and for a time had the only beer on tap for 30 miles.

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