

BEERS RATED & REVIEWED:
FARMHOUSE ALE, LAMBIC,
ABBAY ALE, AND MORE!

FIRE & BREW-STONE:
THE REAL STORY OF STEINBIER

CRAFT Beer

FOR THOSE WHO
MAKE AND DRINK
GREAT BEER

in a
**Belgian
mood**

- » THE INSIDE STORY OF BREWING DUVEL
- » RANDY MOSHER BREAKS DOWN
BELGIAN BEER FLAVORS
- » EUROPEAN FARMHOUSE BREWERS
EMBRACE UNPREDICTABILITY

brew This!

American IPA, Hazy DIPA,
Pineapple Lichtenhainer, Bock,
Golden & Dark Strong Ales,
Farmhouse Ale, and more!

FEB-MAR 2022 » \$11.99 US » \$14.99 CANADA



AS ONE OF THE LEADING DISTRIBUTORS OF BARTH-HAAS™
PRODUCTS IN THE UNITED STATES, WE OFFER

A WORLD OF FLAVORS.



IN ADDITION TO OUR EXTENSIVE PORTFOLIO OF T90 PELLET VARIETIES, WE OFFER LUPOMAX®, INCOGNITO®,
SPECTRUM™, BREWING SPICES & TEAS, AND OTHER ADVANCED PRODUCTS. WHAT MORE COULD YOU ASK FOR?
HOW ABOUT UNPARALLELED CUSTOMER SERVICE, DOSING RECOMMENDATIONS, ROI CALCULATIONS AND
FULL TECHNICAL BREWING SUPPORT? YOU GOT IT! CONTACT YOUR TERRITORY MANAGER TODAY.
WILLAMETTEVALLEYHOPS.COM

TASTES LIKE GOLD.

A classically smooth, citrusy sweet and
pleasantly dry Belgian-style ale
traditionally brewed for almost 30 years.



NEW BELGIUM.
BREWING

NEWBELGIUM.COM

SEASON



ALL NEW GUESTS, TOPICS, AND TRENDS!



THE BREWDECK PODCAST FEATURES
EXCLUSIVE INTERVIEWS WITH YOUR FAVORITE
BREWERS, DISTILLERS, AND SUPPLIERS.



AVAILABLE ON YOUR PREFERRED PODCAST PLATFORM





BREW LIKE A PRO!

Brewery & Beverage Processing Equipment, Solutions, Technology & Service



Brewhouses.

ProBrew brewhouses offer just the right amount of automation in 7–50+ bbl sizes allowing science to support the art of brewing.

ProCellar Tanks & Automation.

Stainless steel tanks ranging from 3bbl – 200bbl sizes with ProBrew automation to effectively monitor and control brewing processes throughout your facility.



FlashPAS.

HTST Flash Pasteurization maintain quality and shelf life for those fruited & sour beers and RTD cocktails with the newly-redesigned, fully-automated line of HTST flash pasteurization systems.

Alchemator 40.

N/A? No problem! Proprietary membrane technology separates the alcohol from the beer to easily craft N/A beer or hard seltzer.



DA-5 & DA-10.

ProBrew's redesigned water deaeration technology fits perfectly into any craft brewery or beverage facility. Running 5 to 10 gallons per minute with optional mobile cart design!

ProCarb & ProCarb Plus.

Inline carbonation & nitro systems allow for 400% faster gasification with better absorption into beer. ProCarb Plus integrates Alfa Laval centrifugal technology.



ProFill Can.

100 – 300 cans per minute with rotary, true counter pressure gravity filling and seaming for less than 30ppb DO pickup and less than 1% product waste.

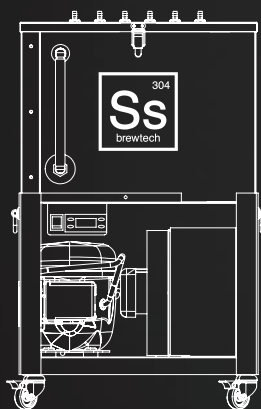
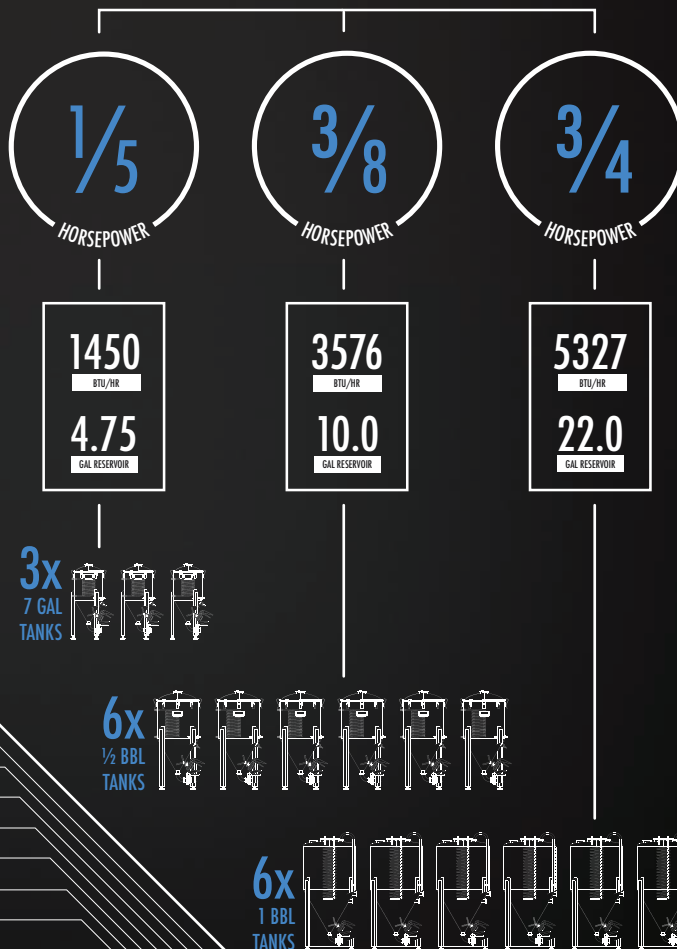
Ask the ProBrew team why our technological advancements are the best solutions for your craft beer & beverage production needs – email ContactUs@probrew.com today!





Ss GLYCOL CHILLER

THREE CONFIGURATIONS



COMPACT
VERTICAL
CHASSIS
DESIGN

SsBREWTECH.COM/GLYCOL
[@SsBREWTECH](https://www.instagram.com/SsBREWTECH)

FTS
READY

CRASH &
LAGER
CAPABLE



66



62



76

20

Fire & Brew-Stone

Style School is in session, as Lars Marius Garshol tells the real story of “steinbier.”

26 | For Those About to Rock...
Practical advice on mashing with red-hot stones.

53

In a Belgian Mood

54 | Les Classiques/De Klassiekers
Isolating the elements of Belgium’s archetypal ales.

58 | Giving the Devil Its Due
The Duvel’s in the details. What makes the famous golden strong ale tick?

62 | Fit for a Chalice
Dark and strong ales, extracted.

66

Mixed Cultures

66 | Metamodern Tastes in Country Beer: A Farmhouse Triptych
These European brewers make stubborn choices for distinctive beer.

76 | Mixing It Up
Complex fermentations, simplified.

81

Belgian & Farmhouse & Spontaneous & Wild Styles, Tasted

| CONTENTS |

THE MASH

- 11 | Infographic
- 12 | Editors' Picks
- 14 | Whalez, Bro
- 16 | Special Ingredient: Flying Ants
- 28 | Love Handles
- 29 | Fresh Beers (Sponsored)

BREWING

- 30 | Make Your Best: American IPA & Dunkles Bock

BREAKOUT BREWERS

- 34 | Foam
- 38 | The Establishment

PICK SIX

- 42 | From Portland to Bamberg, **Lisa Allen** of **Heater Allen** assembles a dream sixer of formative and formidable ales and lagers.

GEARHEAD

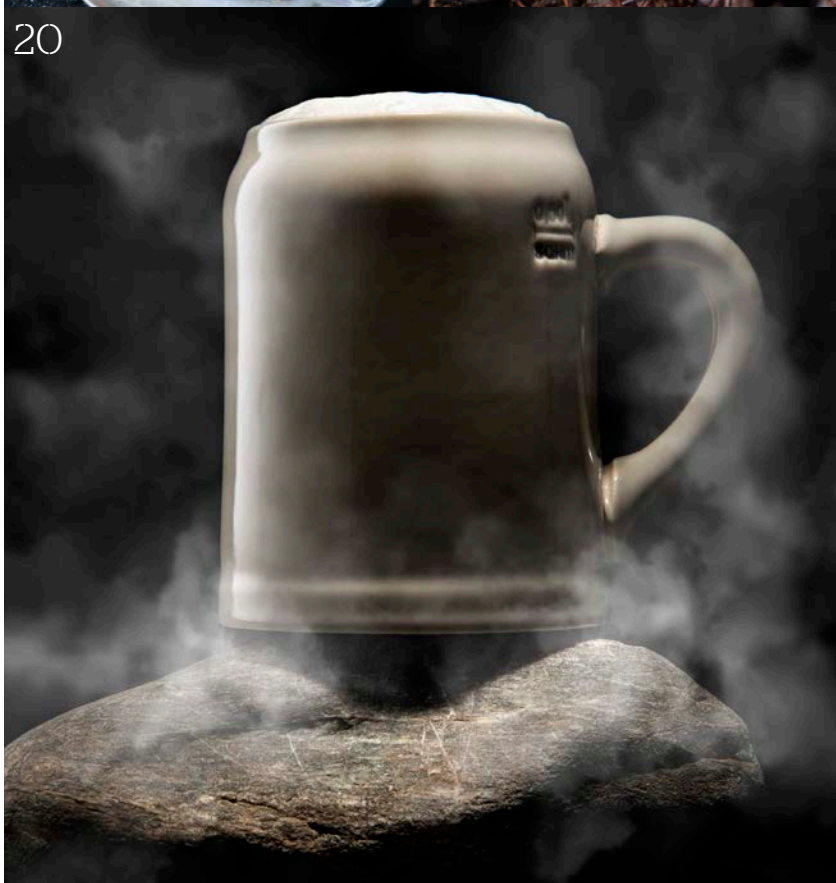
- 44 | Recapturing CO₂: It's a Gas

COOKING WITH BEER

- 48 | Pizza Power: Making the Familiar Wild & Spontaneous

MORE

- 95 | Advertiser Index
- 96 | Chill Plate



Craft Beer & Brewing Magazine® (print ISSN 2334-119X; online ISSN 2334-1203) is published six times a year in January, February, May, July, August, and November for \$39.99 per year (six issues) by Unfiltered Media Group, LLC at 1300 Riverside Ave, Ste 206, Fort Collins, CO 80524; Phone 888.875.8708 x0; customer-service@beerandbrewing.com. Periodical postage paid at Fort Collins, CO, and additional mailing offices. POSTMASTER: Send address changes to *Craft Beer & Brewing Magazine*®, 1300 Riverside Ave, Ste 206, Fort Collins, CO 80524. Customer Service: For subscription orders, call 888.875.8708 x0. For subscription orders and address changes contact *Craft Beer & Brewing Magazine*®, 1300 Riverside Ave, Ste 206, Fort Collins, CO 80524, subscriptions@beerandbrewing.com. Foreign orders must be paid in U.S. dollars plus postage. The print subscription rate for outside the United States and Canada is \$59.99 U.S.



KEEP IT JUICY!



SCAN HERE
TO FIND NEAR YOU



TwoRoadsBrewing.com @TwoRoadsBrewing @TwoRoadsBrewing @2RoadsBrewing

PLEASE DRINK RESPONSIBLY. ©Two Roads Brewing Company, All Rights Reserved.



HOMEBREW RECIPES

Forager Chicatana
Barrel-Aged Stout
Austin Jevne, Forager

Page 16

Tongs of the Ancients
Stone Beer
**Joe Stange, with Simonas Gutautas
of Dundulis**

Page 27

Peachtree American IPA
Josh Weikert

Page 30

Sauber Traditional
Dunkles Bock
Josh Weikert

Page 33

Foam Brewers
Like Clockwork
Bob Grim, Foam

Page 36

The Establishment Left My
Wallet in El Segundo

Mike Foniok, The Establishment

Page 40

Devil's Advocate Golden
Strong Ale

Joe Stange & Breandán Kearney

Page 60

Smiling Monk Belgian-Style
Dark Strong Ale

Annie Johnson

Page 64

Eik & Tid Cerasus

Amund Polden Arnesen, Eik & Tid

Page 70

Jester King Le Petit Prince

Jeff Stuffings, Jester King

Page 79

| CONTRIBUTORS IN THIS ISSUE |



Kate Bernot is a contributing editor for *Craft Beer & Brewing Magazine*® and a Sightlines contributor to *Good Beer Hunting*. She was previously the beer editor at *DRAFT Magazine* and is a certified beer judge. She lives in Missoula, Montana, with a black lab and three backyard chickens.



Samer Khudairi is a freelance journalist and digital marketing consultant based out of Boston, Massachusetts. He has written on craft beer, action sports, design, and the music industry for national and international publications with bylines including *HopCulture*, *Good Beer Hunting*, *Girls Are Awesome*, and more.



Lars Marius Garshol is an author and researcher on traditional farmhouse brewing, for which he trawls archive collections, collects old documents, and goes on expeditions to remote corners of Europe. He's the author of *Historical Brewing Techniques* and writes the imaginatively titled *Larsblog*.



Annie Johnson is an experienced R&D brewer, IT specialist, and national beer judge. Her awards include 2013 American Homebrewer of the Year honors. As an influential voice in American brewing today, her recorded oral history is preserved in the Smithsonian National Museum of American History's Brewing History Initiative.



Matt Graves is a Fort Collins-based photographer who has been turning dad jokes into pictures since 2007. Along with shooting photos for every issue of *Craft Beer & Brewing Magazine*® since issue No. 1, he shoots for various commercial and editorial clients. See more of his work at mgravestphoto.com.



Randy Mosher has spent most of his career working on creative projects revolving around beer. Author of *Tasting Beer* and four other books, he also teaches, consults on recipes and branding, and is a partner in two Chicago-area breweries: 5 Rabbit Cerveceria and Forbidden Root.



**YAKIMA
CHIEF
- HOPS -**



NEW! **CRYO HOPS®** **VARIETIES AVAILABLE**

The brewing industry's coolest hop product is now available in even more varieties for 2022!

- **AZACCA® BRAND**
- **CRYSTAL**
- **IDAHO GEM™**
- **HBC 586**
- **COMET**
- **TRIUMPH**

Current varieties available also include: Ahtanum® Brand, Amarillo® Brand, Cascade, Centennial, Chinook, Citra® Brand, Columbus, Ekuanot® Brand, El Dorado® Brand, HBC 472, HBC 630, Idaho 7® Brand, Loral® Brand, Mosaic® Brand, Palisade® Brand, Sabro® Brand, Simcoe® Brand & Talus™ Brand

For more information, or to place a Cryo Hops® order, email spot@yakimachief.com.

DO YOUR BEERS SING? Anyone who has been listening or reading for long enough knows I'm a student of the creative process. Understanding why and how brewers make creative and technical decisions about the beers they design and brew is something I never get tired of exploring.

That interest doesn't stop at brewing, however, and over the past few decades I've put similar energy into exploring the creative work of musicians, of fine artists, and of craftspeople. The impulses are similar in all of these fields, from the idea to execution, and viewing creativity

as this continuum can unlock new ways of solving problems.

That's why I was so enamored with the new Beatles documentary *Get Back*, available on Disney+ and directed by Peter Jackson. Thanks-giving proved the perfect weekend to binge watch all three episodes, and anyone who works through their own creative struggles in any field whatsoever should immediately add it to their viewing queue.

What we see is a group of creative people at work, with different motivations and diverging interests,

who are also highly aware of the expectations placed on them and their duty to deliver on and above those expectations. But the most incredible thing to watch was how some of the songs that we have received fully formed, produced and placed in albums, had to endure a long period of iteration, change, and development.

Listening now, we know the songs and have a canonical idea of what the production *should* be because the album version is the one we're familiar with. But as the documentary lays out clearly, that final form is an illusion—a brief capture of the song at that moment, filtered through the post-production lens of the producer. Songs, then, are never “done.” As long as the artist plays them, they change. Guitars and amps change. A singer's voice changes. Musical context changes. And great artists are always looking for that thing that adds something magical and memorable to the performance of a song.

The songs the Beatles wrote weren't divinely inspired; they started with loose ideas and were honed into what we now know of them. Some ideas popped up but were shelved for the time being, only to show up later. Iconic songs may not have made the cut for the current album because the songwriters had a sense that they could make it better and needed to give it time.

Likewise, the energy of a new player (in the case of the Beatles, Billy Preston) changed the dynamics and brought a new energy to the group's collaboration.

The analogies for brewing should be obvious here, of course. Beer is creative work in motion, always changing with ingredients, time, and people. Perfection doesn't happen from the start, but it's achieved through work. And adding the right spark of talent to the team at the right time can make a group as talented as the Beatles even better.

If you love the creative process as much as I do, you owe it to yourself to watch. In the meantime, I hope you enjoy this issue that we've constructed to showcase how brewers are engaging in the same creative processes. After all, we made it for you.

Jamie Bogner

Cofounder & Editorial Director, *Craft Beer & Brewing Magazine*
jbogner@beerandbrewing.com, @rckstdy on Untappd



CRAFT Beer & Brewing

Editorial Director Jamie Bogner

Managing Editor Joe Stange

Contributing Editor Kate Bernot

Contributors Stephen Beaumont, John Carruthers, Lars Marius Garshol, Annie Johnson, Breandan Kearney, Samer Khudairi, Scott Messenger, Randy Mosher, John M. Verive, Josh Weikert

Photographers Heather Eidson, Matt Graves

Illustrators Jamie Bogner, Ansis Purips

Production Mark Dobroth

Proofreader Nancy Arndt

Print Management Trish Faubion

Tasting Panel Kate Bernot, Cy Bevenger,

Mark Boelman, Geoff Coleman, Greg Crum,

Jester Goldman, Stan Hieronymus, Fred Hirsch,

Matt Kunze, Ted Manahan, Andy Mitchell,

Ryan Pachmayer, Eric Reinsvold, Nathan Rooen,

Geoff Shideler, Jim Turk

Publisher Haydn Strauss

Director of Media Sales Blake Osmond

FOR MEDIA SALES INQUIRIES, please call 888-875-8708 x2 or email advertising@beerandbrewing.com.

Customer Success Manager Rachel Szado

RETAILERS: If you are interested in selling *Craft Beer & Brewing Magazine*® in your shop or brewery, please contact us at sales@beerandbrewing.com or 888-875-8708 x705.

Find us:

Web: beerandbrewing.com

Twitter: @craftbeerbrew

Facebook: facebook.com/craftbeerandbrewing

Instagram: [craftbeerbrew](https://instagram.com/craftbeerbrew)

Pinterest: pinterest.com/craftbeerbrew

Editorial and sales office:

1300 Riverside Ave., Ste. 206, Fort Collins, CO 80524
888-875-8708

Subscription Inquiries:

Craft Beer and Brewing Magazine

1300 Riverside Ave., Ste. 206, Fort Collins, CO 80524

subscriptions@beerandbrewing.com

888-875-8708 x0

Customer Service:

customerservice@beerandbrewing.com or

888-875-8708 x0

We invite previously unpublished manuscripts and materials, but Unfiltered Media Group, LLC, accepts no responsibility for unsolicited manuscripts and other materials submitted for review. The editorial team reserves the right to edit or modify any material submitted.

Contents copyright © 2022 Unfiltered Media Group, LLC. All rights reserved. No part of this publication may be reproduced in whole or in part in print or electronically without the written consent of Unfiltered Media Group, LLC. All items submitted to *Craft Beer & Brewing Magazine*® become the sole property of Unfiltered Media Group, LLC. The opinions and claims of the contributors and advertisers in *Craft Beer & Brewing Magazine*® are not necessarily those of the Publisher or Unfiltered Media Group, LLC. Printed in the U.S.A.

Craft Beer & Brewing Magazine® is published by

Unfiltered
Media Group, LLC

Cofounder & CEO John P. Bolton, Esq.

Cofounder & CCO Jamie Bogner

COO Haydn Strauss

CFO Kristi Avery

SUPERIOR PALE ALE

PARTNERSHIP • TRADITION • PASSION



TASTE THE QUALITY OF CANADIAN BARLEY

Great for all types of ales and any fuller flavoured beers, this malt is kilned longer and at higher temperatures than other base malts, contributing to complexity, malt character, and toasty biscuit flavour.



FLAVOUR INTENSITY



AROMATICS



BODY CONTRIBUTION



Distributed exclusively by



COUNTRYMALTGROUP.COM



"COMING FROM OUTSIDE OF THE BREWING INDUSTRY, I DIDN'T KNOW WHAT I DIDN'T KNOW. THE BREWERY ACCELERATOR PROGRAM GAVE ME YEARS OF INDUSTRY KNOWLEDGE IN A VERY SHORT SPAN OF TIME, SHORTENING MY DEVELOPMENT TIME TREMENDOUSLY. SO MUCH SO, IN FACT, THAT WE WERE ABLE TO WIN A SILVER MEDAL AT THE GABF IN 2019!"

— JEREMY DECONCINI, FOUNDER, MOTOSONORA BREWING COMPANY, TUCSON, ARIZONA



THE BREWERY WORKSHOP HELPS BREWERY ENTREPRENEURS BUILD AND GROW GREAT BUSINESSES. THERE ARE LESS THAN 50 SPOTS TOTAL FOR THIS INTIMATE OPPORTUNITY FOR NEW AND IN-PLANNING BREWERIES TO SPEND MULTIPLE DAYS WITH SOME OF THE BEST MINDS IN BREWING. PAST ACCELERATOR EVENTS HAVE ALL SOLD OUT, SO DON'T WAIT. RESERVE YOUR SPOT NOW FOR THE SPRING 2022 ACCELERATOR AT [BREWERYWORKSHOP.COM](https://breweryworkshop.com)

SPONSORED BY



FULL REFUNDS AVAILABLE (FOR ANY REASON) UP TO 30 DAYS PRIOR OR IF THE EVENT IS MOVED/CANCELLED. WE WILL ADHERE TO ALL SOCIAL DISTANCING/TRANSMISSION GUIDELINES, SMALLER TOUR GROUP SIZES, AND SANITIZING ALL SURFACES IN THE CONFERENCE SPACE EACH DAY.

SHIP IT!

While the pandemic has led to a general loosening of restrictive Prohibition-era laws regarding beer for takeaway and delivery, there's still plenty to do to liberalize the United States' antiquated approach to alcohol regulation. Recently, the Brewers Association and SOVOS ShipCompliant conducted a study to gauge consumer sentiment. Here, we highlight some of the data. Next step? Call your congresspeople.

A huge disparity exists between breweries' and wineries' abilities to ship products directly to out-of-state consumers.

STATES THAT ALLOW BREWERY-DIRECT SHIPMENTS



Alaska allows shipping.

STATES THAT ALLOW WINERY-DIRECT SHIPMENTS



Alaska and Hawaii allow shipping.

Yet craft-beer consumers increasingly want more robust shipping options from local and out-of-state breweries.

IF IT WERE LEGAL, WHICH MODES OF DIRECT SALE WOULD YOU USE OR CONSIDER USING?



H.R. 3287

A bipartisan bill introduced in May 2021 by Representatives Jackie Speier (D-Calif.) and Dan Newhouse (R-Wash.) would authorize the U.S. Postal Service to allow permitted commercial entities (such as breweries, wholesalers, and retailers) to legally ship alcohol. While private shipping companies such as UPS and FedEx have programs that allow such shipping, it remains a felony in the United States to ship alcohol through the U.S. Postal Service. While this House resolution would not allow individuals to mail alcohol privately to each other, it's a step in the right direction for breweries that increasingly find an audience and demand for their beer outside their home state.

Source: 2021 Direct-to-Consumer Beer Shipping Report: sovos.com/shipcompliant/content-library/dtc-beer-report/

CORRECTION: Reader Nick Greco, professional brewer and former owner of Rhizing Weed Hop Farm in Ohio, pointed out an error in the "Hop Math" infographic in our December 2021–January 2022 issue. The math excluded a crucial step: drying and pelletizing the harvested hops. In his words, "1,500 lbs of whole-cone hops is only about 350 pounds of pelletized hops." Revisiting the math while including this crucial step, we see that 350 lbs of pelletized hops per acre becomes 58.33 barrels of beer, or 1,808.33 gallons of beer per acre. Divided into 16-ounce cans, that yields roughly 602.77 cases of beer per acre of hops—a far cry from the 2,630 cases per acre that our infographic stated. Thanks for noticing and bringing this to our attention, Nick!

Editors' Picks

Hop Wtr Sparkling Hop Water

\$36.99 per 12-pack, hopwtr.com

Hopped seltzer? Yes, please. Our love of hops is no secret, but let's be honest—it's not always wise or socially acceptable to drink beer. Hop Wtr gives us that flavor we love in a drink-anywhere nonalcoholic format. The kicker is, it doesn't suck.

We've tasted plenty of nonalcoholic beers, and very few hit the mark for flavor. Hop Wtr gets the hop flavor right by foregoing the beer entirely. It's just carbonated water with a carefully structured mineral content to highlight the light expression of Centennial and Columbus (in the Classic flavor) plus natural fruit flavors (in the Mango and Blood Orange varieties).

The only drawback? It costs more than most beer. At roughly \$3 per 12-ounce can, it's not something you can drink all day long. But better taste comes with a price, and Hop Wtr has won us over. —*Jamie Bogner*

Five Star Liquid PBW

MSRP \$27.50 for 32 oz, fivestarchemicals.com

Like "black India pale ale," the phrase "liquid powdered brewery wash" doesn't need to make sense. What does make sense is a solution that's easy to distribute in water and isn't likely to be accidentally inhaled.

We recently reviewed PBW tablets in this space, balancing ease of use against the price compared to other brewery cleaners. For budget-conscious brewers, that's always been a knock against PBW—and we go through it quickly. Like many others, I buy it anyway. It just works.

There is, however, another knock against PBW: holding your breath and wafting away that brief and potentially harmful powder cloud. Then there's getting the powder to dissolve—I don't know that it matters much in the end, but even when I use warm water, there

PHOTO: JAMIE BOGNER

are stubborn crystals swirling around in the bottom of the bucket.

Notably, the tablets appear to be the better buy. One 10-gram tablet is good for a gallon; at about \$20 for a 40-count container, that's 50 cents per gallon of solution. Meanwhile, a one-pound container of PBW powder may cost \$11; that's 69 cents per gallon. Finally, a 32-ounce bottle of liquid PBW from retailers costs at least \$32; at recommended dosage rate, that's \$1 or more per gallon. (At Five Star's suggested price, it's 86 cents per gallon.) It adds up.

On the other hand, if you're already used to paying for PBW for peace of mind, and you like the ease of use, then you're unlikely to object. —Joe Stange

Forgework Bottle Axes Anniversary Opener

\$200, forgeworksbottleaxes.com

Those of us who spend time around brewing and beer love and appreciate well-made tools, and something special happens when form and function meet in the hands of craftspeople.

Forgeworks is a small metal shop in Fort Collins, Colorado. It got its start blacksmithing bottle openers that looked like Gothic torture devices or tribal tattoos. More recently, after teasing the release of this new five-year anniversary opener, they delivered with a beautiful yet functional handmade *objet d'art* in a variety of colorways. It's sleek and contemporary but highly functional for modern drinkers, with a wax cutting blade and a cap-opening hook.

It reflects a palpable progression, integrating different materials and processes in a way that makes the experience of opening a beer every bit as aesthetically pleasing as drinking one. But let's be honest: You really want one to prop up against the glass you just poured, as you take the photo for Instagram and Untappd because your glassware and opener should be as beautiful as your beer. —Jamie Bogner

The Rundown

The latest stories, events, podcasts, and more from the *Craft Beer & Brewing Magazine*® team

Exclusive on BeerandBrewing.com



Capturing Indigenous Yeast Cultures with Antidoot

In rural Flemish Brabant, Antidoot Wilde Fermenten's house mixed culture includes various wild yeasts they have captured over the years. Here, Tom Jacobs offers tips for success in wrangling your own local strains.

Upcoming Craft Beer & Brewing Events and Appearances

Sign up for our email newsletter for timely updates.

Mar 6-9 If you're planning a brewery or have just opened one, this event will help you build a successful brewing business. In Asheville, North Carolina, learn through panel Q&As, technical tours, hands-on demonstrations, and working sessions.
Breweryworkshop.com



Apr 9 The 5th Minnesota Craft Beer Festival returns to the Minneapolis Convention Center.
minnesotacraftbeerfestival.com



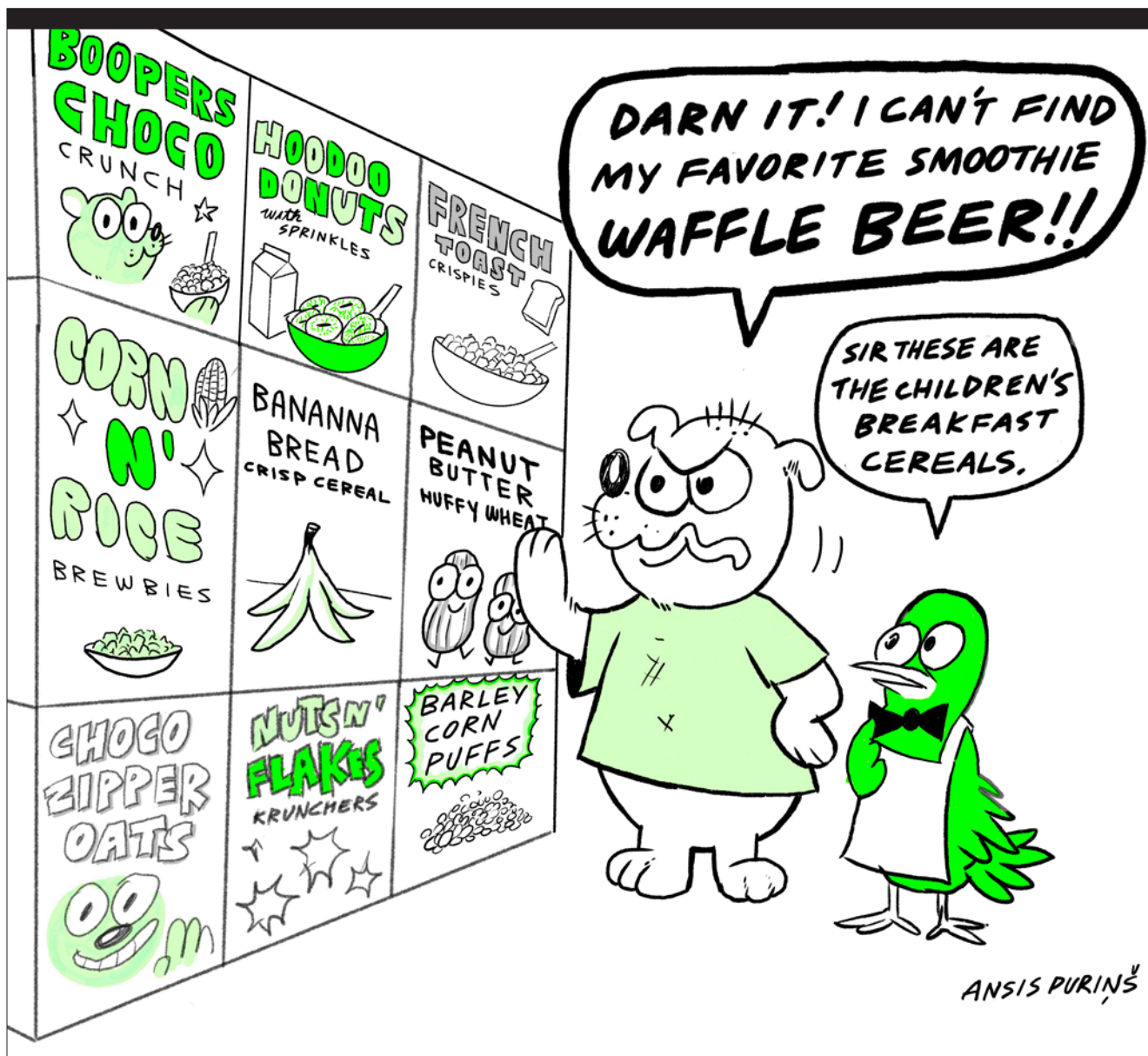
The Latest from the Craft Beer & Brewing Podcast

- Ep.206** Shaun Berns of Phase Three Brewing Prefers the Pragmatic to the Romantic
- Ep.207** Nick Mader of Alma Mader Balances Lager with Two Sides of Hazy IPA
- Ep.208** Scratch's Marika Josephson and Aaron Kleidon Brew with the Seasons
- Ep.209** Kelvin Kolheim of Beale Street Connects Through Flavor
- Ep.210** Lacie Bray and Andy Coates of Ozark Beer Prove That Accessibility Doesn't Mean Sacrificing Character
- Ep.211** Central Standard's Ian Crane and Nathan Jackel Create Big Flavor in Small Farmhouse Beers
- Ep.212** Primitive Beer's Lisa and Brandon Boldt Apply Science to the Romance of Spontaneous Fermentation
- Ep.213** Podcast Episode 213: The Best in Beer 2021
- Ep.214** Our Craft Beer & Brewing Writers Share Their Personal Bests of 2021
- Ep.215** Browar Pinta's Pawel Maslowski and Bart Ocieska Apply Modern Creativity to Classic Styles
- Ep.216** Lars Marius Garshol Is Doing the Research and Shifting the Paradigms
- Ep.217** North Park Beer's Kelsey McNair Is Making Better West Coast IPA by Tinkering with Hazies



Visit beerandbrewing.com/podcasts to listen and subscribe.

Whalez, Bro. By Ansis Puriņš



Belgian Café Culture

\$30, By Regula Ysewijn, Luster, lusterweb.com

In this Belgian-focused issue of the magazine, it makes sense to highlight this newly revised edition of Regula Ysewijn's *Belgian Café Culture*. A delicate and beautiful paen to the timeless culture of Belgium's beer-focused drinking establishments, this thoughtful and loving tome is part anthropological document, part love letter, and part tourist guide to some of the most quaint and characterful cafés in a country that's known for them.

From the first pages, we're struck by both Ysewijn's ability to capture a sense of place in her photographs, and her clear affection for the aging generation of café owners and operators. A rash of closures motivated her to pen the book in 2016, and the pace of those closures hasn't ceased. It's no surprise that Belgium's beer culture faces a generational shift, as aging operators face

retirement without successors to take over their hospitality-focused businesses. What's lost as they disappear is more than just commerce—it's the soul of an ingrained culture that's important to the very nature of Belgian identity.

Through contemplative photography of spaces, sensitive portraits of people, and thoughtful essays, she has captured the stunning sense of place that Belgian cafés convey. Thankfully, she has done this before they're gone, so that those who love beer—and love experiencing beer served by those who love beer—can track down and spend time in these spaces before they disappear entirely.

Belgian café culture is more than just style, it's a pace of life and an approach to drinking communally that's worth maintaining. Ysewijn's book makes this case in inspiring page after page. —Jamie Bogner

Hopsteiner

CONTESSA
EXPERIMENTAL HOP #04190



Light pear, floral,
green tea

α -acids %: 3-5
 β -acids %: 5-7.4
Total oils: 0.8-1.9



Lemondrop
EXPERIMENTAL HOP #01210



Lemon, tangerine,
green tea, melon

α -acids %: 5-7
 β -acids %: 4-6
Total oils: 1.5-2



Solero
EXPERIMENTAL HOP #243/42



Tropical, mango,
passion fruit

α -acids %: 9-10
 β -acids %: 5-6
Total oils: 1.5-2



TRIDENT
SPECIALIZED HOP BLEND BY Hopsteiner



Fruity, citrus,
passion fruit

α -acids %: 11-14
 β -acids %: 4-5
Total oils: 1.6-3



SULTANA
EXPERIMENTAL HOP #06277



Pineapple, pine,
bright citrus

α -acids %: 13-15
 β -acids %: 4-5
Total oils: 2.5-4



Lotus
EXPERIMENTAL HOP #06297



Orange, vanilla,
tropical fruit,
berry

α -acids %: 13-17
 β -acids %: 5.5-6
Total oils: 2-2.5

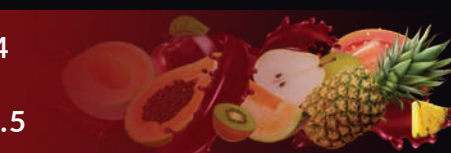


CALYPSO
EXPERIMENTAL HOP #03129



Tropical fruit,
pear, apple,
melon

α -acids %: 12-14
 β -acids %: 5-6
Total oils: 1.6-2.5



BRAVO
EXPERIMENTAL HOP #01046



Orange, floral,
candied lime

α -acids %: 14-17
 β -acids %: 3-5
Total oils: 1.6-2.4



ALTUS
EXPERIMENTAL HOP #07270



Spicy, resinous,
tangerine

α -acids %: 15-19
 β -acids %: 4-5.2
Total oils: 3-4.4

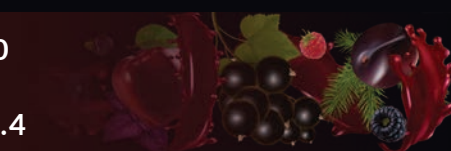


EUREKA!
EXPERIMENTAL HOP #05256



Black currant,
dark fruits,
herbal, pine

α -acids %: 17-20
 β -acids %: 4.6-6
Total oils: 2.5-4.4



SPECIAL INGREDIENT

Flying Ants

Known as *chicatanas*, these crunchy leafcutter ants are a delicacy of regional Mexican cooking—and they have a flavor profile that may be oddly compatible with your darker, richer beers. **By Joe Stange**

FIRST OF ALL, BE KIND: Give your vegetarian friends a warning before you decide to pour them some of your ant-beer.

Second, don't forget to snap a few photos before you toss the ants in the kettle, since surely one of the benefits of brewing with insects would be enjoying that shock value. However, there may be another benefit: Apparently, these particular creepy-crawlies are actually pretty tasty.

Chicatanas is the common name for *Atta mexicana*, flying leafcutter ants in Mexico, where at certain times of the year the ants are especially fruitful and numerous. Local cooks harvest them, grind them up with spices, and cook them into moles or other sauces. Oaxaca might be the best place to try them, but in this wondrous age of convenience, you can even order *chicatanas* online—not cheaply, and not all year, but you can find them. (On oaxacanspice.com, for example, three ounces or 85 g will set you back \$55.)

Descriptions of the *chicatanas* flavor include earthy, nutty, bitter, and salty—just the thing for a big, rich stout or other dark beer to absorb. That's the case with *Chicatanazzz*, a barrel-aged flying-ant stout recently produced by Forager Brewery in Rochester, Minnesota. (For whatever it's worth, the tiny-batch ant stout is sitting pretty on Untappd with a rating of 4.35/5.)

Forager cofounder and head brewer Austin Jevne says the idea to use the ants originated in the kitchen. "At Forager, we have a great group of chefs," he says. One of them, Elba Vasquez Pastrana, grew up in Mexico and received a kilo of *chicatanas* from her mother in May 2020. "She prepared a mole sauce with them to put over pork ribs, which was mind-blowing and delicious. She gave me a few of the raw ants to try, and their flavor was exciting, diverse, complex, and completely unique."

Here's how he describes the taste: "Spiced nuts smoked over an open fire, with deep, rich raw cocoa nibs and red-clay earth. Remember the popular

MAKE IT

Forager Chicatana Barrel-Aged Stout

With thanks to Forager's cofounder and head brewer Austin Jevne, this homebrew-scale recipe combines the Forager approach to barrel-aged stout with the earthy, nutty, toasty flavor contribution of Mexican flying ants.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72 %

OG: 1.156

FG: 1.048

IBUs: 18

ABV: 14%

MALT/GRAIN BILL

22.6 lb (10.3 kg) two-row pale

2.1 lb (953 g) chocolate malt

2.1 lb (953 g) flaked oats

1.8 lb (816 g) caramel/crystal 60L

1.2 lb (544 g) pale chocolate malt

5 oz (142 g) brown malt

HOPS & ADDITIONS SCHEDULE

0.7 oz (20 g) Nugget at 60 minutes [15 IBUs]

0.7 oz (20 g) Galaxy at 5 minutes [3 IBUs]

8 oz (227 g) *chicatanas*, 3 days before packaging

YEAST

Fermentis SafAle US-05 or similar

DIRECTIONS

Mill the grains and, unless you have an especially large mash tun, divide in half. Mash the first half at 152°F (67°C) for 60 minutes. Recirculate until the runnings are clear, then run off into the kettle—but only the first runnings; do not sparge or top up. Then repeat the mash for the second half of the grains, again collecting only the first runnings. Boil until you estimate you are about 1 hour away from hitting your target OG, then add hops according to the schedule. After the boil, chill the wort to about 66°F (19°C), aerate thoroughly, and pitch a large, healthy yeast starter. Ferment at 68°F (20°C). When fermentation is complete, cool to 35°F (2°C) and rack into a whiskey barrel or onto whiskey-soaked oak cubes. Age patiently, until the flavor is where you want it. Then grind the *chicatanas* into a fine powder and add to fermentor. After 3 days, package and carbonate to 2.3 volumes.

BREWER'S NOTES

Choose a water profile that suits a maltier beer. Note that the mash is bound to be inefficient, because of the size of the grist—so just see what you get, prepare for a long boil, and roll with it.

Spring into warmer months by adding a **balanced sweetness with cracker and bread flavors**. A perfect complement when you want to add **malty complexity and a hint of gold to your beer**.



LIGHT MUNICH



*Scan using your
smartphone camera
to learn more!*

AVAILABLE THROUGH

TO INSPIRE YOUR BEST CRAFT
ESTD.  1995
COUNTRY MALT
GROUP



**GREAT
WESTERN
MALTING**
THE HEART OF YOUR CRAFT

WE'RE A LITTLE BIT DIFFERENT, BUT EXACTLY THE SAME.

BAIRDS PILSEN MALT IS NOW BAIRDS LAGER MALT.

We've recently changed some of our product names, enabling us to bring consistency to how our products are marketed in different territories.

What hasn't changed is what you'll find inside the malt bag. Quality UK malt, made with the best of British barley, sourced directly from growers that we know by name.

Find out more, and explore our malt collection at bairds-malt.co.uk/productupdates or scan the QR code to connect with your local Country Malt Group representative.



BAIRDS MALT

QUALITY MALT SINCE 1823

PROUDLY DISTRIBUTED THROUGHOUT NORTH AMERICA BY

THE
COUNTRY MALT
ESTD. GROUP 1995

| THE MASH: SPECIAL INGREDIENT |

1980s mulch made from cocoa husks? Well, that nostalgic memory was conjured as soon as I open the package."

That flavor inspired Jevne to try adding the ants to a beer. Pastrana's mother sent five more kilos (about 11 pounds) of chicatanas. "She sent them directly from Oaxaca after they were foraged and roasted," he says.

So, how to use the ants? They had to figure that out on their own. "Having never used an ingredient like this, and not knowing of anyone having done it before, we had no reference for the best process to use [with] these ants," Jevne says.

They opted to get them into a richer beer—a decadent barrel-aged stout blend. "We were pioneering their usage in a way we felt would represent the product's flavor profile properly, while pairing their characteristics with a beer that would lend an intensity, allowing their flavors to weave balance and coexist in harmony."

They chose 53 gallons (200 liters) of stout that had been aging in a rye whiskey barrel, then they added 10 gallons (38 liters) of Nillerzzzzz (that's five Zs), their barrel-aged vanilla stout of 13.6 percent ABV. "We then added five pounds (2.3 kg) per barrel of ground chicatanas to the tank and recirculated the beer on the ground ants until we thought the flavor intensity was where we wanted it," Jevne says. "We then racked off the ants and packaged the beer."

As it turns out, those ants weren't quite ready to retire from their culinary career:

"Our chef saved the ground ant paste that was left over,"

Jevne says, "and has been experimenting with it. ... More to come on that in future beer dinners."

While Jevne admits that the beer sounds like a gimmick, he says "the intention is much deeper. This beer represents Forager's exploration for flavor contributions from ingredients that reach farther than the traditional or hype flavors we see every day. I would personally think beers with Oreos and waffles added are much more gimmicky than this—but hey, call me crazy."

It's not an easy beer to explain, and not just because it has bugs in it. The bigger problem is that few people know what those bugs are supposed to taste like. "The struggle this beer has seen is that, in my assumption, only one or two of the people who have tried the beer have ever tried a raw chicatana," Jevne says. "This means there is no point of reference for the flavor impact of the ants for them."

However, that flavor impact "was massive," Jevne says. "The beer took on everything about the chicatana experience, except the crunchy texture and little legs getting caught in your teeth. ... We felt that this was a beautiful representation of what these ants could do for a beer and were astonished how well the flavor came through."

Jevne says it won't be the last chicatana beer to come from Forager. "We absolutely plan to make a beer with these again every year we can source them," he says. "We will probably include a little bag containing a few ants with each bottle moving forward, so people can try the insect for flavor reference."

"If another insect comes to us with exciting flavors, we [will] happily try something else—but not to be gimmicky!"

He offers this advice for any brewers who want to brew with chicatanas or other insects: "Get to know the ingredients you plan to use and focus on a desired result," he says. "Experimentation is a driving force in craft beer, so go out there and find some inspiration."



PHOTO: URSULA A CASTILLO GOMEZ/SHUTTERSTOCK

MADE IN THE USA

ZAHM & NAGEL

PRODUCING THE FINEST CO₂ AND AIR TESTING INSTRUMENTATION SINCE 1908

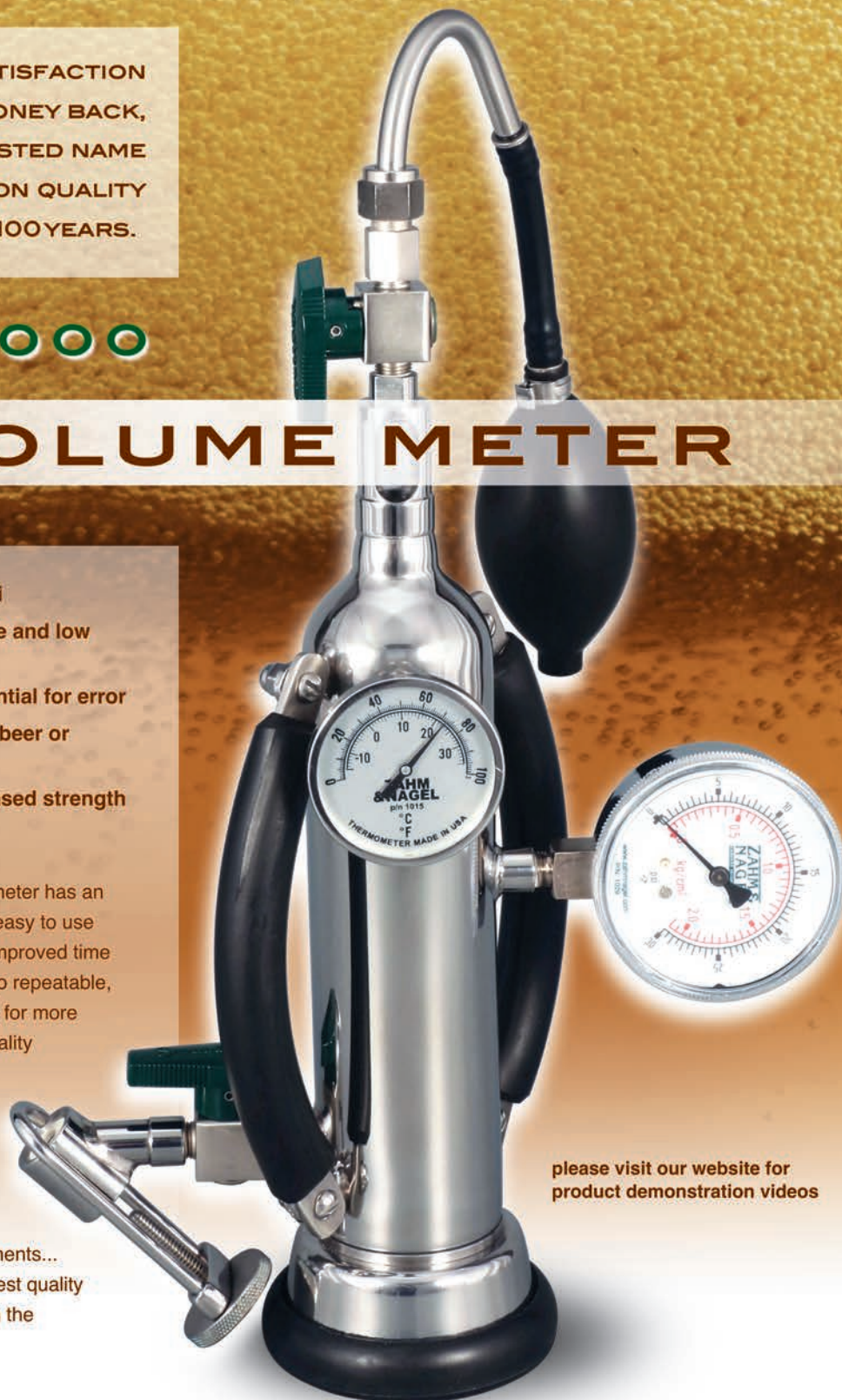
...WITH OUR 100% SATISFACTION
GUARANTEE OR YOUR MONEY BACK,
ZAHM & NAGEL IS A TRUSTED NAME
IN THE INDUSTRY BUILT ON QUALITY
AND SERVICE FOR OVER 100 YEARS.

SERIES 1000

CO₂ VOLUME METER

- Increased accuracy to ± 0.25 psi
- Extreme durability with simple and low cost operation
- Eliminates bleed off and potential for error
- Ideal for testing CO₂ levels in beer or beverage storage tanks
- 304SS construction for increased strength and corrosion resistance

Zahm & Nagel series 1000 volume meter has an improved design that is lightweight, easy to use and has virtually no clean up. With improved time required for testing, samples undergo repeatable, precise volumetric expansion testing for more accurate measurements. Highest quality testing assures high quality production. From air testing to CO₂ testing, Zahm & Nagel equipment can test for air and CO₂ content in cans, bottles and tanks and measure CO₂ purity to 99.99%. For all your testing requirements... Zahm & Nagel producers of the highest quality testing and carbonation equipment in the brewing industry.



please visit our website for
product demonstration videos

www.ZAHMNAGEL.com

E-MAIL: SALES@ZAHMNAGEL.COM / PHONE: 716.537.2110

STYLE SCHOOL

Fire & Brew-Stone: The Real Story of Steinbier

The idea of making beer with flaming-hot rocks conjures an indelible mental image. Unfortunately, the common understanding of what “steinbier” was, and how it was made, is almost totally wrong. **Lars Marius Garshol**, author of *Historical Brewing Techniques*, explains the methods of a lost farmhouse style.

AS WE ALL KNOW, steinbier is an old lager style from Franconia, made using hot stones to boil the wort.

The problem is that none of that is true. We can trace our misunderstanding back to Michael Jackson. In his *Beer Hunter* TV series in the 1980s, when visiting the Rauchenfels brewery in Neustadt bei Coburg, Upper Franconia, he said the brewery came up with the idea of making a stone beer when business was going poorly. The recipe came from an earlier tradition for brewing beer with hot stones, in the time before people had metal kettles. Rauchenfels used the stones to boil the wort, Jackson said.

Here’s what’s really weird: Most of that is technically true. It just doesn’t mean what it seems to mean.

Follow the Stone Path

Gerd Borges, who started brewing steinbier at Rauchenfels in 1982, said he learned how to do it from audiotapes recorded by the last steinbier brewmaster, who died in 1965.

However, the old steinbier brewmaster was not from Franconia. He was from Austria.

Carinthia, the country’s southernmost province, is a fertile valley locked in by the Alps on every side. It’s exactly the sort of isolated place where you would expect old traditions to survive—and, indeed, two commercial steinbier breweries remained in operation until 1917, toward the end of World War I.

So, first of all, the steinbier tradition actually comes from Carinthia, not Franconia. There is no sign that anyone brewed steinbier in Franconia before Rauchenfels did.

Steinbier appears to have been brewed in Carinthia—as well as neighboring Styria and parts of Slovenia—for a very long time. It was only in the 18th century that the brewers got competition from so-called “kettle brewers” making more modern beers. The farmers in the area also brewed steinbier, and the commercial brewing shows clear similarities with farmhouse brewing.

The locals described it as “the people’s drink number one,” and even as the “Carinthian national drink,” so it was definitely popular. In 1820, 80 percent of the beer sold in the provincial capital of Klagenfurt was steinbier. About a decade later, it was reported that the citizens of Klagenfurt

would go *en masse* for hikes on Sundays to visit “steinbier inns” in the countryside. When brewing finally ended, it appears to be not so much due to waning popularity as to the difficulties of getting raw materials during and after World War I.

Outsiders were often more skeptical of the local steinbier. One travel writer described it as “the worst drink in the world.” In the 18th century, the national government took steps to instead promote modern beer, which they called “kettle brewing.”

How They Really Made Steinbier

We know how they brewed steinbier in some detail, thanks to the audiotapes mentioned above and other documentation. Here I’ll describe the methods of the Klagenfurt commercial breweries. There were other ways of brewing steinbier, but the main contours are similar.

These breweries really did not have any kettles whatsoever, which is why they were using stones. It’s not that kettles didn’t exist at the time; it’s just that, historically, they were very expensive.

So, imagine for a moment that you’re going to brew somehow, without using a kettle. What would be your first problem? That’s right: mashing. How would you do it?

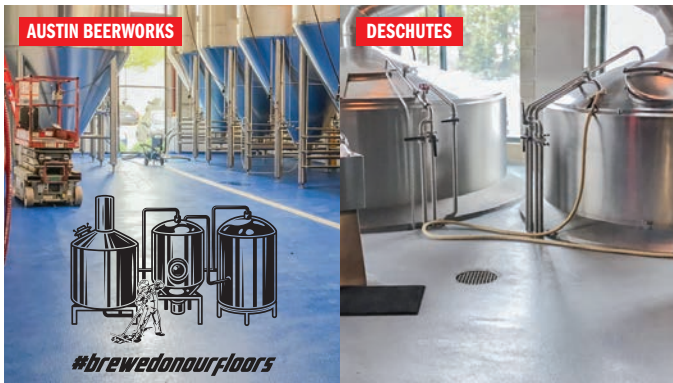
As we know from the traditions of raw-ale brewing, boiling isn’t necessary at all; historically, in fact, boiling was not even common practice. However, if you want to brew beer, you absolutely *must* heat the mash somehow. As you might expect, a steinbier brewery used hot stones to heat the mash.

Beyond that, pretty much everything about steinbier veers into the unexpected. The Rauchenfels brewmaster probably did listen to the steinbier audiotapes—but he seems to have disregarded everything in them except the idea of using hot stones.

The steinbier breweries actually malted their own grains. Even more surprisingly,

As we all know, steinbier is an old lager style from Franconia, made using hot stones to boil the wort. The problem is that none of that is true.





Great Breweries Know the Value of Quality Floor Surfaces. With Over a Million Square Feet in 360+ Breweries Installed to Date, Cascade Floors is the Industry Leader in Durable, Long-Lasting Floor Coatings

Full Cascade Floors Install and Self-Install Options Available

Call Chris Klein for a custom quote today at (541) 510-1080 or visit cascadefloors.com

CASCADE FLOORS, INC.

EPOXY ■ POLYESTER ■ URETHANES
SERVING THE BEER, WINE & FOOD
INDUSTRIES SINCE 1971



Your Message, Unfiltered.

Tell your story directly to our audience of passionate and quality-minded brewers and craft beer enthusiasts. To discuss advertising options, contact Media Sales Director Blake Osmond at advertising@beerandbrewing.com, or call 888-875-8708 x2.

| STYLE SCHOOL: STEINBIER |

they typically used a third each of barley, wheat, and oat malt in their grists.

They dried the malt on a kiln that consisted of a chest-high masonry box, with a drying surface of wickerwork on top, sloping up from the sides toward the middle. On the floor was a wood fire, the heat and smoke going up through the malt, smoking it powerfully. Unusually, they specifically used cherry wood.

These kilns were very similar to kilns that were used in farmhouse brewing in Scandinavia, including the *såinn* used in Stjørdal, Norway. The rootlets were not removed from the dried malt—another similarity with farmhouse brewing.

When it was time to mash, they heated stones over a wood fire for about two and half hours in a structure called the *gru-matl*. Then they removed the stones with steel tongs and placed them in wooden baskets, which were first soaked in water so they wouldn't catch fire.

In the mash tun, they placed juniper branches in the bottom as a filter—yet another similarity with farmhouse brewing. They added a little water, then threw in the stones. Then they would dump in “a small sack” of hops—this was deliberate, so that the hops would roast on the stones, filling the room with smoke. After one minute, they added more water and covered the mash tun for 10 minutes.

Finally, they would begin adding malt, starting with the oats. They stirred these in immediately, taking care not to upset the juniper branches on the bottom. They added some more hot and cold water at the same time, before adding barley malt.

They mashed the wheat malt separately in a small vessel, also using hot stones until it boiled. They left this until the next morning when they dumped everything into the main mash tun. Then they added about 20 kilos (44 pounds) of hot stones to heat the large tun, slowly bringing it to a boil. (Wouldn't it be nice to know which mash temperatures they hit? Sorry, no luck there. They didn't use thermometers at all. That's farmhouse brewing for you.)

After a few hours, they were ready to laut from the mash tun through the juniper branches. They would pour the wort back until it ran clear—a homebrew-style vorlauf step—before running off, cooling, and pouring it into fermentors.

Fermentation & Service

In older times, the steinbier brewers must have had their own yeast, but by 1917 they had started using hefeweizen yeast from breweries in Munich. This is probably also why the pitch temperature was 22.5°C (73°F)—because of the yeast they were using. What's clear is that steinbier was never a lager style, traditionally.

We do know the strength of the wort because for every brew, an official from the tax office would come by to verify the amount of wort and its strength. The typical gravity appears to have been 1.024 SG, so this steinbier was like a weak table beer. There was also an earlier variety known as *koritniak*, which was around 1.036 SG.

It fermented for seven to 10 hours in the main fermentor, then it went into casks and continued to ferment there. After two days, it was ready, but it might not be served right away.

The inns served it by placing a cask on the floor, then inserting a wooden pipe—which apparently caused massive foaming. Clearly, the steinbier built up considerable pressure inside the casks. People drank the beer from small earthenware mugs. Many sources say the beer never cleared—probably because it was not boiled.

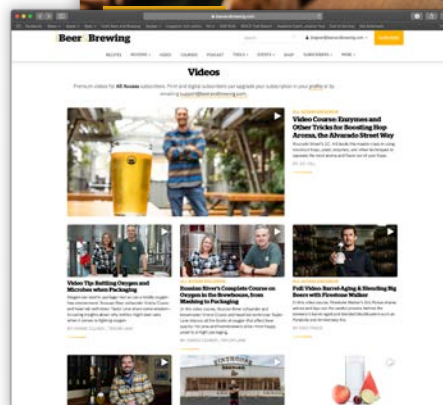
So, what did steinbier actually taste like? Unfortunately, nobody alive today can tell. The sources say it was lightly acidic and very smoky, which seems reasonable. It may have been phenolic, with some banana aroma from the yeast. It also must have been very light, but probably quite full-bodied since they used oat and wheat malt and never boiled the proteins out of the wort. There must have been some typical raw-ale flavor, too.

SUBSCRIBE NOW AT THE “ALL ACCESS” TIER FOR THESE GREAT BENEFITS!

- » UNLIMITED ACCESS TO 60+ BREWING VIDEO COURSES
- » UNLIMITED ACCESS TO 60+ FULL-LENGTH BREWING VIDEOS
- » PREMIUM MERCHANDISE, ONLY FOR ALL-ACCESS SUBSCRIBERS
- » UNLIMITED ACCESS TO ONE NEW BREWING VIDEO EVERY MONTH
- » WEEKLY BREWING DEEP-DIVE EMAIL
- » SUBSCRIBER-ONLY PREMIUM CONTENT
- » 6 PRINT ISSUES/YEAR
- » 6 DIGITAL PDF ISSUES/YEAR
- » UNLIMITED ACCESS TO PREVIOUS ISSUES THROUGH IOS & ANDROID APPS

JOIN OUR FAMILY OF SUPPORTERS AND SUBSCRIBERS AT

BEERANDBREWING.COM/CBB-SUB



ALL ACCESS

THE MEANS OF THE STONE AGE

Mashing with hot rocks isn't just an antiquated quirk. In fact, we may be able to blame it for human civilization.

For some reason, whenever I imagine ancient peoples anywhere making the earliest beers, I always imagine them huddled around a big cast-iron cauldron over a blazing fire.

That image is wrong, though. There were no metal kettles for direct-fire cooking until the Bronze Age, perhaps 2000 BCE. For long after, at least until the 16th century, kettles remained expensive and rare for common people.

Yet, they brewed.

As Garshol notes in *Historical Brewing Techniques*—and as numerous raw-ale traditions should make obvious—you don't need to boil wort to make beer. You do, however, need to heat the mash. And if you've got a fire and some rocks, you've got a pretty obvious way to go about it.

"Every conceivable variation in brewing process has been used together with hot stones, including varying the grain type and other ingredients," Garshol writes. "So, it does not really make sense to talk about stone beer as a single style. Stone beer was probably the main branch of beer styles right up until the end of the Middle Ages."

In fact, Europe is apparently littered with deposits of fire-cracked stones that may have been used for that very purpose.

"Yes, kettles were expensive from the Iron Age on and later," says Merryn Dineley, a British archaeologist who specializes in ancient technology—especially in methods and devices related to brewing and malting. "So, hot stones were used traditionally when the mash tun was wooden. However, the technique goes way back into prehistory. Stones have been found in limestone troughs at a site dated to 13,000 years or so ago."

Those stones are at Göbekli Tepe, an early Neolithic archeological site in southeast Turkey, not far from the Syrian border. It is one of the world's earliest known human settlements. The roughly 40-gallon troughs there contain a residue that would match that left behind by brewing beer—which, some hypothesize, might be why those people decided to settle down in the first place. While not conclusive, it supports the theory that beer was an important motivator for people to stop roaming and grow crops.

Reports on such findings often refer to evidence of "cereals." However, as Dineley says, cereals are not enough to make beer—those cereals need to be malted; those sugars need to be converted before yeast can ferment them. In fact, that desire to make malt and malt sugars—not only a source of beer, but of valuable calories—might have been the real reason to settle down and grow grains in the grasslands. As Dineley notes, there is evidence of malting about 13,000 years ago in Israel's Raqefet Cave.

"The question," she writes, "should not be 'Bread or beer?' but, 'Who were the first maltsters?'"

So, in fact, those farmhouse brewers still using hot stones to heat their mashes in the Baltics, Finland, and Russia may be carrying on a technique that is at the very root of civilization. —Joe Stange



Clockwise from top »

Ugis Pucens of Aizpute in Latvia drops a hot stone in the mash using long steel tongs; an improvised brick oven heats the stones; the mash visibly boils in the left of the mash tun where a stone was just dropped.

We should really think of stone beer as a mashing method, like infusion or decoction mashing. The actual beers could be of many different kinds.

What's certain is that it must have been very different from the many re-creations of "steinbier" inspired by Michael Jackson's report from Rauchenfels. Here are the key takeaways: Steinbier was a raw ale, and the hot stones went into the mash, not the wort. If anything was boiled at all, it was the mash.

Most writing about steinbier emphasizes that the stones they used were greywacke, a type of gray sandstone. The commercial breweries in 20th century Klagenfurt did use that type of stone, but we also know that other brewers used porphyritic diorite, and some a red sandstone. The important thing is to use a type that doesn't explode when heated, since that can be dangerous.

More Stone-Beer Traditions

What's so special about Austria, anyway? Weren't kettles equally expensive elsewhere?

Yes, they were—and, as it turns out, people have brewed with hot stones all over Europe. The more famous steinbier style comes from Carinthia simply because brewing with hot stones survived for so long in commercial brewing there. Again, that's probably because it's such an isolat-

ed area with a population large enough to keep the tradition going.

However, there are well-documented reports of stone-beer brewing from all the Nordic and Baltic countries plus Russia and Belarus. In northern Russia, there are still people brewing stone beer; the tradition is not entirely dead in Latvia and Lithuania, either. It's likely that people once brewed with hot stones in Franconia, too, even if we have no record of it.

The stone beers in these countries were not all weak beers fermented with hefeweizen yeast and made from barley, oats, and wheat smoked with cherry wood. What they do have in common is the use of hot stones in the mash rather than in the wort. We should really think of stone beer as a mashing method, like infusion or decoction mashing. The actual beers could be of many different kinds.

In Finland, the Hollolan Hirvi brewpub way out in the countryside is still making stone-mashed sahti. The brewer, Ilkka Sipilä, learned the method from his father in the 1960s. So, if you want, you can taste authentic stone beer today. All you have to do is go to Finland.

CHECK OUT THE HOP COUNTRY *Craft Beer Trail*

COME TO THE HOME OF THE HOPS



WASHINGTON STATE



YAKIMA
VALLEY



YAKIMA
VALLEY

Raise a pint steps from where we grow your beer. *Plan your craft beercation in the largest hop growing region in the world!*

GO TO VISITYAKIMA.COM TO PLAN YOUR TRIP

STYLE SCHOOL

For Those About to Rock...

Ready to build a fire and brew a traditional stone beer at home? Grab your tongs and get ready to rock. **By Joe Stange**

HERE'S SOMETHING YOU WON'T

read often in a brewing magazine: You won't need any fancy equipment for this. The ancients who heated their mash with stones were not making beer on the latest Ss Brewtech kit. In fact, since you'll be playing with red-hot stones, it's probably best to leave your nicest gear out of this.

There are, however, some decisions to make and a few important things to keep in mind, related to ingredients, equipment, and personal safety.

Which malt to use?

You could simply buy some good pale malt. After all, the type of malt isn't necessarily the point here—this is about getting together with friends to perform a traditional, dangerous, and highly photogenic technique.

The suggestion from Simonas Gutautas, a brewer with Dundulis in Lithuania, is to go with a relatively less-modified pilsner malt. That's what they use at Dundulis when they brew about 20 hectoliters (17 barrels) of traditional stone beer four times per year.

Gutautas says they use undermodified pilsner malt sourced from a local farmer, and they find that it makes the lautering easier. Think of it like a decoction: Today's highly modified malts are meant for infusion, not for getting boiled—which is exactly what happens, in brief pockets, when you add hot stones. "If you use Maris Otter, you will have a mass, like clay," Gutautas says.

You can also opt for something old-fashioned from any number of small-batch maltsters. Sugar Creek Malt in Indiana, for example, sells some interesting products made from unusual grains or inspired by older traditions. These include einkorn malt, oven-dried rye malt in the

Baltic or Russian style, and smoked-oat malt inspired by what the stone brewers of Carinthia once used.

If you want to get even more serious about authenticity, you could source local grain and malt it yourself (see "Malt Your Own Barley," beerandbrewing.com). That's what some of the traditional farmhouse brewers in Northern Europe do, though their methods vary. Often, they involve wood fires that inevitably add smoke character. Even if you're buying malt, some portion of smoked may be worth including. Lars Marius Garshol's book, *Historical Brewing Techniques*, includes three recipes for stone beer; two feature smoked malt meant to approximate farmhouse-malting methods.

Here's a tip from Gutautas: If you want to stick with pilsner malt yet add some color or smoky character, you can do that using the hot stones. He says the red-hot ones will help darken the beer while adding some burnt character and smoke. To add more, you can carefully put some dry malt or rye flour on the stones first—literally roasting it a bit before it goes into the mash.

Notable: You want a nice, stiff mash—

the kind in which your mash fork can nearly stand up on its own. If it's too thin, the hot stones will quickly sink and burn the bottom.

What about hops?

You have a lot of leeway with hops, depending on what you want to try or which tradition you want to emulate. Many traditional brewers in Scandinavia and the Baltics brew a separate hop tea, then add it to the wort afterward. Gutautas says that you can also save some of the tea for the next day, to blend versions that are more of less hoppy or bitter, according to your taste.

He also suggests using whole-leaf hops; you can then use the spent hops in the filter bed to help the lautering. If you want, you can add the hop tea directly to the mash. You can also skip the tea and simply add hops to the mash, where the hot stones will handle some of the isomerization.

Or, if you're going for ancient, you could skip the hops altogether and try a gruit-like mixture of flowers and herbs.

What kinds of stones?

We are not geologists, but we know there are two things to avoid here: The kinds of rocks that explode when heated in fires and the kinds that fracture into many tiny pieces—because some of them will inevitably crack in the mash tun. Apparently, this is just part of the deal.

Without getting into specific types of rock—because there are no guarantees—what you want are harder, more dense stones, not the more porous, permeable ones. (No lava rocks.) Just to be on the safe side, *please use eye protection*.

Gutautas suggests using stones that are roughly the size of fists, if possible—you want them to have a decent surface area, but you also want to be able to manage them with tools as safely as possible.



How to handle the stones?

Carefully.

"You need tongs of some sort to handle the stones, preferably with some length," says Garshol—who wrote "Fire and Brew-Stone" (page 20) and who has visited farmhouse brewers who still mash with hot stones. "Some use baskets. You can use wooden tongs, but those then need to be well soaked in water first and are likely to catch fire anyway."

The kind of large steel tongs that you might find next to a fireplace may be best. A shovel might also be useful. At Dundulis, Gutautas says, they use a pitchfork.

Also, wear PPE. "You want to be absolutely sure that under no circumstances will you risk touching the stones," Garshol says. "Protective boots and gloves are good. Naked skin is not."

One more tip: It's understandable to make this a festive occasion of sorts and have a few people watching, but the brewer ought to be sober and the designated rock-handler. "Drinking while brewing stone beer is a really bad idea," Garshol says.

What's the ideal mash tun?

For the mash tun, don't use your finest stainless and *definitely* don't use your converted Igloo cooler. You need something that won't melt and can handle some wear and tear. We suspect a sturdy keggie-type tun that has seen some mileage would work just fine.

However, the ideal vessel—for tradition, for function, and for style—is a large wooden tub of some kind. Even at Dundulis, they brew in two large wooden vats.

If your local brewery is unloading spent barrels for a song, one of those (possibly sawed in half) might do the trick.

Your choice of a mash tun is relevant to the next question ...

How to lauter?


It sounds pretty cool to throw some hot rocks into the mash, but ... what then? How do you separate that precious, sugary liquid from that pile of warm rocks and sizzled grain? The ancients might have scooped out the liquid with jugs, but clearly there are more efficient ways to go about this. We're brewers, after all. This kind of problem-solving is where we are, as they say, Vikings.

One advantage of a well-worn keggie tun is this: It probably has a false bottom and a spigot already. Likewise, drilling one into a wooden tub isn't too difficult. A screen over the inner opening might help, or some juniper branches, sticks, or straw could provide a natural filter bed while adding a bit of their own character.

And then?

Boil the wort if you want—or not. If you're going raw, here's an interesting tidbit from Gutautas: An unboiled stone beer tends to wind up clearer than other raw ales, which are often cloudy with suspended proteins; it's plausible that boiling-hot rocks facilitate a kind of hot break in the mash.

For fermentation, a pitch of your favorite kveik would make sense, after allowing the wort to cool to about 100°F (38°C). At Dundulis, they use a culture that originated with the Lithuanian farmhouse brewer Julius Simonaitis (a version is available from Yeast Bay as WLP4046).

Opting for a mixed culture of yeast and bacteria could also lead to interesting results. Or—in a historically ungrounded callback to the Franconian steinbier that first caught the attention of Michael Jackson in the late 1980s—you could brew it as a clean lager, which could really allow those rock-sizzled Maillard flavors to shine. 

MAKE IT

Tongs of the Ancients Stone Beer

This is less a recipe and more a set of guidelines and guesses, partly inspired by the Dundulis Moko Maukas Akmeninis stone beer in Lithuania, as described by Simonas Gutautas. It's hard to say what kind of efficiency you'll get—and probably best not to worry about it, the first time around. Your mileage will vary. Be safe. And good luck!

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.054

FG: 1.008

IBUs: variable

ABV: 6%

MALT/GRAIN BILL

10 lb (4.5 kg) pilsner

HOPS & ADDITIONS SCHEDULE

3 oz (85 g) whole-leaf Saaz, boiled in water to make hop tea

At least 5 fire-heated stones, roughly fist-sized, added to mash

YEAST

Yeast Lab WLP4046 Simonaitis Lithuanian Farmhouse, or other favorite rustic strain or mixed culture

DIRECTIONS

Boil the hops in water to make hop tea; set the tea aside and add the spent hops to your filter bed, which might also include sticks, straw, or juniper branches. Mill the grains and use hot water to mash in at about 147°F (64°C). (Alternatively, mash in cold and use hot stones to bring up the temperature.) Optionally, add an occasional hot stone if needed to maintain the temperature. After at least an hour, add about 5 hot stones and mash out. Recirculate until the runnings are free of particles, then run off into a fermentor or intermediary vessel. Add the hop tea to taste or save some to blend later. Chill or allow to cool to about 86°F (30°C), then pitch the yeast and ferment in a relatively warm area, at least 75°F (24°C). When fermentation is complete, crash, package, and carbonate.

BREWER'S NOTES

Safety: Be sober, wear PPE, and use tongs when handling the hot stones.

Malt: Smoked, rye, wheat, or oat malts could all be interesting here, as could some landrace varieties, such as einkorn. Malting your own grain would also fit the tradition. However, we're interested to see how the hot stones would affect the flavor of some quality pilsner malt.

Hops: Wild or homegrown would also be appropriate. Instead of making a hop tea, some traditional brewers throw them directly in the mash, which should add hop flavor without much bitterness.



Love Handles

Great places to drink great beer.



Queen Anne Beerhall

Seattle

Spacious palace of hospitality trading in well-regarded comfort food and tall krugs of lagers and ales.

What it is: This European-inspired beer hall couldn't be anywhere but Seattle—the mural outside featuring Bigfoot in a Sonics jersey, attacking a hockey stick-wielding Seattle Kraken with a trident, kind of gives it away. This space is appropriately large, with high ceilings and a clear wall-to-wall view of all the long, shared tables and servers delivering beer and rotisserie chickens. We could do without the big TVs, but we saw the mural, and we get it.

Why it's great: Twenty-five taps put the spotlight on local breweries such as Chainline, Fremont, Georgetown, Ravenna, Reuben's Brews, and Varietal. The range of styles is broad and always includes lagers, including a handful from Germany. Yet, somehow, the beer and atmosphere are arguably not the main attractions. People come here for the food. Start by sharing a giant crusty pretzel piled with charcuterie or a pork-belly poutine; move on to steak-frites. You could finish with apple bread-pudding, but we might opt for a draft weizenbock for dessert instead. —*Joe Stange*

DETAILS

Hours: 11:30 a.m.–2 a.m., Friday; 10 a.m.–2 a.m., Saturday; 10 a.m.–midnight, Sunday; 11:30 a.m.–midnight, Monday–Thursday

Address: 203 W. Thomas St., Seattle, Washington

Web: queenannebeerhall.com



Colectivo Mexicano Cervecerero

Playa del Carmen, Mexico

Knowledgeable, welcoming bar devoted to Mexican cerveza artesanal.

What it is: About a decade ago, when you could almost count the number of Mexican craft breweries on your fingers, Argentine expat Miguel Antonucci opened Club de la Cerveza, the first beer bar in the tourist town of Playa del Carmen, on Mexico's Yucatan Peninsula. In 2018, on the heels of a craft-brewing explosion in the country, he followed with Colectivo Mexicano Cervecerero, or CMC—a bar devoted to all things Mexican, especially beer.

Why it's great: While Club continues to delight with beach-bar ambiance and broad international selection, CMC—just a couple of blocks over on Playa's famed Quinta Avenida—presents a more modern vibe: exposed brick, comfortable banquets, nightly jazz, and draft lines and fridges loaded with the best in Mexican craft beer. Whether the beers are brewed a few miles south or across the country, Antonucci sources not only the medal winners and best sellers, but also many of the country's most creative and coveted ales and lagers. The serving staff, all fluent in English, are adept at guiding visitors through the selections. —*Stephen Beaumont*

DETAILS

Hours: 4 p.m.–1 a.m., daily

Address: Quinta Avenida between Calle 40 and 42, Playa del Carmen, Q.R., Mexico

Web: facebook.com/CMC.playa



Brendan Behan

Boston

Inviting neighborhood pub doing convivial atmosphere, lots of local beers, and the occasional homemade burrito.

What it is: There are many different incarnations of the Irish pub found around the world, but in the Jamaica Plain neighborhood, you'll find the beloved Brendan Behan Pub, a Boston institution hiding in plain sight on Centre Street. It's named for the prolific Irish writer, but regulars just call it "the Behan." It's unassuming and inviting—a place to catch up with a friend or meet someone new. Note: It's cash-only, but there's an ATM on site. There's no kitchen, but on Wednesday and Saturday afternoons a local favorite named Rafa sells traditional Mexican burritos from a hotel pan.

Why it's great: As a bonus to the kind of atmosphere that can only be earned over 33 years as a neighborhood gathering place, the Behan's 20 draft lines feature an impressive selection of local craft, including the likes of Allagash, Exhibit A, Lamplighter, Proclamation, Schilling, and more. (There is, of course, a line for Guinness and a draft macro lager for less than \$4.) They also clean their draft lines regularly and allow dogs. There is a dartboard, but the pub is usually too abuzz with happy humans to safely throw sharp objects. —*Samer Khudairi*

DETAILS

Hours: 12 p.m.–1a.m., Monday–Sunday

Address: 378 Centre St., Jamaica Plain, Boston, Massachusetts

Web: brendanbehanjp.com

Hot new craft-beer releases from some of the leading brewers across the country and around the world.

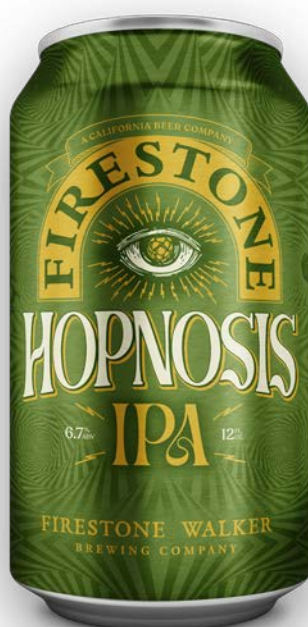
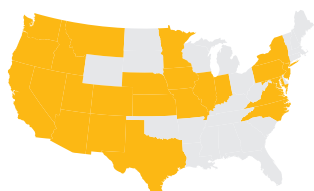
Fresh Beers...



Firestone Walker Mind Haze Light

All the haze, half the calories. Light and hazy with hints of citrus, Mind Haze Light is our new low-calorie IPA with full flavor and high drinkability for the health-minded drinker. 4% ABV. 100 calories.

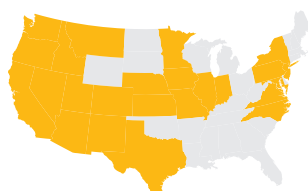
www.firestonebeer.com/beer/mind-haze-light



Firestone Walker Hopnosis IPA

At 6.7% ABV and hypnotically delicious, Hopnosis is an all-new innovative IPA brewed with coveted Cryo Hops® pellets. We double dry hop this beer with varieties from the United States and New Zealand, creating an explosion of tropical-fruit flavors including mango, passion fruit, white grape, and lychee.

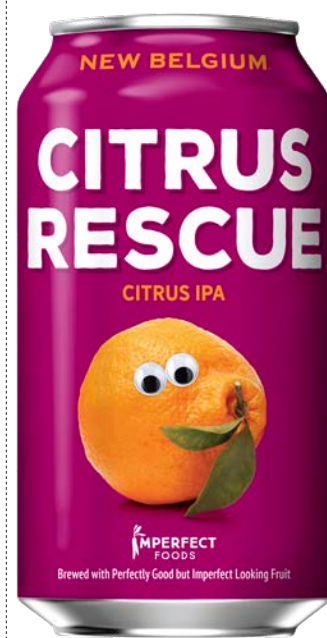
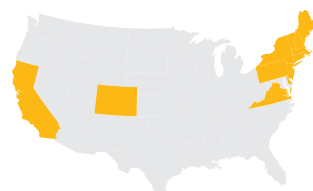
www.firestonebeer.com/beer/hopnosis



Two Roads Brewing Company Mega Juicy

Mega Juicy is a 10.2% ABV imperial IPA that packs a tropical, citrus juicy punch that drinks like our other juicy beer we all know and love... Two Juicy!

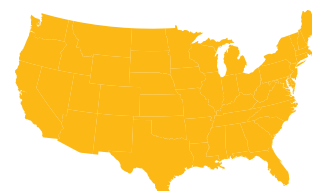
tworoadsbrewing.com/beer/mega-juicy/



New Belgium Brewing Citrus Rescue

Imperfect Foods—a sustainable online grocer dedicated to building a less-wasteful food system—helped us create a citrusy IPA featuring imperfect-looking yet perfectly good oranges that otherwise would have gone to waste. Expect a citrus-forward aroma that's complemented with citrus-forward hops.

www.newbelgium.com/beer/citrus-rescue/



HOMEBREWING

Make Your Best...

Going beyond the simple question of “what” and instead exploring the “why” will help you understand how to design and brew better beers. **By Josh Weikert**

American IPA

Ironically, it was taking my first stab at hazy IPA a few years ago that led me back to this more classically styled American IPA recipe, which I was using as a jumping-off point. These days, many breweries are calling just about any non-hazy IPA “West Coast–style,” but this one is more of a throwback, with a touch more malt sweetness than the leaner examples out West. There are so many versions, varieties, and approaches here that it would be arrogant to claim this will be your best American IPA—but it’s a very good one that has endured the test of time.

Style: Everybody knows American IPA ... but does anybody really *know* American IPA? It’s a style that evolves and drifts, no matter how the style guidelines try to pin it down. This one is relatively modest in alcohol (6-ish percent ABV) and immodest in bitterness, with a one-to-one bitterness-to-gravity ratio (that is, IBUs to specific gravity points). These beers can range in color from gold to deep amber, but these days most fall on the paler end of the spectrum. This has some light malt character, but nothing overly bready or rich. Beyond that, it’s a showcase of hop flavor and aroma—but that doesn’t require you to use a fantastic amount of hops. We’ll use what we need here and no more.

Ingredients: We start with a base of American two-row plus a splash of Munich. I don’t use plain two-row very often, but when I make this with Maris Otter, it just doesn’t show off the hops quite as brightly. For a bit of malt character, though, I like light layers of crystal 20 and British crystal 45—they’ll add just a touch of sweet biscuit flavor to offset the bitterness. The hopping doesn’t need to be complicated to be good. I go with a hefty bittering addition (I tend to have Nugget on hand), then Simcoe late boil, Amarillo at flameout/whirlpool, and one ounce of punchy Citra for dry hops. Finally, I pitch a good old-fashioned American ale strain (aka Chico), such as Wyeast 1056. It’s clean and simple and lets the hops shine.

Process: Take whatever steps you need to ensure that you can leave the hops behind when you’re done boiling. Post-boil, I give the wort a good stir and let the temperature drop to about 190°F (88°C) before adding my whirlpool hops, which I then leave for 15 minutes to steep. After active fermentation stops, I add the dry hops and wait about five days before packaging. Optionally, cold-crash for a clearer beer.

Like most IPAs, this one is at its biggest in hop aroma and flavor when fresh. You can ignore my hopping choices here, but I find that these varieties play well together; the flavors complement each other in ways that make it easy to enjoy the fruity character without feeling like you’re drinking a mimosa.

MAKE IT

Peachtree American IPA

This is a throwback recipe with a tad more malt backbone and sweetness than today’s leaner West Coast–style IPAs. It’s also relatively low ABV, which helps the hops come through brightly without a ton of dry hopping. Feel free to swap in your favorite newfangled or classic hops.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.058

FG: 1.014

IBUs: 58

ABV: 6%

MALT/GRAIN BILL

9 lb (4.1 kg) two-row pale

1 lb (454 g) Munich

12 oz (340 g) caramel/crystal 20L

8 oz (227 g) British medium crystal 45L

HOPS SCHEDULE

1 oz (28 g) Nugget at 60 minutes [42 IBUs]

1 oz (28 g) Simcoe at 5 minutes [8.5 IBUs]

1 oz (28 g) Amarillo at flameout/whirlpool [7.5 IBUs]

1 oz (28 g) Citra at dry hop

YEAST

Wyeast 1056 American Ale

DIRECTIONS

Mill the grains and mash at 152°F (67°C) for 60 minutes. Recirculate until the runnings are clear, then run off into the kettle. Sparge and top up as necessary to get about 6.5 gallons (25 liters) of wort, depending on your evaporation rate. Boil for 60 minutes, adding hops according to the schedule. After the boil, turn off the heat and conduct a whirlpool step: Stir to create a vortex, then add the whirlpool hops and steep for 15 minutes. Chill to about 65°F (18°C), aerate well, and pitch yeast. Ferment at 69°F (21°C) for 6 days, then add the dry hops and hold at 69°F (21°C) for 3–5 more days. Once the beer reaches terminal gravity, crash, package, and carbonate to about 2.5 volumes.



PHOTOS: MATT GRAVES/MGRAPHS.COM

LEARN FROM THE PROS

With Craft Beer & Brewing Video Courses through Your **All Access** subscription!

Craft Beer & Brewing's online courses can help you become a better brewer, one video lesson at a time. More than 70 courses (and counting)—led by some of the best in the business—are included with your All Access subscription. We launch a new course every month! Learn how to brew beer like the pros, with courses that include:

- » Brewing Farmhouse Ales and Table Beers with Jester King
- » Brewing Modern IPAs with Pinthouse
- » How to Brew Clean Hard Seltzer
- » Brewing Black Is Beautiful Imperial Stout with Weathered Souls
- » Practical Food & Beer Pairing with Greg Engert
- » Brewing Bavarian-Style Weissbier with Bluejacket's Ro Guenzel
- » Brewing Food-Inspired Beers with Aslin
- » World-Class Beer Service with Greg Engert
- » Brewing Imperial Stouts with Perennial
- » Brewing Session Beers with Rockwell
- » It's a Parti-Gyle Party with Main & Mill
- » Brewing Unique Beers (without Hops)
- » Brewing Milkshake & Sour IPAs with Narrow Gauge
- » How to Fix Sh*t in Your Brewery, with 2nd Shift
- » Mastering Barrel-Aged Stouts with Side Project
- » Kettle-Souring with Resident Culture
- » Brewing with Alternative Grains
- » Producing Superior Ales with All Sevens Brewing
- » Advanced Adjunct Methods with Burial Beer
- » Advanced Hopping Methods with Resident Culture
- » Historical Brewing in the Modern Era
- » Spontaneous Brewing with Fonta Flora
- » Fundamentals of German-Style Brewing
- » Brewing Industrial Arts Wrench IPA
- » How to Brew Great Stouts

And more!

Become an All Access subscriber today at:

beerandbrewing.com/subscription

Don't Miss These New Classes!



Enzymes and Other Tricks for Boosting Hop Aroma, the Alvarado Street Way

Alvarado Street's JC. Hill leads this master class in using knockout hops, yeast, enzymes, and other techniques to squeeze the most aroma and flavor out of your hops.



Russian River's Complete Course on Oxygen in the Brewhouse, from Mashing to Packaging

In this video course, Russian River cofounder and brewmaster Vinnie Cilurzo and head lab technician Taylor Lane discuss all the facets of oxygen that affect beer quality—for pros and homebrewers alike—from happy yeast to airtight packaging.



Dunkles Bock

I love brewing bocks. It might be because when we think of lager, we tend to think of pale ones such as pilsner and helles. Then we go down the lager rabbit-hole and learn about festbier, schwarz, and dunkel, and odder things with odder names—including a few that seem to have something to do with goats. Thus, we discover the bock family.

Somewhere between hefty doppelbocks and pale heller bocks, the traditional dunkles bock (or dark bock) is like the family's middle child. It doesn't get the attention of the other two, but this dry, malty strong lager is one you'll want in your fridge year-round.

Style: One way to think of this style is as a kind of strong märzen. It has a lot of the same flavor characteristics: richly malty, plenty of toasty melanoidin-derived flavor, bitterness to balance, and a dry finish. However, this is a stronger beer, typically checking in between 6 and 7 percent ABV. That alcohol adds some sweetness of its own, and I've judged many in competition that lacked enough bitterness to balance it. We'll be intentional with our ingredients here and shoot for a strong, warm, malty, dry, medium-brown lager.

Ingredients: A two-to-one ratio of Munich to Maris Otter starts us on the right track—here, we want rich and bready, rather than the honey-like quality that we might get from a load of pilsner malt. To increase that malt complexity while avoiding too much sweetness, we add layers of Caramunich, Briess Special Roast, and CaraRye. These add melanoidins, toast, and a malt flavor that stops just short of roasted. Note that the gravity here is approaching doppelbock proportions, but the effect will be drier. Hops are easy: 30 IBUs of anything at the start of the boil. That may seem high, but it will help balance that malt and round out nicely with age. For the yeast, the Bavarian Lager strain (Wyeast 2206) is perfect. It attenuates well enough (up to 77 percent) but doesn't have the same "crisp" character that we get from some other strains. We want malty, and this strain delivers—though it does have one commonly cited drawback ...

Process: If there's one thing you want to avoid here, it's diacetyl, and the Bavarian Lager strain is prone to it. Diacetyl will make your beer seem slick and sweet, which is the antithesis of what we want here. However, this is nothing to worry about if we pay attention to time and

THE CRUCIBLE™

CONICAL FERMENTOR

The rotating racking arm and large pro-style tri-clamp bottom dump will have you racking crystal clear beer and harvesting yeast like a pro!



**THE PRO LOOK,
NOT THE PRO PRICE.**



Conical bottom collects yeast, hops, and trub

Eliminates need to transfer to secondary fermentor

Collect and reuse yeast

Tri-clamp bottom dump

Rotating racking arm for sediment-free transfers

Durable stainless steel construction

Embossed level markings never wear off

ANVILBREWING.COM

temperature. Start your fermentation low—like, alarmingly low—as low as 45°F (7°C). Don't worry if it takes a while to get fermentation rolling; the colder you start, the better off you'll be. Chill your wort, refrigerate it below 50°F (10°C), then pitch and take the temperature the rest of the way down, if you're not there already. Once fermentation starts, wait four or five days, then start slowly raising the temperature by a degree or two per day, until you hit 60°F (16°C). We want to ensure a thorough cleanup of all diacetyl and precursors. Once airlock activity stops, yank the beer and leave it at room temperature for two weeks before crashing. Don't rush, start cool, and finish warm, and you'll get an excellent strong, clean, and dry lager.

A great bock is almost as much fun to smell as it is to drink—a luxurious grist showcase. You can take your time drinking it as well as making it—this one will keep in the fridge for a year or more. 🍺

MAKE IT

Sauber Traditional Dunkles Bock

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.076

FG: 1.020

IBUs: 30

ABV: 7.5%

MALT/GRAIN BILL

8.8 lb (4 kg) Munich

4.4 lb (2 kg) Maris Otter

7 oz (198 g) Caramunich

7 oz (198 g) Briess Special Roast

3.5 oz (99 g) CaraRye

HOP SCHEDULE

0.75 oz (21 g) Columbus at 60 minutes
[30 IBUs]

YEAST

Wyeast 2206 Bavarian Lager

DIRECTIONS

Mill the grains and mash at 151°F (66°C)

for 75 minutes. Recirculate until the runnings are clear, then run off into the kettle. Sparge and top up as necessary to get about 6 gallons (23 liters) of wort, depending on your evaporation rate. Boil for 60 minutes, adding hops according to the schedule. After the boil, chill below 50°F (10°C) if possible, preferably to 45°F (7°C), cooling the wort overnight if necessary. Aerate the wort thoroughly and pitch the yeast. Ferment between 45–50°F (7–10°C) for up to 5 days, then slowly raise the temperature over the next 10–14 days to 60°F (16°C). When fermentation is complete, allow the beer to further condition at room temperature for another 14 days, then crash to 35°F (2°C), package, and carbonate to about 2.25 volumes of CO₂.

BREWER'S NOTES

Single-malt variation: I recently brewed a version of this where I replaced the grist with 100 percent Munich from a local craft maltster, with great results. Could be worth a try!

BREWEASY™ COMPACT

18 LBS
GRAIN CAPACITY

5 GALLON
BATCH SIZE

PRECISE
FLOW CONTROL

TRI-CLAMP OR
NPT FITTINGS

GAS OR
ELECTRIC

CUSTOMIZABLE
OPTIONS



NEW ORDER YOURS
TODAY

**Brew big in small spaces
with BrewEasy™ Compact,**
the best all-grain, ultra-compact
brewing system available.

With a setup that combines
batch sparge efficiency, brew-
in-a-bag simplicity, and the wort
clarification of a RIMS system, you
can gain space and speed without
compromising quality.

STARTING AT **\$808**

BLICHMANN
ENGINEERING™

blichmannengineering.com

BREAKOUT BREWER

The Soul Searchers

After collective decades in beer, the team behind **Foam Brewers** finally get to run their own show. **By Kate Bernot**

FROM A DISTANCE, FOAM BREWERS in Burlington, Vermont, checks the requisite boxes for a young, hype-generating brewery—sticker-labeled 16-ounce cans, a destination taproom in New England, massive buzz around its rare out-of-state beer drops, and an Instagram following more than 71,000 strong. Yet Foam Brewers has an old soul that belies its five-year history.

Its ethos harkens to the earliest motivations of the craft-beer movement: stylistic experimentation, support for local farmers and artists, pursuit of quality, and a commitment to running a small business the right way. Its founders are fine with the idea of Foam's popularity, so long as that popularity is tied to the quality of beer.

"It's great to be liked," says Jonathan Farmer, Foam's creative director. "At the same time, we've always tried to stay true

to the tenets of what we started Foam on. Everyone evolves over time, but we try to make sure that we're not being pulled in one direction just because that's where [trends] are going. We really are trying to stay true to who we are, and when that aligns with what everyone's liking at the moment, that's great."

This wisdom reflects the brewery's long view of the industry. Foam opened its doors in 2016, but its founders have decades of experience in the Vermont brewing industry; brewmaster Todd Haire logged a combined 15 years at Magic Hat and Switchback. Foam is the culmination of all five partners' desire to build the creative, locally rooted brewery that *they* wanted to work for.

"We never promoted anything; we just delivered," Haire says. "If that travels by word of mouth, then that's cool."


And yes, word has traveled. Bryan Ferguson, cofounder and president of the New England independent beer distributor Craft Collective, says his Instagram messages are flooded on the infrequent occasions that he has Foam beer to sell. This popularity isn't superficial, though: As Foam intended, it's the result of hard work and good beer.

"My sense is that everything they do, no matter how large or small, is pretty carefully considered," Ferguson says. "I think that shows through in the quality of their beer, and the quality of their [taproom] experience. I remember an early visit there where one of my colleagues commented on how nice the soap in the bathroom was."

Getting Priorities Straight

Foam strives to stand on three main pillars: supporting the local Vermont economy, taking care of staff and business collaborators, and making great beer. The brewery's acclaim has allowed it to spend money on all three.

Foam doesn't make a big show of its local supply chain, but about 50 percent of its base malts come from maltsters and growers in New England: NEK Grains and Nitty Gritty Grains of Vermont and Valley Malt in Massachusetts. Because of some current constraints on those suppliers, that percentage is lower than it once was; a few years ago, 75 percent of Foam's base malts came



"To buy local is expensive. But at the end of the day, that money that people spend on our beer visiting us from out of state stays in our state. That's important to us—keeping the cycle of the economy going."



MAKE IT

Foam Brewers Like Clockwork

Courtesy of the brewing team at Foam, this homebrew-scale recipe is for one of their first double IPAs to enter their regular rotation for can releases. It remains a favorite at the brewery. There are no boil hops—just one substantial whirlpool addition and two dry-hop additions, producing notes of ripe oranges, pineapple, resin, and soft pine.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.074

FG: 1.011

IBUs: 60

ABV: 8.2%

MALT/GRAIN BILL

10 lb (4.5 kg) pilsner

3 lb (1.4 kg) flaked wheat

1 lb (454 g) Weyermann Carafoam

HOPS & ADDITIONS SCHEDULE

4.5 oz (125 g) Centennial at flameout/whirlpool [60 IBUs]

1 lb (454 g) dextrose at whirlpool (optional)

7 oz (198 g) Citra at first dry hop

3.5 oz (99 g) Simcoe at second dry hop

3.5 oz (99 g) Galaxy at second dry hop

YEAST

Omega Yeast OYL-003 London Ale

DIRECTIONS

Mill grains and mash at 150°F (65.5°C) for 30 minutes. Recirculate until your runnings are clear, then run off into the kettle. Sparge and top up as necessary to get about 7 gallons (26 liters) of wort, depending on your evaporation rate. Boil for 90 minutes, shut off flame, and add whirlpool hops. (Optionally, add dextrose if needed to hit target gravity.) Stir to create a vortex for about 5 minutes, then allow 10 minutes to settle. Chill wort to about 68°F (20°C), aerate, and pitch yeast. Ferment at 68–70°F (20–21°C). When the gravity has dropped to the 1.020–1.024 range, add first dry hops. After a few more days, when fermentation has stopped, add second dry hops (dumping the previous hop trub, if possible). After 3 more days, crash, package, and carbonate to about 2.5 volumes of CO₂.

BREWER'S NOTES

Consider local ingredients: At Foam we use a lot of locally grown and processed craft malt. We also use a lot of local hops in the whirlpool—specifically Centennial from Champlain Valley Hops or Whitefield Hop Yard.

Water: Our brewing water in Vermont is very soft, which makes for great soft, hoppy beers. We do add a small amount of calcium chloride to the mash; we recommend adding 6–8 grams, depending on your water profile.

Mash pH: We acidify our mash to hit a target pH of 5.3.

Double whirlpool: Occasionally we take the whirlpool a step further, sending the hopped wort through a loop we designed to cool the wort down to 175°F (80°C), then we do a second larger whirlpool addition for an extra hop punch. At that temperature, isomerization is negligible, so there's no extra bittering—but huge flavor potential.



The fact that Foam has enough cachet to sell its beer out of state means it can put money toward its priorities: farmers, staff, and beer quality. They are harnessing hype, and then they are reinvesting it.

from New England suppliers. It also has a relationship with Vermont's Champlain Valley Hops, which pelletizes a specific blend for use in some Foam IPAs and double IPAs.

"It does come at a premium," Haire says. "To buy local is expensive. But at the end of the day, that money that people spend on our beer visiting us from out of state stays in our state. That's important to us—keeping the cycle of the economy going."

It's a similar story with the limited out-of-state beer drops and direct-to-consumer shipping that Foam launched during the pandemic. It had never intended to distribute beyond Burlington, where it self-distributes, but COVID's blow to the taproom during the already-slow winter months in Vermont meant the brewery needed to find other ways to sell beer and keep staff employed.

Through limited distribution and direct-to-consumer sales, Farmer says, "we can really do some of the things that allow us to be a more stable, sustainable business for our team." Foam has increased employee pay and benefits, hired more people in management roles to spread out responsibilities, sent its entire production team to the 2021 Craft Brewers Conference in Denver, and hired a third-party organization for training sessions with a strong focus on sexual harassment, safety, equity, and inclusion.

Distribution also gave the brewery a little extra cash to spend on technical upgrades, including buying a centrifuge and overhauling its draft system to reduce losses and improve beer quality. As Farmer sees it, the fact that Foam has enough cachet to sell its beer out of state means it can put money toward its priorities: farmers, staff, and beer quality. They are harnessing hype, and then they are reinvesting it.

New Beer and Beyond

Strong sales are helping to diversify Foam's taproom draft list beyond the best-selling IPAs and double IPAs. In its early years, Foam didn't have enough tanks to devote to lagers, which take longer to ferment, or to beer styles that wouldn't sell as quickly on draft. Now, the brewery is adding tanks so it can devote space to lagers, hefeweizens, and other non-IPA styles year-round.

"Initially it was like, 'How can we put a lager in a tank when it sells one-fifth as fast as the IPA, and we're running out of tank space?'" Farmer says. "We'd get down to just one or two beers on draft at the brewery on a busy summer holiday weekend."

Diversifying its offerings continues to be a goal for Foam. Haire has been spending much of his time at House of Fermentology, a Charlotte, Vermont, blendery that he co-owns with longtime homebrewer, author, and fellow beekeeper Bill Mares. The blendery is focused on wild ales and mixed fermentation. (House of Fermentology beers also appear on draft at Foam and at Deep City, Foam's restaurant adjacent to the taproom.)

Meanwhile, Foam has been quietly tending 1,000 Marquette grapevines, part of a defunct vineyard that the brewery purchased two years ago. Haire hopes to use juice from those grapes to make natural wine influenced by his mixed-fermentation beers. They bottled the first release in that vein, a sparkling Marquette wine, at the end of 2021.

After five years of trying to grow Foam, ensuring that there was enough beer to serve at the taproom, and guiding a small business through a pandemic, Haire says he just looks forward to getting back to what has always motivated him: making cool beverages.

"For Foam, beer is the sun, and we have so many planets that revolve around that," Haire says. He contrasts the varied projects in which he's involved at Foam—from beekeeping to winemaking—with the rote production brewing he did at previous jobs.

"You have to step out of that day-in and day-out thing, or it's hard to have inspiration," he says. "Dreaming is always a big part of creative outlets."

Forward Motion

Foam is hoping 2022 will be a year of renewed creativity and inward focus after two years of dodging pandemic-related curveballs. In addition to beekeeping and winemaking, Haire looks forward to more time to play in the brewhouse.



Haire and Foam's other brewers, Bob Grim and Josh Bayer, are clearly a group that doesn't mind tinkering: In February, Foam released a salted IPA called Smirk of the Dolphin, a collaboration with local band The High Breaks, which had released an album—a "surf rock opera"—of the same name. (It tells the story of a man who falls in love with a dolphin.) Brewed with passion fruit and a gose-like level of salt, the beer was well received—and it was a chance for Foam to, once again, try something new.

Lately, the brewing team has enjoyed the natural carbonation produced by

spunding, applying the technique to double IPAs to produce a smoother mouthfeel. Haire and the team have also tried using a spunding valve to suppress the strong esters in a Bavarian hefeweizen yeast, with the idea that it could be a fun strain with which to ferment an IPA. (For more about spunding, see "Gearhead: The Force Behind the Fizz," beerandbrewing.com.)

"We like seeing what we can coax out of beer," Haire says. "It comes back to experimentation but trying to take what you have in your head and put it in a glass." 🍺

BREAKOUT BREWER

The Barrel-Riders

Three years after opening in Calgary, **The Establishment** has ridden its mixed-culture creations to the height of respect in Canada's beer scene—winning medals, winning fans, and running out of room. **By Scott Messenger**

ONE DAY, MIKE FONIOK would love to have a coolship. It would be a logical next step in the former mechanical engineer's obsession that began with getting into homebrewing more than a decade ago.

However, that coolship installation won't happen soon, as he and his team are too busy adjusting to the success they've had since opening in January 2019. Anyway, there's nowhere to put it. The Establishment, in an industrial zone in Calgary, Alberta, has become like a very healthy starter culture: a dense state of organized chaos.

Like many breweries, The Establishment is built as a reverse mullet: The party's up front in a tidy, warmly lit taproom featuring clean lines and natural wood; the business is in back, where a narrow, labyrinthine path radiates from a 15-hectoliter (12.5-barrel) brewhouse to two rows of conical fermentors, a canning system, some stray kegs, stacks of empty cans reaching toward the 17-foot ceiling, and a garage-sized walk-in

stuffed with cold, packaged beer for shipping across Alberta.

Maybe it's not fair to call this chaos. Everything is in its right place—if only because there is no other place any of it could be.

"We are desperately out of space," says Foniok, the cofounder and head brewer.

Those shiny fermentors do their share of the work, escorting along a popular selection of everything from hazy pale ales to IPAs to porters, plus occasional oddballs such as an imperial sour, a potato lager, and a Lichtenhainer. However, just across the brewery are the vessels that have played a major role in shaping the reputation of The Establishment: oak barrels stacked three high on their sides. Somehow, they squeezed in about 80 of them.

The contents of those barrels are the reason that the Canadian Brewing Awards in September 2021 named The Establishment the country's best brewery, after it medaled in *Brett* beer, fruit beer, and the barrel-aged

categories. The following month, the brewery also won top honors at the increasingly competitive Alberta Beer Awards, where Foniok and his team placed in mixed-fermentation categories and five others.

Then, that thing happened that brewers always *hope* will happen after winning medals: Sales surged.

"It's still going," says Foniok, looking around the space with an expression that might be acceptance. For now, that coolship is a dream. Really, The Establishment is doing remarkably fine without it.

After the Flood

Foniok and his fellow cofounders—general manager Dave Ronnenberg and Brandon Hart, who keeps a separate day job—are resourceful people. Ronnenberg once lived in a 110-year-old house near downtown Calgary. It was small for two people, let alone one homebrewer with gear. At his wife's suggestion, he moved the brewing operation to the backyard shed—then he insulated and updated the 8-by-12-foot wooden shack into what he christened "ShedPub," complete with a keezer.

Meanwhile, Foniok and Hart were making the most of a disastrous situation. Friends with Ronnenberg through their homebrew club, they lived in a nearby rental house on the banks of the Elbow River. In June 2013, that put it in the path of Calgary's worst flood in 81 years, when intense rain and meltwater off the Rockies to the west caused the Elbow to surge above its banks. The house—the original "Establishment," named after an old-timey sign they found on a snowboarding trip—was inundated. So was the home brewery that Foniok kept in a corner of the basement.

When they were finally able to move back in, the bottom-floor walls had been removed, so brewing took over the entire space.

"That's when the beer journey took a steep incline," Foniok says as we sit in the taproom, joined by Ronnenberg and brewer Natasha Peiskar. "Or decline?"

Ronnenberg smiles. "It's slopey."

Foniok set up a makeshift yeast lab and immersed himself in the "nitty-gritty of homebrewing." Separately, so did Ronnenberg and Hart. They racked up awards, earning BJCP credentials (Foniok is a nationally ranked judge) and experimenting with every style they could. When Alberta's beer scene

“In terms of differentiating ourselves from other breweries,” Ronnenberg recalls, “it’s like, ‘What are we going to do differently?’ Because to a certain extent, you can’t just make better beer than everybody.”



MAKE IT

The Establishment Left My Wallet in El Segundo

A fan favorite at The Establishment, this recipe is a nontraditional take on Lichtenhainer, a light, oak-smoked wheat beer. Pineapple melds with the smoke to create a grilled-pineapple impression. The key ingredient is the oak-smoked wheat—other smoked malts will not have the same effect.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 73%

OG: 1.047

FG: 1.010

IBUs: 6

ABV: 4.8%

MALT/GRAIN BILL

4.6 lb (2.1 kg) German pilsner

4.6 lb (2.1 kg) Weyermann Oak Smoked Wheat Malt

1 lb (454 g) rice hulls

HOPS & ADDITIONS SCHEDULE

Food-grade lactic acid (see below)

0.7 oz (20 g) Hallertauer Mittlefrüh at 20 minutes,
second boil [6 IBUs]

4.4 lb (2 kg) pineapple puree, pasteurized, in primary

YEAST

Lactobacillus plantarum; Escarpment Kölsch (or other clean German ale/Kölsch strain)

DIRECTIONS

Mill the grains, mix with the rice hulls, and mash at 153°F (67°C) for 60 minutes. Recirculate until the runnings are relatively clear, then run off into the kettle. Sparge and top up as necessary to get about 6 gallons (23 liters), depending on your evaporation rate. Boil for 60 minutes without a lid. At flameout, add food-grade lactic acid to adjust pH to 4.5. Cool wort to 97°F (36°C), paying close attention to sanitation during this stage. Pitch *Lacto* and stir with sanitized spoon. Cover with sanitized lid and keep warm (close to 97°F/36°C) until the wort acidifies to 3.6 pH—about 24–36 hours.

Bring the wort to a boil and boil for 30 minutes, adding hops according to the schedule. Chill to about 61°F (16°C), aerate well, and pitch the yeast. Ferment at about 61°F (16°C). Once gravity has dropped to about 1.020, add the pineapple puree and allow the temperature to rise to about 64–68°F (18–20°C) until fermentation is complete and beer passes a forced diacetyl test (see “Hunting for Diacetyl,” [beerandbrewing.com](#)). Rack beer off the yeast and fruit into a corny keg purged with CO₂. Crash and carbonate to at least 2.9 volumes.

BREWER'S NOTES

Bacteria: You can replace the *L. plantarum* with your own favorite *Lacto* strain—a half-cup of probiotic yogurt works, too!

Fruit: You can make your own puree from canned pineapple or, ideally, freshly ripe pineapples. Keep in mind that pineapple has an enzyme (bromelain) that deteriorates head-forming proteins. If using fresh pineapple, consider heating the puree to pasteurization temperatures to denature the enzyme—either boil or hold at 176°F (80°C) for at least 8 minutes—then cool before adding to the fermentor.



started to surge like the Elbow, they decided to ride the wave from hobby to career.

Craft brewing in Alberta started in earnest in 1985 with Calgary's Big Rock Brewery—now publicly traded, with a market cap of just under \$40 million Canadian (about US\$32 million). True small-batch brewing, however, had to wait until the provincial government lifted a minimum production requirement of 500,000 liters per year in late 2013. The industry went from roughly a dozen breweries to about 130 today. They are largely concentrated in Calgary, now one of Canada's top beer destinations.

“In terms of differentiating ourselves from other breweries,” Ronnenberg recalls, “it's like, ‘What are we going to do differently?’ Because to a certain extent, you can't just make better beer than everybody.”

Their hell-bent-on-variety homebrewer mentality would help, but they knew it wouldn't be enough in an industry already defined by shiny new things.

To them, the answer was obvious: Go wild.

The Broken-Wheel Theory

Inspired by barrel-aged beers from the likes of Cantillon and Russian River, The Establishment has focused on mixed-culture fermentation from the start. They've learned a lot about controlling variables—and that they can't control all the variables.

Their first batch fermented in stainless steel with a Belgian ale strain before going into barrels with a fresh shot of wild yeast and bacteria. It was a national award winner—but thereafter, The Establishment opted for a more “laissez-faire” approach, Foniok says. They wanted to align more closely with traditional methods and produce beers with the sophisticated funk of Belgian lambics.

Their goal was to produce pleasant surprises.

“Dave has a good analogy,” Foniok says. “Mixed-culture beer is like pushing a shopping cart with a broken wheel. The brewer can have only so many inputs. You have to be okay with that ... and allow the beer to express itself.”

There are reliable parts of the shopping cart, of course, such as the wort. The Establishment starts its mixed-culture fermentations with pale, red, or brown bases that rely heavily on German pilsner malt, raw wheat, and whole-leaf dried hops. They conduct a turbid mash, in which liquid is removed and boiled before conversion occurs, preserving starch to feed the microbes living in the oak of the barrels and shaping the flavor of the final product. “We're actively trying to preserve those cultures,” Foniok says.

Once the wort is in the barrels, they further inoculate the wort with a house mix of *Saccharomyces*, *Brettanomyces*, *Lactobacillus*, and *Pediococcus*, derived from a previous barrel that produced a desirable beer. Attenuation, which can drop below 1.000, is only one indicator of completion. The team regularly checks barrels for the stabilization of flavor, once the microbes have emptied a pantry that includes not only sugars and starches but also each other's metabolic by-products and autolyzed bodies. Once they have perhaps a half-dozen complementary barrels, the team blends—and shamelessly nerds out on their sensory analysis.

“We’ve got some palates here,” says Peiskar, a certified Cicerone who also has passed the BJCP entrance exam.

“Hell yeah, we do!” Foniok says.

Often, they add fruit, with the base worts influencing their choices of raspberries, blackberries, tangerines, and more. Bottle-conditioned batches sell out almost entirely via the taproom. Normally, they can release a new mixed-fermentation beer every month.

“We almost make beers ahead of the science, or the understanding of what’s behind [the process],” says Peiskar, who has a degree in chemistry and worked in two other Calgary breweries before The Establishment. “There’s a lot of magic to the barrels.”

Some have more magic than others. There are barrels in the brewhouse that have been quietly bubbling away for more than two years and have yet to stabilize for blending.

“We’re excited to see where they’re going,” Foniok says.

Living the Delusion

Those unpredictable barrels are a bit like the brewery: Foniok and team don’t know exactly where the business is headed; they’re just content to enjoy the wild ride that has made them the country’s current most-heralded craft brewery.

While they’d like more space, growth isn’t a priority; it’s been organic. The early days were marked by an almost endearing delusion, Ronnenberg says. “Mike and I were like, ‘We’ll just do everything ourselves! We’re going to make the beer ourselves. We’re going to work the taproom ourselves. We’ll do sales ourselves.’” Reality set in soon after the busy opening weekend. The Establishment now has about 20 staff, most of them full-time.

Yet they remain interested in growth as brewers. The awards have validated their emphasis on variety and experimentation, as well as the artisanal inefficiency that has made it stand out in a crowded market. Only 4 or 5 percent of what they sell is



Clockwise from top left »
Mike Foniok; Natasha Peiskar; Dave Ronnenberg



“Mixed-culture beer is like pushing a shopping cart with a broken wheel. The brewer can have only so many inputs. You have to be okay with that ... and allow the beer to express itself.”



mixed-culture beer, but it takes the most work. They’re proud of that.

While chatting in the taproom, Foniok, Ronnenberg, and Peiskar laugh about the effort demanded by a beer they released a few days earlier: Fraction of the Sum, a zesty golden sour made with British Columbia apricots. When the fruit arrived—400 kilograms—everyone dropped everything. “The fruit’s the boss,” Foniok says. “Production has to stop.”

For a few hours, the owners, brewers, a delivery driver, production staff, and even the bookkeeper pulled up a circle of camping chairs and pitted fruit. (They also used about a third of the pits when aging, producing notes of almond and amaretto.)

“It’s fun,” Ronnenberg says. “You get to sit around and chat.”

It sounds a lot like homebrewing with friends, with everyone excited to contribute to the experiment and hoping for a little magic along the way—even if there is more to worry about these days.

Despite its quick rise, The Establishment isn’t far from its basement-brewery roots, with some ShedPub thrown in for good measure. “The homebrewing community is all about learning new things and trying crazy ideas,” Foniok says. Theirs is a crowded space, but it “allows us to live that dream. That’s very important to us. Luckily, we’re able to continue doing that.”



PICK SIX

Nostalgia & Experience

This six-pack from Heater Allen's **Lisa Allen** is filled with formative beers that she's stuck with through the years as well as inspirational lagers connected to specific beer-hall memories that have influenced the way she brews today. **As told to Jamie Bogner**

THE CONNECTION TO THE past is strong with Lisa Allen. Growing up in a family that brewed and embraced craft beer, she was around it from an early age, and craft beer became ingrained in family rituals—visiting the grandparents or family ski trips. Later, as lager became the focus of the brewery her mother and father founded, she created her own memories by exploring Bamberg and Munich. The beers in her six-pack reflect the impact of these experiences on her as both a craft-beer drinker and a brewer.

Bridgeport Blue Heron

(Portland, Oregon)

"Growing up in Portland, I grew up with the craft beer scene, too. In Oregon, Bridgeport was early on, and their beers were always in our fridge while I was growing up. When I did start drinking, it was one of those first beers that I really started drinking and getting into, beyond the obvious domestic light lagers that you drink when going to college. It was one of those first beers where I was just like, 'Oh, wow, this has flavor.'"

"I loved the citrus notes that you got from it, and it had this really nice malt character to it. And so that, to me, has always been one of my gateway beers."

"When I was growing up, Blue Heron and Deschutes Mirror Pond Pale Ale were two beers my parents both drank, so when I would go home from college and wanted a beer, I'd go grab one of those out of the fridge. This was before I could legally buy my own beer, and with my friends, I was like 'Hey, can you get me a six-pack of this at the grocery store?' It was just one

of those beers—easy-drinking, really nice flavor, and easy to get. I reminisce about it because it reminds me of my first experiences with beer. It's wrapped up in those memories of growing up in a family that loved beer and bought beer and kept being around beer, and it feels like that classic and consistent thing. Then, when I could buy beer myself, I'd think 'Oh, I want to buy a good beer. What do I recognize?' Of course, I recognized Blue Heron because of my parents, and I trust their palates."

Mahrs Bräu Ungespundet

(Bamberg, Germany)

"Ungespundet immediately came to mind because it's one of my all-time favorite beers. It's just so drinkable and very approachable. I think of it as a beer that really made me. When I first had it, I aspired to make a beer like this, just because it's so approachable. I had a pretty fresh batch the first time I had it, and then I actually was able to go to Bamberg and have it at the source. My cousin had to drag me out of there because we had plans for the day, yet I wanted to stay at Mahrs Brau and keep drinking it."

"It's one of those memories of place, too. Going there and drinking it in winter-time—it was cold outside, there was a fire going—that memory cements it as one of my all-time favorites."

"It's more of an amber lager, so it has this nice bread, almost yeasty, character to it and a really nice spicy floral-hop character. But it's so approachable and drinkable—everything is just so well-balanced, and nothing is out of place. It's one of those beers that keeps me engaged, beer after beer."

Schlenkerla Märzen

(Bamberg, Germany)

"I'm going to stick with the Bamberg route for this next beer because the Schlenkerla Märzen is a favorite of mine as well. To be honest, the first time I tried it, I didn't care for it. But later, after my palate had developed, I was able to try it again at the source, and it made me realize just how delicious smoked beers can be. Schlenkerla's approach is smoky but very much in balance with a light malt character, and the smoked flavor is not overdone. After drinking it for a while, you forget you're even drinking a smoked beer."

"It's great with food, and the more I got into it, the more it made me want to make a beer like that. Like the Mahrs Bräu beer, this Schlenkerla beer inspired me to go back to the drawing board with smoked beers. We had made a couple, and I hadn't been super-happy with them. Going to the source and having it there gave me a better appreciation for the style and a clear idea of the direction we should take our smoked beers. You need to have some sweetness, but it can't be too sweet, if that makes sense. Schlenkerla captures that nice malty sweetness while still finishing dry, and that's really important to this kind of beer. It has to be drinkable. Smoked beers get a bad rap, and a big part of that is that many of them are just not well-made. You need that malty flavor with the dry finish to make them work."

Deschutes Obsidian Stout

(Bend, Oregon)

"This is another nostalgic pick that goes back to my early days of drinking craft beer. One of my favorite things to do when I go to Bend is to go to the Deschutes pub and get an Obsidian Stout on nitro. It's just a well-made stout, and it has stood the test of time—to this day it's just delicious. Like a lot of beers on my list, it's a beer you could have multiple of—it's a very drinkable stout, but it offers that nice warming feeling when it's cold outside and you want a dark beer."

"In the pub, they have a newer area and the old pub side. I always like to go sit at the bar, which feels a bit like an old-school dark pub, and I'm like, 'It's cold and dark, I'm gonna drink my stout.'"



“My grandparents retired to Sun River, which is just south of Bend, so Deschutes was another brewery I grew up with. We would always go through Bend on the way to Sun River and pick up a couple growlers—then it became tradition. Once I got old enough to drink, after a day skiing, we’d go back to Deschutes, and we’d get lunch and some beers. And you know, once you’ve been up on a cold mountain all day, nothing is better than a stout.

“It still tastes every bit as good today as it did when I first had it. It’s still delicious with rich dark chocolate, coffee flavors that you expect from a stout, but it’s not overly sweet. I’m not a huge fan of the super-sweet. And it’s probably no surprise that I gravitate to beers that finish nice and dry. But still, it has a kind of lingering roasty character to it as well that’s nicely in balance.”

Augustiner Edelstoff

(Munich, Germany)

“I’ve been back-and-forth on this one, but I think I have to go with Augustiner Edelstoff, a helles. I keep going between that and their Festbier, but I think Edelstoff wins out. Again, this was a beer that I had originally in the States, and I got a fresh bottle

of it. Then after trying it over in Munich, it was just a whole other experience. I love their helles—I mean, I love all of Augustiner’s beers, pretty much—but I think their Edelstoff is just really, really well-made. The fact that it’s more of an export helles works in its favor—I have some people who bring me some back from Germany, and it still tastes delicious, even after making the trip. I think sometimes helles can be a little bit worn after traveling over the ocean and the continent. Again, it’s one of those beers that’s really well balanced. It has nice malt character, nice hop character to it. And it’s something that I could drink multiples of, sitting in a beer hall.

“With the malt character, whereas the Mahrs Bräu is almost bready, I’d describe the Edelstoff as more crackery crispness. And again, I love German Noble hops. This also has a nice spicy character and a little bit of the floralness, but it’s not overwhelmingly floral—just nice, typical spicy hop character you would expect from Noble hops. I’m not sure what hop variety they actually use, but now I’m curious. It just has this nice mouthfeel quality to it, too. And it’s one of those beers that I could drink for days in a German beer hall.”

Wayfinder CZAF

(Portland, Oregon)

“I know, I know. CZAF is my partner Kevin [Davies’] beer, but I chose this beer not to give him a shout-out, but because I started drinking it when Wayfinder opened. I don’t think they’d even named it CZAF the first time I had it.

“When Wayfinder first opened, they were talking up all that they were doing, and all they were going to do, and all of that sort of stuff. I was like, ‘Okay, I’ll believe it when I see it.’ And then going and actually trying the beer, I was like, ‘Okay, shit, yeah this is really fucking good.’ And now it’s one of my go-to pilsners outside of my own. I’ve consumed so much of that beer—it’s a really good example of a Czech-style pilsner. A lot of people are really surprised by that bitterness when they try it, but if you try a pilsner over in Germany or the Czech Republic, it’s going to have bitterness to it because a pilsner is supposed to be bitter.

“I don’t know if it’s because of the American domestics that are like, you know, ‘pilsner.’ But I feel like there’s this general misconception that pilsners are not supposed to be bitter. They very much are *supposed* to be bitter. That is one thing I will preach to the masses (or try to do, anyway). I do think Czech pilsner is more bitter than German pilsner, but a German pilsner should have bitterness to it, too. I think the impression may come because by the time these European pilsners get here ... I mean, I can tell it from my beer. If I stick a can of my Pils in the back of a fridge for six months and then open it up and try it, it’s not going to be super-bitter either. But if you drink it fresh, and close to the source, you know it should have a nice bitterness to it.

“CZAF starts with the traditional golden color, and on first whiff you can just tell it’s Saaz hops. Then you taste the bitterness but with this sweeter malt character typical of Czech pilsners, which again does not mean that it should not be bitter. Then it finishes dry.

“When I used to go to Portland a lot more frequently, I’d go to Wayfinder, and the bartenders just knew. Almost immediately, I’d sit down, and without asking, I’d have a CZAF in front of me.”

Gregg Spickler, director of brewing operations at Alamo Brewing in San Antonio, connects the foam trap between a fermentor and the Earthly Labs CO₂ recapture system.

GEARHEAD

Recapturing CO₂: It's a Gas

Brewers are dumping their blow-off buckets and reusing precious carbon dioxide rather than releasing it into the atmosphere. The benefits include cost savings, reducing greenhouse emissions—and, some say, better beer. **John M. Verive** has the details.

DO YOU KNOW WHERE the bubbles in your beer come from? It may not be *exactly* where you think.

Yeast, of course, produces the carbon dioxide (CO₂) along with ethanol and all those tasty esters and phenols. However, only a small percentage of craft beer contains carbon dioxide produced during its own fermentation. Most of that gas escapes into the atmosphere, bubbling away in blow-off buckets and adding to greenhouse-gas emissions. Most canned, bottled, and kegged beer is force-carbonated and packaged with bulk CO₂, which local suppliers deliver to the brewery at regular intervals.

Busy breweries tend to operate like machines, and using CO₂ from bulk suppliers is one of those cogs in the machine that just works. Few give much thought to all that gas produced by the yeast. It just bubbles out into the atmosphere because it's easy and relatively cheap to purchase CO₂ from a third party. After all, gas is gas. Right?

Seen in a different light, it's the kind of absurd inefficiency in the system that would make Rube Goldberg proud. Instead of using everything the yeast creates, a brewer discards hundreds of pounds of CO₂ as a by-product of each fermentation—only to turn around and buy someone else's by-product.

Because that's where all that bulk CO₂

comes from: It's a by-product of other industries. In much of the United States, bulk CO₂ comes from the process that turns corn into ethanol fuel. Natural-gas mining and the refining of petroleum account for another big chunk of it, while in the United Kingdom most CO₂ comes from fertilizer production. While it's true that a CO₂ molecule is a CO₂ molecule whether it came from a brewery or a fertilizer plant, it isn't that simple when we talk about getting that gas into a beer.

Carbon Dioxide Recapture

How can breweries harness the full potential of fermentation and close that loop? The biggest roadblock for a small brewery using the CO₂ it produces is mainly one of process.

It's certainly possible to naturally carbonate beer—even draft beer. In Germany, where adding external CO₂ runs afoul of

the beer purity laws, natural carbonation is achieved with a spunding valve during fermentation (see “Gearhead: The Force Behind the Fizz,” beerandbrewing.com). Interest in spunding among American brewers appears to be rising alongside that of traditional lager, and it's something that even homebrewers can do.

For larger breweries making hundreds of thousands of barrels a year, CO₂ recapture systems are more common—and they are an example of how, even when it comes to sustainability, economies of scale favor the giants with processes and purchasing power unavailable to smaller breweries. CO₂ recapture systems are seven-figure capital investments offered by the likes of GEA and Atlas Copco. They require hundreds of square feet of space and dedicated operators to keep them running. When you weigh that against the ease and affordability of bulk CO₂, it's an easy decision to rely on bulk gas.

However, as sustainability practices gain traction among independent brewers and the focus on CO₂ emissions intensifies, more brewers are looking for ways to use

CO₂ recapture systems are an example of how, even when it comes to sustainability, economies of scale favor the giants with processes and purchasing power unavailable to smaller breweries.

PHOTO: COURTESY EARTHLY LABS



the gas they already make. The problem: Until recently, there wasn't an economically feasible solution for a brewery making less than 100,000 barrels annually.

Perhaps the first craft brewery to implement a CO₂ recapture system was Alaskan in Juneau. The remoteness of the brewery meant that bulk CO₂ was much more expensive than in the Lower 48. As cofounder Marcy Larson says, "Where we are drives what we do." The brewery added the CO₂ recapture capability with a solution offered by the Germany-based Pentair back in the 1990s. Larson says she's surprised the technology hasn't caught on more widely among other craft brewers.

Across some 3,000 miles of Pacific Ocean on the island of Maui, another brewer is using a similar recapture plant from Pentair. Maui Brewing is an industry leader in sustainability initiatives, from water-use reductions to solar power to CO₂ recapture. And while the positive environmental aspects of the efforts are primary, there are other considerations at play.

"Maui has a shitty electrical grid," says Garret Marrero, the brewery's cofounder and CEO. With the abundant sunshine in the tropics, solar power was an easy call to make. A sizeable array of panels and Tesla Powerpack batteries comprise the brewery's "microgrid," which is now almost independent from Maui's electrical utility.

Hawaii also is one of the most expensive CO₂ markets in the country, and that cost has doubled in Maui's 16 years of brewing. Limited local production also means shortages and short-term price increases are not uncommon. That cost and volatility drove Marrero to look into CO₂ recapture systems. He began to work with Pentair, which was developing their Haffmans CO₂mpactBrew recovery system.

With a footprint of a 40-foot shipping container, the Haffmans system has offset Maui Brewing's CO₂ requirements but hasn't completely replaced the need for bulk CO₂ deliveries. The system is complex, requires regular maintenance, is prone to downtime, and can collect gas only from a subset of the brewery's fermentations. "It can be frustrating at times, but we knew what we were getting into," Marrero says about being an early adopter of the tech, "and we feel that it's our duty to do more with less."

The potential cost savings, independence from local suppliers, and direct reduction of CO₂ emissions all combined to make CO₂ recapture a worthwhile project for Maui Brewing.

The most surprising thing about the system wasn't the ease of installation and setup nor the efficiency of capturing what was previously just a waste product. The biggest surprise was the qualitative improvements that the recaptured CO₂ made to Roadhouse's beers.

As I was talking to Marrero, he mentioned that he was actually in Wyoming on his way to Roadhouse Brewing in Jackson Hole for a collaboration. He also mentioned their smaller-scale CO₂ recapture system from Earthly Labs.

Recapture Solutions for Smaller Breweries

When I started my investigation into how craft breweries were approaching CO₂ recapture, I expected an assortment of available technologies and solutions. The reality is that the low cost and wide availability of bulk CO₂ meant that not many brewers were willing to invest in recapture equipment, while manufacturers were focused on the largest craft breweries.

Earthly Labs aims to change that.

Founded in 2016 in Texas on the back of proprietary technology that purifies and dehydrates captured gas then compresses it for storage, Earthly Labs has pushed to get their plug-and-play recapture system—dubbed the CiCi—into as many craft breweries as possible. They began with the local market in Austin and are now expanding to other beer hotspots around the country.

Jon Courtois, production manager at Roadhouse in Jackson Hole, was eager to talk about his experience with Earthly Labs and the CiCi system that's installed at the Roadhouse production brewery. "It's a no-brainer solution," he says, "And it didn't take a lot to convince the brewery leadership."

From the outset, cofounders Colby Cox and Gavin Fine set up Roadhouse with a commitment to sustainability and respect for the stunning natural environment that surrounds Jackson Hole. The Earthly Labs CiCi fits with that commitment while saving money and improving the safety of their brewery. They also insist that it improves the flavor of their beer.

"It's a feather in our cap, a point of pride," Courtois says. In an Earthly Labs informational webinar recorded recently, he estimates that the brewery will recoup

the cost of the CiCi unit—about \$150,000 after delivery and installation—in just three years. That's without considering the possibility of selling any excess CO₂ the brewery recaptures on the system.

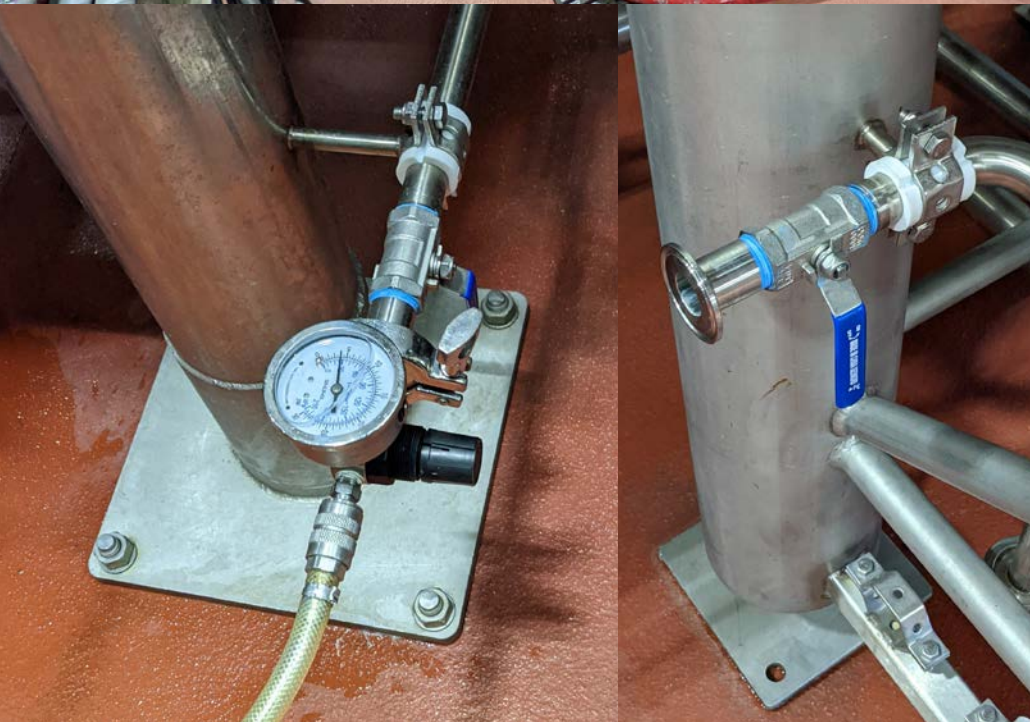
The Earthly Labs system includes a few discrete components. The main unit—about the size of a commercial refrigerator—contains the dehydrator and compressor at the heart of the setup, along with an array of sensors that control the process; a pair of foam traps connected between the fermentation vessels and the CiCi prevent solids from entering the system. During active fermentation, CO₂ travels through the foam traps and into the CiCi. The unit dries the gas, scrubs it of impurities, and compresses it into a storage flask for use later in the brewing process.

Courtois says the most surprising thing to him about the system wasn't the ease of installation and setup—two days after delivery, it was up and running—nor the efficiency of capturing what was previously just a waste product. The biggest surprise, he says, was the qualitative improvements that the recaptured CO₂ made to Roadhouse's beers.

"Without question, the beer is better," Courtois says. "You have to see it to believe it."

Initially, the brewers and production staff were skeptical of claims that the system would improve quality. However, extensive sensory panels and analysis of both the recaptured gas and beer carbonated with it have convinced them.

The key is in the purity of the CO₂ that the CiCi sequesters. While food-grade bulk CO₂ is about 99.9 percent pure, that 0.1 percent of stuff that's *not* carbon dioxide can include hydrocarbons, sensory-active molecules, and oxygen. That doesn't sound like much, but in an article titled, "Understanding and Ensuring CO₂ Supply Quality for Brewery Use," the Brewers Association puts that into context: That 0.1 percent equates to 1,000 parts per mil-



lion—a concentration that is one to four orders of magnitude higher than many of the flavor-active components in hops.

The biggest worry for brewers might be the trace oxygen possibly present in bulk CO₂. Courtois says the recaptured CO₂ from the Earthly Labs system shows single-digit O₂ levels—a difference that “allows the brewer’s vision to shine with better head retention, better lacing, and a cleaner, more vivid aroma.”

A Matter of Scale

In speaking to more than a half-dozen brewers using the Earthly Labs systems or looking to add carbon-capture capabilities, the closest thing I hear to criticism of the system—beyond comments about the six-figure up-front

cost—is when Kevin Brand, owner and founder of (512) Brewing in Austin, says, “I wish we could use it more.”

He says the system works best when connected to an active fermentation in one of the brewery’s 120-barrel fermentors, though 30-barrel and larger vessels also are compatible with the CiCi. “The most exciting part isn’t the money we’re saving, but the feeling we get when we’re running the system,” Brand says.

Brand was an early adopter of the CiCi in Austin, and he worked closely with Earthly Labs to iron out wrinkles in the first implementations. The CiCi’s current iteration, known as the Oak, works best at breweries that produce between 5,000 and 20,000 barrels annually.

Amy George, founder and CEO of Earthly Labs, calls it a “one-size-fits-most solution,” adding that the company is developing both smaller and larger units. Meanwhile, demand for the units is surging—along with the lead times.

Beyond the initial cost of the system, there’s a nominal operating cost as the carbon-filter medium needs to be changed regularly. (Earthly Labs includes a year of replacement medium in the up-front cost.) The compressor uses some power; George estimates that the energy required costs less than \$1,500 per year. “I didn’t notice a change in our electric bill,” says Brand at (512).

Other benefits are less obvious at first glance.

At Colorado’s Denver Beer Company, the CiCi wasn’t a perfect replacement for bulk CO₂, but there was enough value in the recaptured CO₂ to make the system attractive.

Denver Beer produces about 25,000 barrels a year—on the high end of what the current CiCi model can handle. The brewery still uses a bulk tank to carbonate its beer. Instead of carbonating, the recaptured CO₂ pushes beer through the draft systems in the brewery’s three taprooms, replacing the costly CO₂ deliveries at the retail outlets. More significantly, they sell any excess recaptured CO₂ to a Denver-area cannabis-growing operation.

“We’re super-happy to have the CiCi,” says Denver Beer founder Patrick Crawford. “It’s a great marketing tool.”

Of course, the initial capital outlay is nothing to sneeze at. In much of the country, CO₂ still costs less than 25 cents a pound, and that could push the return-on-investment past four or five years. However, many Earthly Labs’ clients have used creative financing agreements, partnerships, or government grants to soften that blow. Those clients also say that using the CO₂ from their own fermentations is a value-add greater than the line item on the balance sheet.

One obvious barrier is that not many breweries can use this tech yet. Earthly Labs’ current offering is meant for breweries of a certain size. Bart Watson, chief economist at the Brewers Association, says that only 4 or 5 percent of the country’s breweries are in that range of 5,000 to 20,000 barrels a year.

However, the smaller units in development will unlock a larger chunk of the market. If the technology eventually proves cost-effective for most breweries, the days of bubbling blow-off buckets could be numbered.

COOKING WITH BEER

Pizza Power:

Making the Familiar Wild & Spontaneous

John Carruthers, the man behind Chicago pop-up **Crust Fund Pizza** (and communications manager at Revolution Brewing), maps out the path to getting as geeky about pies as you are about beer—and cracks open a few Belgian beers along the way.

IT'S HARD TO THINK of a more universal pairing than pizza and beer. Both are celebrated for being good even when they're bad. Both are also beneficiaries of rabid fan cultures pushing innovation, tradition, and intense examination of nuance.

If you want to break out the gram scale and debate dough hydrations intensely, you can do that. If you'd rather kick back, order a pie, and tune in to see whether the giant robots can defeat the city-stomping monsters, you are having an equally excellent time with the form. It's the kind of public-friendly combo that also features deep and expansive rabbit holes into which you can fall and get lost at will. Honestly, it's the same kind of energy that drew a lot of us to beer in the first place.

You may not know *why* a pizza is one of the best you've ever had, but you know *when* it's happening. It's the same with the confrontational, labyrinthine, stunning flavors of Belgian ales. A matrix of checks and balances in the technique soars onto the palate with aromas, flavors, and body that demand a reaction.

Two great things that work beautifully together—as complex (or as simple) as you could want.

Let's Dough This!

Dough is the quantitative-science wing of the pizza-making craft. Protein and hydration are the message-board keywords

that pizza enthusiasts use to signal to each other that, why yes, I *do* spend a lot of time pondering pizza, and no, the woodworking and genealogy hobbies didn't stick, *thankyouverymuch*. Weighted dough recipes across styles—yes, there are styles—can seem overwhelming at first, until you get comfortable tweaking your own recipes and realize it's a key to the universal pizza language. Measuring in grams might seem fussy or complicated, but it's the quickest route to consistently great pizza. No measuring cups, no sifting, textural concerns—just throw it all in a bowl and wait until the number hits right. And you're going to feel like an X-Man the first time you figure out exactly how much more water is going to turn that shaggy lump into a smooth, professional-looking ball of dough. But for now, a brief glossary:

- **Protein content** indicates the strength of the gluten bonds a flour will form. All-purpose flours will range from 9 to 11 percent, bread flours 11 to 13 percent, and high-gluten flour can reach 14 percent and up.
- **Hydration** is the proportion of water compared to the weight of the flour, expressed as a percentage.
- **Cold curing** is placing rolled-out dough uncovered (or in parchment-separated layers) in the refrigerator overnight. It dries the dough out to achieve the crispy structure beloved of Midwestern pizza lovers.

Here are three crust options ranging from a fairly quick bar pie to several rises and a hunk of butter. We used a food processor with a dough blade to develop these, but stand mixers (or hand mixing) will achieve equally excellent results.

THE EASY BAR PIE

19.4 oz (550 g) all-purpose flour
0.7 oz (20 g) salt
1 g instant yeast
12.5 oz (350 g) water
0.53 oz (15 g) olive oil, divided

Mix the dry ingredients and add the water. Process or knead until it comes together into a ball. Rest 10 minutes and process again until the dough is consistent and shiny. Place into a bowl oiled with olive oil, cover, and refrigerate overnight.

Divide the dough into four equal portions and coat the bottom of a 10-inch (25 cm) pizza pan with sides with olive oil. Place the dough in the pan and stretch gently (press, don't pull) until it reaches 0.25 inch (6.4 mm) up the sides of the pan.

Add toppings and bake in a 500°F (260°C) oven on a preheated stone or steel for 8 minutes. Briefly remove the pizza from the pan and put it on the stone/steel. Return to the oven to finish for 2 minutes. Remove and slice.

CRACKER-THIN AND COLD-CURED

25.6 oz (725 g) high-gluten flour
0.9 oz (25 g) cornmeal
0.4 oz (10 g) salt
0.4 oz (10 g) sugar
4 g instant yeast
13.1 oz (370 g) ice water
2.1 oz (60 g) olive oil, divided

Mix the flour, cornmeal, salt, sugar, and yeast. Add the water and process until the mass forms a ball and rides the blade or starts to pull away from the mixer bowl. Then count to 30 and stop. Rest for 25 minutes, then repeat for another 30 seconds. Divide into four equal portions, coat lightly with olive oil, and place into a 1-quart (946 ml) container. Keep in the refrigerator to cold ferment for at least 24 hours and up to 7 days. Remove the dough from the refrigerator 2 hours before rolling it out.

For a really excellent cracker-thin crunch, roll out the dough, dock—i.e., speckle with tiny dimples—with a docker (a small, spiky rolling pin attached to a small handle) or fork, place on nonstick



parchment, and cold cure, uncovered, overnight in the refrigerator.

Preheat a baking stone or steel to 550°F (288°C) if possible, or 500°F (260°C) if that's the max for your oven, for at least 1 hour. Place the rolled-out dough on a cornmeal-dusted pizza peel, add toppings, and slide into the oven. Bake 9–11 minutes, depending on the toppings. Remove and cut into squares just like whatever the Great Lakes version of Poseidon intended.

YOU THERE! BRING ME MY BUTTER-GRATER!

This isn't deep-dish—perish the thought. But it carries that critical butter-crust element into a force that stands up to big toppings and reheats like a champ in the toaster oven.

37 oz (1,050 g) high-gluten flour
1.1 oz (30 g) salt
11 g instant yeast
24.7 oz (700 g) room-temperature water
1.8 oz (50 g) unsalted butter, melted
2.1 oz (60 g) unsalted butter, frozen and grated
Extra butter (or shortening) for the pan

Mix the dry ingredients, then add the water and melted butter and process or mix until a cohesive ball forms. Place in a bowl, cover, and let rise 30 minutes. After it has risen, fold in the cold butter, careful not to melt it with your hands or by over-mixing, then incorporate until smooth and shiny. Cover and let rise another 2 hours. Grease two 10" × 14" (25 × 36 cm) Detroit pizza pans (or 13" × 9"/33 × 23 cm sheet pans) with the butter or shortening, portion the dough into two balls, and place into the pans to relax. Cover and let sit 3 hours. Lift the relaxed dough to eliminate any air pockets, cover, and refrigerate 24–72 hours.

Remove the dough from the refrigerator 2 hours before baking. Preheat the oven to 400°F (204°C). Par-bake 10 minutes, add sauce and toppings, and finish the bake with another 20 minutes. Remove from the oven and place on a cooling rack—it'll get soggy if it steams in the pan—before slicing.

The Sauce

Now we move from classical to jazz. If the dough is the science part of pizza, then the sauce is art. Even the same ingredients, combined the same way, can express differently depending on the time of year, the climate, or a thousand other things. So, have confidence, remember the 600 pizzas you've already enjoyed up to this point in your life, and don't be afraid of tinkering with a little more salt, sugar, or acid. Quick, now! The Neapolitans aren't looking!

QUICK & EASY

This sauce can be as fast as you and a blender. Just chuck some stuff together and let that be your first step into obsession. Here I include an optional splash of gueuze. (Hmm, what to do with the rest of the bottle?)

2 Tbs (30 ml) olive oil
28 oz (794 g) can whole tomatoes
½ tsp granulated garlic
½ tsp ground black pepper
¼ tsp dried basil
¼ tsp dried oregano
¼ tsp crushed red pepper
¼ cup (59 ml) oude gueuze

Blend it! Store in a glass jar for up to a week.

SLOW-COOKED COMPLEXITY

Tomatoes take on a completely different character when cooked, and a long cook with multiple elements is the absolute best example of taste-taste-taste when you're in the kitchen. If you like it in the saucepan, you're going to love it on the pizza.

2 Tbs (30 ml) olive oil
2 Tbs (30 ml) unsalted butter
6 cloves garlic, peeled
6 oz (170 g) tomato paste
1 tsp dried basil
1 tsp dried oregano
1 tsp dried marjoram
28 oz (794 g) can whole tomatoes
1 Tbs (15 ml) fish sauce
1 Tbs (15 ml) red wine vinegar

Optional additions:

Flemish red ale, such as Duchesse de Bourgogne
1 Tbs crushed red pepper
Salt, to taste
Sugar, to taste

Melt the oil and butter over medium-low heat and add the garlic. Cook 3–4 minutes until lightly golden, then add the tomato paste and herbs. Cook an additional minute until the paste darkens. Add the tomatoes, fish sauce, and red wine vinegar. Bring to a slow simmer and cook 40 minutes. Blend, taste for seasoning, and adjust with salt, sugar, and/or sherry or additional red wine vinegar. This tastes even better after an overnight stay in the fridge.

THICK & RICH

Save this for a focaccia, Sicilian-style *sfincione*, or the big ol' butter crust. Be brave with the onions and ye shall be rewarded for it, ye Allium Icarus. The addition of a big bruiser of a dark ale takes things that crucial step further. (Feel free to swap in

a barrel-aged stout if you're feeling less Continental.)

¼ cup (59 ml) olive oil
½ white onion, diced
2 anchovies, chopped
28 oz (794 g) can whole tomatoes
½ cup (118 ml) Belgian dark strong ale (such as Rochefort 8)
Salt, to taste

Heat the olive oil in a wide pan over medium-low heat, add the onion, and cook, stirring frequently, for 15 minutes. Add the anchovies and stir, cooking another 2 minutes. Add the tomatoes and beer and cook, stirring frequently and breaking up the tomatoes, for 45 minutes. When it's thick and not-at-all liquid, it's ready for your pizza. Taste for seasoning and spread thick.

Top That!

Pizzas are yours to top as you like, and don't ever let anyone tell you otherwise. Our days in the sun are short in this life, and you don't want to live with the kind of regret caused by skipping bratwurst and sauerkraut for fear of social shame. These are the gentlest and most encouraging selections to get you on your pizza journey. Ingredients are scaled for a 14-inch (36 cm) pizza. Consider sauce, full-fat low-moisture mozzarella, and fresh-grated parmesan as givens ...

STUPID SEXY FLANDERS

6 oz (170 g) shredded Flemish carbonnade (or any leftover beef stew)
2 oz (57 g) quick-pickled carrots, matchstick cut
½ oz (14 g) potato sticks
Chopped parsley, to garnish and to really '70s it up

PINEAPPLE IS LIFE

3 cloves of garlic, sliced thin on a mandolin or like in *Goodfellas*, tossed in neutral oil and roasted in a pan for 10 minutes at 350°F (177°C), or until lightly brown and crispy
1 whole pineapple, crown removed and roasted on a pan for 2 hours at 375°F (190°F) before peeling and chopping
4 oz (113 g) smoked country ham, chopped

HAIL GRITTY

7 oz (198 g) Philly roast pork
6 oz (170 g) roasted broccoli rabe
3 cloves roasted garlic, chopped

COWABUNGA

4 oz (113 g) natural-casing pepperoni, sliced thin (or cup-and-char pepperoni)
3 oz (85 g) dill pickles, drained and chopped







Listen In



To The Craft Beer & Brewing Podcast

Host Jamie Bogner talks shop with leading voices in the brewing industry on the weekly **Craft Beer & Brewing Podcast**. Available on all your favorite pod platforms, or listen via the Web at the link below. Subscribe and never miss an episode!

Listen and subscribe to the Craft Beer & Brewing Podcast at
**[beerandbrewing.com/
podcasts](http://beerandbrewing.com/podcasts)**

SPONSORED BY:



A photograph of two Belgian beer glasses on a wooden table. The glass on the left is a tulip-shaped glass filled with a vibrant red beer, topped with a thick, frothy head of foam. The glass on the right is a tall, elegant glass filled with a golden beer, also topped with a thick, frothy head of foam. In the background, there is a patterned curtain and a bottle of beer. The text 'in a Belgian mood' is overlaid on the image in a white, stylized font.

in a Belgian mood

PHOTO: MATT GRAVES/WWW.MGRAVESPHOTO.COM

FLAVOR FEVER

les classiques/ de klassiekers: appreciating belgium's archetypes

The diversity and creativity of the beers that come out of this small country are justifiably famous, yet often it's the wilder side that draws all the attention. Let's renew our friendship with the foundational ales that first put Belgium on the beer map. **By Randy Mosher**

THE MYSTERIES AND UNIQUENESS of Belgian beer are what drew me into the world of beer and brewing, and I still find them delicious and captivating. However, this tiny country's beers cover so much territory that it seems wise to limit the scope here. So, let's put all of Belgium's tart and funky lambics, oaky oud bruins, and creamy witbiers off to the side for now. Incredibly, that still leaves us with a treasure box full of more-or-less conventionally fermented beers in a variety of strengths, colors, and personalities.

variety in perspective

Abbey and Trappist ales mostly form the conceptual backbone here, whether or not they are overtly branded as such. While "abbey" is generic, the monasteries own the Trappist designation and enforce its

authenticity. Monasteries across Europe were brewing in the Middle Ages, but in the mid-1790s the French Revolutionary forces dissolved, sacked, or destroyed Belgium's abbeys. Any remaining connections to ancient monastic brewing were cleanly severed. The exhaustive Belgian brewing treatise by Georges Lacambre (1851) describes dozens of local styles, but Trappist beers are not among them.

The reality is that these supposedly historic ales are actually 20th-century inventions, inspired by the beers from neighboring England, Scotland, and Germany that flooded the Belgian market in the early 1900s. Strip away the marketing, and you'll see bocks, Scotch ales, pale ales, and even pilsners behind these quintessentially Belgian beers.

To understand them in context, it's helpful not to fetishize them into her-

metically sealed categories. We're talking about a range of pale to deep-brown top-fermented beers ranging from about 6 percent to more than 10 percent ABV. Over the years, writers have sorted those spectra into identifiable styles, yet abbey singel and Belgian blonde form one extended tribe; angelic tripel and devilish golden strong are like their twin big brothers. Abbey dubbel and strong dark ale form another continuum.

In Lacambre's day, "dubbel" was a generic term. At 5 to 6 percent ABV, it signified a somewhat stronger beer than the "ordinaries" of 3 to 4 percent strength. The term began to take on a more specific, monastic meaning in the 1920s. Westmalle created the first strong golden "tripel" in 1933. Belgian pale ale and the classically phenolic saisons are their own traditions, but there are various



overlaps and eccentricities—what is Orval, for example? Many spiced or other eccentric interpretations elaborate upon these basics.

That leaves us with two clusters—light and dark—in a range of strengths, orbited by occasional outliers. They are all unified to some degree by their yeast character. You could, in fact, take nearly any wort and swap the yeast to a Belgian strain, and to some degree the character is likely to be identifiably “Belgian”—even if there is much more to these beers than the yeast. (See “Belgian Beer: You’re Probably Doing It Wrong,” beerandbrewing.com.) The balance between fruity esters and spicy phenols forms an organizing axis for these strains.

The Typical components

Although Lacambre writes that “Belgium is a wheat-beer brewing country,” none of these styles incorporate more than an occasional head-boosting dollop of wheat or other grain. They may be all-malt, but the stronger ones typically incorporate sugar to lighten the body; in the darker ales, sugar also adds flavor and color. The paler beers typically use the pal-

est pilsner malt available, bringing clean malted-milk-ball character and sometimes overtones of fresh grass or hay, offering a surprising amount of depth.

Classic saisons are usually quite pale. Michael Jackson, in his seminal 1977 *World Guide to Beer*, says that “saison” was just a term used by some southern Belgian brewers for their golden ales. (For much more on that tradition, see “Saison: Story in Motion,” beerandbrewing.com.) Belgian pale ales, meanwhile, are more associated with Antwerp. Ranging in color from golden to amber, they’re built on a base of pale and/or pilsner malt,

with room for just a bit of extra color and flavor: biscuit, Vienna, caramel 10 or 20, and others.

The dark group often relies on some mid-colored malts for both color and flavor. On the one hand are the moist-kilned Vienna (3–4°L/6–8 EBC), Munich (6–12°L/12–25 EBC), and darker variants such as dark Munich and melanoidin/aromatic (15–33°L/30–66 EBC). These range from light, sweet caramel to cake- and cookie-like sweet toastiness. On the other hand are various crystal/caramel malts with their candy, raisin, prune, and burnt sugar notes from kilning after an in-husk saccharification. A particularly potent favorite is the legendary Special B, a very dark caramel (about 125°L/250 EBC) that originated at DeWolf-Cosyns malting (now defunct, with its specialty malts taken over by Dingemans). All of these can be really characterful but require

a deft touch; Belgian brewers tend to use them sparingly and with restraint, always with balance in mind. Too much can overwhelm anything else and cause problems with premature oxidation, evidenced by leathery notes. The proprietary Honey Malt from Gambrinus seems halfway between caramel and conventional malts and can also be useful—or you can blend for the character you want. Be aware that all these mid-colored malts are uniquely sensitive to manufacturing specifics, so each has a unique flavor that is not interchangeable with others.

While all of us old-time homebrewers have been conditioned to avoid the use of sugar in brewing, these Belgian styles are a best case for their use. The term “candi sugar” is widely used, but I find it way too vague and prefer more specific terms: candi syrup, brown sugar, unrefined sugar, and others, which describe distinctly different products. The classic use of sugar is the iconic strong golden ale Duvel, which uses almost 20 percent dextrose (corn sugar), boosting the strength to 8.5 percent ABV without adding body or color. (See “Giving the Devil Its Due,” p. 58.) Dextrose helps to make the beer dangerously drinkable and a capable food companion—as it does for all these stronger Belgian types.

Brewers of darker beers have the option of using colored sugars to add a layer of caramelized, fruity, or chocolaty flavors while still lightening the body. Belgian sugar beets are typically the source of these products, often employed in syrup form. The dark trio of Rochefort Trappist beers are a textbook example: Dark sugar adds a profoundly rich, milk-chocolate character (along with figgy dark fruit) that doesn’t line up with any kind of malt I can think of. The beers of Brasserie d’Achoffe reportedly get all their color from sugar syrups, available in a range from pale golden to dark brown, with each adding a different set of flavors.

while all of us old-time homebrewers have been conditioned to avoid the use of sugar in brewing, these belgian styles are a best case for their use. The term “candi sugar” is widely used, but i find it way too vague and prefer more specific terms: candi syrup, brown sugar, unrefined sugar, and others, which describe distinctly different products.

a good deal of the character we associate with Belgian ales comes from yeast and fermentation. This is an oversimplification, but I've found it useful to think of Belgian strains on a continuum, with fruity/estery at one end and spicy or even smoky phenols at the other.



Belgian brown or dark brewers' sugar is also available. It's not clear how this is made, but it's not the same as American brown sugar, which is simply white sugar with molasses added. I've also brewed these styles with a wide range of artisanal sugars: Latin *piloncillo/panela*, Thai palm sugar and dark *gula jawa*, Filipino *panutsa*, Brazilian *rapadura*, Indian jaggery, and rummy Barbados sugar. None of these are traditional to Belgian brewing, but they make lovely "secret" ingredients for that extra depth. There's no magic, by the way, in beet sugar or those huge crystals of rock candy.

Hops are not typically the centerpiece in the 20th-century classics, but they feature in the paler ones, and contemporary Belgian ales are embracing them more enthusiastically. European hops such as Saaz and Styrian Goldings (as in Duvel) are classic, but of course incremental variants such as Glacier and Celeia, more characterful varieties such as Hüll Melon and Hallertau Blanc, and even newer tropically tinged varieties can all be useful. Even in the darker beers, the bitterness of hops can be a necessary counterpoint to the sweetness and strength, keeping their drinkability going. By the time the imported beers make their journey to your glass a continent away from home, the hops tend to be a little tired out. Fresher bottles or kegs are more vibrant in their hop character.

Water need not play a special role here but should follow normal good brewing practice, providing a minimum of 50 ppm of calcium, while managing bicarbonate in pale, hoppy beers to somewhere below 70 ppm, allowing up to about three times that in darker brews. However, some sources cite higher bicarbonates and sulfates in Hainaut saisons, while Rochefort also says its water's higher calcium and bicarbonates are important to their ales' character.

The Belgian fingerprint: Fermentation

A good deal of the character we associate with Belgian ales comes from yeast and fermentation. This is an oversimplification, but I've found it useful to think of Belgian strains on a continuum, with fruity/estery at one end and spicy or even smoky

phenols at the other. The first is exemplified by the yeast from Brasserie d'Achouffe, whose profile is estery with very little phenol. A warm fermentation will give you a nose full of banana candy (isoamyl acetate). At the other end of the scale are saison strains such as the Dupont's: full of rich, peppery phenolic notes but producing relatively little fruitiness. Most other Belgian yeast strains fall somewhere on that axis. Another important consideration is alcohol tolerance since some of these are upward of 10 percent ABV.

For small batches, getting the yeast to generate lots of esters is not a big issue. However, in brewery conditions, hydrostatic pressure in tall cylindroconical tanks reduces ester production. Some breweries specializing in these styles use relatively shallow "open" fermentors to enhance this aroma character. Using less yeast (underpitching) is another technique that can enhance ester production, but it has to be balanced against the need for more yeast in high-alcohol fermentations.

One interesting scientific discovery is that many Belgian strains—including some lambics, via their inoculated barrels, and the Trappist ales from Chimay, Westmalle, and Orval—are hybrids between "normal" brewers' yeast, *Saccharomyces cerevisiae*, and a "feral" species, *S. kudriavzevii*. The latter may confer additional stress tolerance and enhanced production of aroma compounds and glycerol.

Belgian brewing has a reputation for spices, but they are rare within the boundaries of these styles; the "seasoning"

comes more from yeast and fermentation. Step just outside, however, into the style-free creative zone—a popular playground among Belgian brewers—and you'll find everything from orange, honey, and coriander to grains of paradise, elderflower, pepper, cumin, star anise, and even stranger things such as mustard and medicinal lichen. These are most effective when used sparingly, enhancing the flavors from the raw ingredients transformed by the yeast.

Remember: The purpose of Belgian beer is to let you ponder its mysteries, not to get clobbered over the head by them.



BREWING TECHNIQUE

giving the devil its due

Duvel, Belgium's iconic and elegant golden strong ale, is pale, dry, and highly carbonated and boasts a distinctive fermentation profile. What are the stories, ingredients, and processes behind the archetype? **Breandán Kearney** explains.

BELGIAN GOLDEN STRONG ALE is a style of simple construction that requires exacting execution. Its most famous commercial example—Duvel, from the Duvel Moortgat brewery south of Antwerp—is a mainstay on the beer menus of Belgian cafés, its branding instantly recognizable: the red gothic calligraphy on white background with large letter “D.” Its voluptuous *ballon* glass was one of the first tulips to appear in Belgium, sharing functional and aesthetic elements with the Burgundy sampler. The beer marries the fermentation flavors and malt character of a Belgian tripel with the clean, dry drinkability of a German pilsner. Before Duvel, there was no such thing as Belgian golden strong ale.

Brouwerij Moortgat originally launched Duvel in 1923 under the name Victory Ale.

Some stories suggest that its name derived from the initials of the brothers who ran the brewery: “V” for Victor and “A” for Albert. In reality, its name was most likely influenced by the end of the First World War, much like other “Liberation Ales.” According to Duvel Moortgat, the beer took its

current name during a tasting at the brewery years later. That’s when a local shoe-maker named Van De Wouwer exclaimed that the beer was “nen echten Duvel”—in the region’s dialect, “a real Devil.”

Duvel’s ingredients are fairly simple. Its fermentables are straightforward: they come from just one malt—pilsner—and the addition of highly fermentable liquid dextrose, reaching a famously sneaky 8.5 percent ABV. Likewise, its hops are straightforward: It’s hopped with two varieties—herbal, spicy Czech Saaz and earthy, peppery Styrian Goldings from Slovenia. The brewers deploy these varieties at various stages of the boil, targeting 32 IBUs. It is Duvel’s yeast that seems to be the element surrounded with the most mystery.

The myth of the yeast strain

The origin story of Duvel’s yeast is represented in Duvel Moortgat’s marketing literature as an odyssey, unique and epic. Unlike other family breweries that may have secured strains from yeast banks at Belgian universities, Duvel Moortgat says that Albert Moortgat traveled to Scotland to source a special yeast for his Victory Ale. A comic strip published by Duvel Moortgat purports to tell the story of that journey. In the comic, Albert is seen traveling with an aluminum milk can, which he supposedly used to transport yeast from William McEwan’s Fountain Brewery in Edinburgh.

There are conflicting opinions about the veracity of this story, with La Chouffe co-creator Chris Bauweraerts believing that the yeast came from William Younger’s beers rather than those of William McEwan (the importer John Martin was bringing Younger’s beers into Belgium at the time). Belgian journalist Katrien Bruyland has suggested that there was no journey at all, but that yeast was harvested from Scottish bottles with the help of a world-renowned yeast expert, Professor P. Biourge. Duvel Moortgat’s own quality

There are three aspects of Duvel’s construction that have most contributed to its iconic status. The first is the fact that it is extremely pale. The second is its fermentation profile. The third is its very high carbonation.



MAKE IT

Devil's Advocate Golden Strong Ale

There are many homebrew recipes out there that aim to imitate Duvel—acts of the sincerest form of flattery. Here is one more inspired by the world-beating archetype, using everything we know, a few things that we *think* we know, and a sprinkling of straight-up guesses.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.069

FG: 1.005

IBUs: 33

ABV: 8.5%

MALT/GRAIN BILL

9.7 lb (4.4 kg) Belgian pilsner

HOPS & ADDITIONS SCHEDULE

1 oz (28 g) Styrian Goldings at 90 minutes [17 IBUs]

1 oz (28 g) Styrian Goldings at 30 minutes [12 IBUs]

1 oz (28 g) Saaz at 5 minutes [4 IBUs]

2 lb (907 g) dextrose (corn sugar) at flameout

YEAST

White Labs WLP570 Belgian Golden Ale, Wyeast 1388 Belgian Strong Ale, or Fermentis SafAle WB-06

DIRECTIONS

Mill the grains, mash in at 127°F (53°C), and rest 10 minutes. Raise to 144°F (62°C) and rest 25 minutes, then raise to 162°F (72°C) and rest 20 minutes. Finally, ramp to 172°F (78°C), rest 5 minutes, and mash out. Recirculate until the runnings are clear, then run off into the kettle. Sparge and top up as necessary to get about 6 gallons (23 liters) of wort. Boil for 90 minutes, adding hops according to the schedule. Dissolve the dextrose completely in hot water and add at flameout. After the boil, chill to 68°F (20°C), aerate the wort, and pitch the yeast. Allow a gradual temperature rise up to 79°F (26°C) over 4 days, or until primary fermentation is complete, then rack to secondary, crash to 28°F (-2°C), and lager for 20 days. Package in thick, sturdy champagne or stubby bottles, priming for 4.5 volumes of carbonation (optionally, add a small amount of fresh yeast). Store at room temperature for 2 weeks to condition, then refrigerate for 4 more weeks and enjoy.

BREWER'S NOTES

Optionally, to further limit Maillard reactions and keep the color as pale as possible, you could limit the boil to 60 minutes and add the first hops at the start of the boil. Ensuring a vigorous boil over the final 10 minutes should help eliminate any risk of DMS.

director, Dimitri Staelens, suggests the original Victory Ale may have been closer at that time to a Belgian Scotch ale than to the pale, drier style that modern-day Duvel would come to define.

In the 1960s and early 1970s, Emile Moortgat, representing the third generation to run the brewery, formed a strong allegiance with Professor Jean De Clerck, one of the brewing world's most influential scientists and scholars. Brussels-born De Clerck founded the European Brewing Convention, wrote the canonical two-volume *Textbook for Brewing*, and helped the monks at the Abbey of Notre Dame de Scourmont create the famous dark, strong Trappist ale Chimay Blue. De Clerck was the best in his field. In the 1960s, he worked to isolate strains from Duvel's original Scottish yeast to deliver a cleaner, purer, paler beer.

Three key characteristics

While the production of Duvel involves a whole range of complex processes, there are three aspects of its construction that have most contributed to its iconic status. The first is the fact that it is extremely pale. The second is its fermentation profile, both in performance and in flavor. The third is its very high carbonation. All three elements are integral to the creation of a golden strong ale in the authentic Belgian fashion.

PALE COLOR AND THERMAL LOAD REDUCTION

It's often said that people drink with their eyes, and a very light, pale blonde color has long attracted beer drinkers. Belgian tripels and blonde ales generally start on the color range at about 4 SRM (8 EBC). American IPAs, for comparison, typically begin at about 5 or 6 SRM (11 EBC). Pale lager is the most consumed beer style in the world. Part of what differentiates a Belgian golden strong ale is that it has the enticing appearance of a pale lager. Duvel clocks in at a very pale 3 SRM (6 EBC) on beer's color scale—or "sometimes lower," according to Staelens at Duvel.

Duvel's sole malt, pilsner, contributes the light biscuity notes and pale blonde color; the sugar addition boosts the ABV while keeping the body thin. While brewers at Duvel Moortgat do not reveal the exact ratio of sugar to malt, Staelens says that it can be easily discovered by anyone with good density-measurement equipment. "In order to make a heavy bill, it's not a small portion" of sugar, he says.

One of the most important ways the brewers at Duvel ensure that the color is very pale is by minimizing what is called "thermal load." Heat darkens beer. Keeping your wort at high temperatures for a second longer than required will result in a darker beer than you might otherwise obtain.

There are several examples of Duvel's obsession with minimizing thermal load. Their mash tuns have been manufactured with Steinecker's ShakesBeer technology, with "pillow plates" and "vibration units." These help to distribute steam-powered heat to wort much faster, reducing the time it takes to reach target temperatures. They also facilitate more homogenous mixing during the mash, preventing caramelization or other Maillard reactions that would darken the wort. The brewery uses no mixing arm in their mash tuns because it would introduce dissolved oxygen, and that can also darken the wort.

The Duvel brewing process also uses multiple centrifuges, which separate solids from liquid by centrifugal force. Duvel Moortgat doesn't use a whirlpool, a common vessel used to spin the wort and separate hop matter from the liquid. Instead, they pull wort through two centrifuges—"the biggest wort centrifuges in the world," according to Staelens—dramatically shortening the cooling time of the wort. This greatly cuts the time it sits at higher temperatures, further reducing the thermal load.

There are, of course, other techniques to ensure a very pale beer. Staelens says that one of his most important regular quality meetings is with the three or four companies who supply

Duvel is saturated with 8.5 grams per liter of CO₂, or 4.3 volumes. For comparison, most English ales are carbonated between 1.5 and 2.2 volumes, and American ales are usually between 2.2 and 3 volumes. Essentially, that half-glass of foam is part of what they're selling.



pilsner malt to Duvel's tight specifications. In addition, the brewers don't add sugar to the boil, a process which would also darken beer, but rather add liquid sugar inline post-boil.

FERMENTATION CHARACTERISTICS

Outside of a few higher-gravity gueuzes and saisons, Duvel is one of the driest beers in its alcohol range in Belgium. The original gravity target is around 1.069 (16.9°P) and generally finishes around 1.005 (1.3°P). The yeast eats deep. This dryness is a major part of what makes Belgian golden strong ale so drinkable, despite its strength.

The flavors created by this deep fermentation are perhaps not as pronounced as you might expect from a Belgian ale, often known for a marked fruitiness and spiciness. In his time as sommelier at Duvel Moortgat, Nicolas Soenen would often describe Duvel's yeast profile as "neutral" or "pure." In his recent discussions with Doug Piper on a Gourmet Brewing webinar, Duvel Moortgat brewing engineer Sven De Kleermaeker also described it as "pure." Sam De Belder, site manager for Duvel Moortgat in Breendonk, uses the word "clean." Staelens, the quality manager, describes it as "simple but complex."

The brewery keeps yeast flavors in check through a rigorous set of fermentation specifications. They pitch the Duvel yeast into wort of 68°F (20°C), allowing it to rise 79°F (26°C) during a four-day primary fermentation. It's at this temperature that the brewers have found what they consider to be the optimal ester- and phenol-compound production. Unlike other breweries that maintain fermentation temperatures by cooling their tanks with glycol or 32°F (0°C) ice water, Duvel Moortgat employs a "Delta T" approach—the coolant is never more than 18°F (10°C) different from the fermentation temperature. "We control stress level on the yeast and do not let it ferment in too rapid a time because it will give a different flavor and aroma profile," says De Belder.

Once fermentation is completed, usually after four days, they cool the beer to 28°F (-2°C) for 20 days of lagering. It then runs through a series of three centrifuges that

remove particles and haze of various sizes. After priming, it referments in the bottle for two weeks in one of four large warm chambers, each 50 meters long, and then undergoes another six weeks cold-conditioning in the bottle before it goes out to market. The whole process from mash-in to sale takes about 90 days, a timeframe that very few top-fermented beers in Belgium enjoy. It would be possible to produce Duvel in a shorter timeframe—perhaps by shortening the cold-conditioning times in the lagering tank or after refermentation in the bottle—but such shortcuts could be detrimental to the beer's quality as well as to its reputation.

CARBONIC BITE

The third major differentiator of the Belgian golden strong ale is its high carbonation. Duvel is saturated with 8.5 grams per liter of CO₂, or 4.3 volumes. For comparison, most English ales are carbonated between 2.9 and 4.3 g/l (1.5 to 2.2 volumes), and American ales are usually between 4.3 and 5.7 g/l (2.2 to 3 volumes). Essentially, that half-glass of foam that appears in the large *ballon* is part of what they're selling. Such a high carbonation level accentuates carbonic bite, and it ensures that the beer is champagne-esque in presentation and refreshing in consumption.

In recent years, less yeast has appeared in the bottom of bottles of Duvel than in years previously, with some consumers suggesting that the beer no longer undergoes refermentation in the bottle. However, this is not the case. There is yeast there, just less than before. After all, there are disadvantages to having too much yeast in your bottle. It can contribute negatively to foam formation. Over time, there may be autolysis (a process whereby the yeast eats itself and produces off-flavors that may be broth-like, meaty, or sulfuric.)

It's likely that changes in hot-side production over the years have minimized colloidal instability in Duvel, thus reducing protein and hop trub sedimentation downstream, including in the bottle. However, more significantly, the Duvel brewers have honed their yeast-dosing rates for

bottle conditioning in precise ways.

Before refermenting in the bottle, the brewers force-carbonate Duvel to about 5 g/l of CO₂ (2.55 volumes) before they add fresh yeast and sugar to hit their saturation target.

That base level of carbonation is a kind of safety blanket. It eliminates issues relating to the stratification of CO₂ in large tanks, and it assists when capping bottles—the foam helps to ensure that no oxygen is in the bottle headspace when the bottles are filled. They dose only as much yeast as they need. They also have worked to ensure that their bottle-conditioning yeast strain is extremely flocculent, eventually dropping out and sticking to the bottom of the bottle. Thus, there is no exaggerated sedimentation—and no yeast autolysis. The beer is as bright as a new pin.

The high level of carbonation does present challenges for packaging Duvel in formats other than their steinie bottle. Most draft systems can't deal with the pressures required to maintain and serve beer at such a high carbonation level. However, Duvel Moortgat has developed a special draft system with specific diameters and lengths for the tubing between the keg and the tap and with specific temperature requirements. The brewery finally released Duvel on draft in 2018.

Meanwhile, cans are less pressure-resistant than glass, so they've also released a canned Duvel Single that does not undergo a secondary refermentation.

The "Duvel killers"

There are other golden strong ales in Belgium that have been around for decades: Delirium Tremens from Brouwerij Huyghe (1988), Sloeber from Brouwerij Roman (1983), Satan Gold from Brouwerij De Block (1986), and Hapkin, originally brewed by Brouwerij Louwaege, but produced by Alken-Maes since 2002. More recent competitors include Omer Traditional Blond from Brouwerij Omer Vander Ghinste (2008), Keizer Karel Ommegang from Brouwerij Haacht (2012), and Filou from Brouwerij Van Honsebrouck (2015).

In 2020, AB InBev released a golden strong ale called Victoria. The ABV is 8.5 percent, same as Duvel, and the name recalls Duvel's original incarnation, Victory Ale. The label of AB InBev's Victoria shows an angel holding the devil to the ground; the visual lacks subtlety, while AB InBev says it comes from the story of the archangel St. Michael's triumph over the devil.

Those that try to chip away at Duvel's place as the most successful Belgian golden strong ale on the market are sometimes called "Duvel killers" by Belgian beer enthusiasts. Many have tried. None have yet succeeded.



Fit for a chalice

Belgium's dark, strong ales are among the most complex and impressive beers in the canon—yet extract brewers can tackle them as well as anyone, as long as we pay attention to a few key points. **By Annie Johnson**

EQUALLY ENJOYABLE AT A FESTIVE

gathering or as a quiet nightcap, Belgium's stronger, darker Trappist ales—think Rochefort 10, Westvleteren 12, or Chimay Blue—are among the richest beers from one of the world's richest brewing traditions. Yet, by understanding a few key points, even beginning homebrewers can produce something that tastes as great as it looks in the glass.

These beers are dark and complex, yet light and lively for their extraordinary strength; some call them “quadrupels”—taking a cue from the Dutch Trappist brewery, La Trappe, but also following the logical sequence beyond singles, dubbels, and tripels. Even if American brewers and geeks have taken to calling them “quads,” Belgian brewers generally don't use the Q-word. Instead, they let the dark color and high strength do most of the talking.

These delightful ales are full of rich flavors and history. Anyone who knows me—old-school master that I am—knows that I appreciate history *and* hold a reverence for older styles. So, let's dive into this big, rich, boozy tradition.

The Trappist Tradition

This is a style rooted in monastic brewing. Hey, monks get thirsty, too—and more importantly, in the old days, they had pilgrims and other guests to look after. However, those surely would have been lower-strength ales. The French Revolution and anti-Catholic movements took a heavy toll on the abbeys, but in the 1830s a couple of the Trappist abbeys in Belgium—Westmalle and Westvleteren—began to brew for themselves again using modern techniques. Achel, Chimay, and Rochefort

followed in the decades to come, as each eventually began selling small amounts to the public to help support themselves and their communities.

The Trappist designation means only that they were brewed on the grounds of a Trappist abbey. The monks protect that designation, so that similar ales produced by other breweries are known as abbey beers, or abbey-style.

The stronger, darker ales were 20th century creations—Westvleteren 12 in 1940, Chimay Blue in 1948, and Rochefort 8 and 10 in the 1950s. These were special brews often released for the holidays, then eventually brewed more often as their popularity grew. They were also unique, with each brewery's ales highlighting different characteristics. Westvleteren's gold-capped 12 is the most sought-after, being highly

PHOTOS: MATT GRAVES/WWW.MATTGRAVESPHOTO.COM

e



MAKE IT

Smiling monk Belgian-style oark strong ale

PARTIAL-MASH

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.090

FG: 1.016

IBUs: 22

ABV: 9.8%

MALT/GRAIN BILL

9 lb (4.1 kg) extra light or pilsner dry malt extract (DME)

1.5 lb (680 g) Munich

8 oz (227 g) Belgian aromatic

7 oz (198 g) Special B

HOPS & ADDITIONS SCHEDULE

2 oz (57 g) Styrian Goldings at 60 minutes [17.5 IBUs]

1 oz (28 g) Styrian Goldings at 15 minutes [4.5 IBUs]

1 tsp (5 ml) yeast nutrient at 10 minutes

1 lb (454 g) Belgian Candi Syrup D-180 at 10 minutes

8 oz (227 g) turbinado sugar at 10 minutes

YEAST

Wyeast 3787 Trappist High Gravity

DIRECTIONS

Mill the grains and place them in a mesh grain bag. Steep in 1 gallon (3.8 liters) of 152°F (67°C) water for 30 minutes, then raise the temperature to 168°F (76°C). Remove the bag, rinse the grains, add 5 more gallons (19 liters) of water to your kettle, then bring to a boil. Turn off the heat and add the DME in batches, being careful not to scorch. Return the heat and achieve a rolling boil. Boil for 90 minutes, adding hops, yeast nutrient, and sugars according to the schedule. (Before adding the turbinado sugar, dissolve it in a bit of hot water or wort.) After the boil, chill the wort to 64°F (18°C), aerate thoroughly, and pitch plenty of healthy yeast. Ferment at 68°F (20°C) for 1 week, then raise the temperature to 72°F (22°C) until fermentation is complete. Crash and cold condition for several weeks. Rack to secondary and allow to settle before packaging in a keg or sturdy bottles, carbonating to at least 3.5 volumes. Cellar for weeks, months, or years.

BREWER'S NOTES

I recommend pitching a four-liter starter or three packages of yeast. If your beer doesn't seem to attenuate and tastes overly sweet, pitch an actively fermenting lager strain at its high kräusen—that should finish the job without altering the desired profile.

regarded, produced in limited quantities, and officially available only at the abbey itself.

The good news is that most of these special beers are available at better bottle shops. I highly recommend picking up bottles of both the Trappist strong, dark ales along with a few of the American-brewed “quads,” so you can note the differences in flavors. The better versions will find their balance with good attenuation and a dry finish—these beers should never cloy—despite layers of character from malt, dark sugar, and fermentation. There should also be high carbonation and ample foam that follows you all the way to the bottom of the glass—when, against your better judgement, you seriously think about having another one.

With all that in mind, let's brew.

Brewing it oark, strong, and orinkable

While this beer tends to have a complex malt character, you can brew it perfectly well as an extract beer with specialty grains. Ready to join the ranks of thirsty, wannabe monks?

Let's break it down: The typical bill for these includes mostly pilsner malt, a small amount of caramel or other specialty malt, and a healthy dollop of flavorful dark sugar. The point of adding the sugar, besides adding flavor, is to boost the alcohol while lightening the body. Belgian brewers sometimes refer to this lightness as “digestibility,” implying an ease of drinking despite its strength. The amount of sugar in these beers is often 10 to 20 percent of fermentables.

In Belgium, that means candi sugar made from beets, often in syrup form. Table sugar lacks the flavors you can get from some of the darker Belgian candi sugars and syrups that are available and add both color and depth. The company called (simply) Candi Syrup produces a range of products with different colors and intensities of flavor; I find that a combination of D-90 and D-180 works nicely. Add the syrups or sugars with 10 minutes left in the boil. If you're using turbinado, “rock,” or other crystalized sugars, go with the darkest color you can get, and dissolve it in a bit of hot water before adding it to the kettle, to help avoid scorching.

About the malt: For the base, I suggest using pilsner dry malt extract (DME) if you can't get *fresh* liquid extract. I've had the issue of occasionally getting oxidized LME, and it ends up quite pronounced in the final beer. For steeping malts, a bit of Munich will add malt depth while a touch of Special B can bring raisin, fig, and other fruit flavors. However, adding too much will add body and sweetness, interfering with that goal of attenuation and drinkability. Where many recipes go wrong is clouding up the flavors with specialty grains—having a big, alcoholic raisin-juice-in-the-glass would make any Belgian monk sad.

American-brewed versions can sometimes lean sweeter and stronger; they might also get fruits, spices, or time in spirits barrels. It's your choice—hey, Belgian brewers are the OGs of creativity, and even Chimay now has a special rum barrel-aged version of its Blue—but try to keep balance and drinkability in mind.

Ultimately, these ales are more fruity than spicy in their profile; a yeast that helps push fruit esters over spicy phenols works best. Go for an avail-



able strain associated with Trappist or abbey beers. Do *not* use clean American strains, not even for a “quad.” My preference is Wyeast 3787 Belgian High Gravity or White Labs WLP530 Abbey Ale, both possibly derived from the Westmalle strain. Omega OYL-018 Abbey Ale C is another that leans more fruity than spicy. If you prefer using dried yeast, SafAle BE-256 is a nice choice with its own fruity profile. Self-styled yeast bandits, beware: Culturing up dregs from a bottle will often get you the strain they use for bottle-conditioning instead of what they use for primary fermentation.

Also important here: pitch rate. We want high attenuation for a high-alcohol beer, and that means pitching plenty of healthy yeast. If you’re not making a big yeast starter (say, four liters), you’ll want to pitch at least three packages of yeast. Attenuation is the key to this beer not winding up thick and syrupy.

For hops, stick with Noble varieties—Styrian Goldings, Tettnanger, and Saaz are excellent choices. This is not a hoppy beer; two or three modest hop charges will get you there. The hops support and balance the other flavors. You can add kettle finings and yeast nutrient with about 10 to 15 minutes left in the boil—about the same time as you add the sugar.

Fermentation temperatures should be in the upper 60s Fahrenheit (19–21°C) for the bulk of the fermentation, then warmed to the lower 70s Fahrenheit (22–23°C) to finish—that will help keep the esters and spicier phenols from getting out of hand. After packaging, give it some time: A long maturation period in bottles or keg really helps round out the flavors and mellow the alcohol of a dark strong ale. That alcohol is part of the profile, for sure—but it should be a pleasant warming sensation, rather than a throat-burning hot mess.

Want to brew a bolder, brasher American-style “quad”? Here are some things to consider. If you don’t have a barrel handy, soak two ounces of medium-toast American oak chips in your favorite spirit—dark rum is super tasty—and add them to the finished beer, conditioning for a week or so, or to taste. If fruit is your passion, choose wisely; fruit that pairs with the beer’s dark stone-fruit flavors, such as figs or plums, can work nicely.

These are beers that present well from the bottle and can be cellared for one or more years. I like to put them in previously emptied Belgian beer bottles or champagne bottles. These should be highly carbonated, so heavy-rated glass bottles work best.

Don’t skimp on the glassware, either—this beer deserves a chalice or goblet, and a moment of quiet reverence. You don’t have to think like a monk or drink like a monk to brew these, but maybe it helps. Happy brewing!



FIVE ON FIVE Belgian Beers

We asked five brewing pros about their most beloved Belgian beers—any style, as long as it’s made in Belgium. Here’s what they recommend.



Glazen Toren Saison d'Erpe-Mere

Mike Schallau, founder/brewer, Is/Was Brewing in Chicago
“Saison d’Erpe-Mere is a beautifully eccentric expression of saison. It is loaded with spicy phenolic character and citrusy fruit character, while still being impeccably clean, crisp, and dry. Because, as brewer Jef Van Den Steen says, ‘Sweet is good for horses, for elephants, but not for human beings.’”



Chimay Cinq Cents

Mike Karnowski, cofounder, Zebulon Artisan Ales in Weaverville, North Carolina
“One of my favorite Belgian beers is a bit of an oddball—Chimay White (or Cinq Cents). It’s a head-scratcher for American beer geeks who want to easily pigeonhole styles—it’s a tripel... and it’s the hoppiest Trappist after Orval. I like that it doesn’t have all the dark fruit like most Trappist beers and lets the yeast character shine. It’s crisp and refreshing while remaining unabashedly Belgian. While the blue label gets all the love, this black sheep of the Chimay portfolio deserves a spot in your fridge.”



Trappistes Rochefort 10

Kevin Ashford, brewmaster, Figueroa Mountain Brewing in Buellton, California
“This is such a hard task picking just one beer, but I really love and appreciate Trappistes Rochefort 10. It is such a wonderfully complex beer. Notes of fig, brown sugar, cherry, and peppery spice come to mind, but one could spend hours pulling subtleties out of this brew. The texture is just right, not too full and not too thin. It is excellence bottled.”



De Ranke XX Bitter

Matt Manthe, founder, Odd Breed Wild Ales in Pompano Beach, Florida
“XX Bitter is aptly named, especially in today’s climate where many beers seem almost artificially sweet. While this beer is very bitter, its bitterness comes across more like a North German pilsner than a West Coast IPA: a heavy-handed approach with whole-cone Hallertau hops lends layers of classic herbal and grassy notes that dominate the palate, with just enough fruity esters and restrained phenolics to make things more interesting while not overshadowing the hops. The finish is dry and refreshing, making this complex beer exceedingly drinkable.”



Rodenbach Grand Cru

Jenny Pfäfflin, brewer, Dovetail in Chicago
“There’s something so enchanting about Rodenbach Grand Cru—it’s incredibly drinkable (and loves to be paired with food) but with complexity that can be pondered, too. Brown sugar, Bing cherries, oak, apple-cider vinegar, and leather—it’s one of my favorite beers because its flavors also remind me of some of my favorite foods: a bowl of bulgogi; strawberries and goat cheese; and Cherry Kool-Aid pickles.”

MIXED CULTURES

metamode Tastes in country beer: A Farmhouse Triptych

It's not only North American brewers who've taken farmhouse inspirations in compelling directions. Here are three European brewers whose stubborn, locally rooted choices are producing more distinctive beverages—while adding jolts of unpredictability to the world of beer. **By Joe Stange**

TERROIR NEED NOT AFFECT our beer. A feature of the postmodern era is that we can easily choose to avoid that sense of place—in fact, that's become our default position as brewers.

The effects of soil and weather on hops and barley are muted into useful consistency by blending and processing to spec. Yeast catalogs are fetishistic, promising the ability to ferment any sort of style from anywhere else in the world. We strip our water down to nothing and rebuild, aiming to imitate profiles from any other

place and time besides our own. Right to our doorsteps, we order tropical adjuncts grown on the other side of the planet.

Does that mean

that terroir is irrelevant to beer? No. It only means that terroir has become a choice. It is the choice to limit your options, to be stubborn about using something that comes from your place, to re-embrace an old-fashioned kind of sincerity—and, in the process, to produce something that nobody else can.

Over the years we've written about (and recorded podcasts with) numerous North American brewers who have made that choice to *limit* their choices, to make beers that somehow taste of their places—such as Jester King in Texas, Wolves & People in Oregon, Garden Path in Washington State, Wheatland Spring in Virginia, and more.

For other perspectives—and to get an idea of how the whole paradigm of “farmhouse brewing” is expanding and shifting—here are three European breweries, each doing mixed-culture brewing its own way, each inspired as much by what contemporary brewers have done as by the cultures and histories of their own places in the world.

PHOTO: MATT GRAVES/WWW.MATTGRAVESPHOTO.COM

m



Eik & Tid

Oslo, Norway

“Basically,” says Amund Polden Arnesen, cofounder of Eik & Tid, “this is the psychedelics of brewing.”

He continues: “You think you know what the world is for modern brewing—reading homebrew books, talking to pro brewers. And then you come and see this farmer who’s never heard of John Palmer, who doesn’t give a crap about measuring anything. And he does stuff that either is not in the book, or literally the book says, ‘Don’t do this; this will fuck up your beer.’ And that’s what they’ve been doing, and they’ve been doing it for hundreds of years, and it *works*.”

Arnesen and partner Bjørn Harald Færøvik, both beer aficionados, cofounded Eik & Tid—pronounced something like *Ake-oh-Teed*—in 2016 in Oslo, Norway. The name means “oak and time,” accurately evoking old methods and slow beer. Indeed, every beer spends time in oak, but there is much more to the beers than that. Eik & Tid embraces their unusual house kveik and the tradition of raw ales—they do not boil their wort—before a more elaborate mixed-culture fermentation happens in barrels or foeders for two months or longer. Then the beers might get additions of dry hops or locally sourced fruit or spices.

By embracing these traditions—namely, raw ale and kveik—“you will create flavors and textures and aromas that you don’t have in modern brewing,” Arnesen says. “And it’s just awe-inspiring.” He says he feels lucky just to live in the region where these traditions are being rediscovered. “Because this is part of our culture—I have access to this. I can go visit these people. Some of these people are now my friends. If I need yeast, I can just ask them.”

“A STUPID BUSINESS IDEA”

Before Arnesen and Færøvik founded the brewery, the concept had been percolating for years. Both were working in beer education—Færøvik coming from the homebrewing side, Arnesen from hospitality. (Arnesen was the first certified beer sommelier in Norway.) They had the know-how and acumen to follow a more proven model of craft-brewing success.

Instead, they did something far less sensible, and far more interesting.

Starting about 2010, Arnesen says, they heard rumblings of Norwegian brewing traditions that had gone virtually unnoticed outside their villages. Skeptics said they were only using baker’s yeast; others were gradually discovering that kveik was something unique, unmapped, with its own special properties. Before long, Norwegian homebrewers were learning the truth, and Lars Marius Garshol—who would go on to author *Historical Brewing Techniques*—was blogging about those traditions in English for a wider audience.

At one point, Arnesen went with Garshol to Voss to see one of these brewing sessions in an old shed, with a wood-fired kettle like a giant witch’s cauldron. There, Arnesen says, he held a Mason jar full of kveik and had the palpable feeling that it was something special—and with that, he was hooked. He traveled more with Garshol, discovering raw ales, smoked beers, other traditions, and many more kveiks. “This was just moment after moment of having my mind blown,” Arnesen says.

Besides being inspired by the traditions of their own country, he and Færøvik also were enthusiasts of Belgian lambic as well as the envelope-pushing mixed-culture beers coming out of the United States. “And this sort of contrast between Belgium—share little, change nothing—and America—like, ‘Oh, how can we dissect this? Can we do *this*? Can we do *this*?’” They liked both ways: “Europe and its tra-

ditions and its anchor, and this sort of innovative, no-roots American approach to sour beer. ... And it dawned on us: ‘What if we take from both these [approaches] and try to create something out of that?’”

At one point they got to taste beer made by traditional farmhouse brewer Stig Seljeset in Hornindal; he’s the one from whom Garshol sourced the kveik known as Stalljen. The culture is a rapid fermenter, even by kveik standards, and can produce bright tropical-citrus flavors. “The beer we tasted at the time had soured slightly,” Arnesen says, although many traditional brewers consider that sourness to be a fault. “It was a lactic-sour raw beer, with these super-fruity notes from his yeast and the really nice conifer greenness of the juniper in the background. It was just, ‘Yes! This is something to build on.’”

Their idea still forms the basis of Eik & Tid’s method: to make raw ales that are tart and fruit-forward thanks to their fermentation character, using that Hornindal kveik as their workhorse, then to further age them on oak. “And this, of course, is such a stupid business idea that we didn’t write the business plan,” Arnesen says. “That would have stopped us in our tracks.”

These days, notably, many of their brews aren’t bound for beer bottles. Instead, they’re a special kveik-fermented whiskey wash (the fermented liquid that will be distilled for the first time) produced for a local distillery, Det Norske Brenneri, for its Eiktyrne line of whiskies. While Eik & Tid produces only about 300 hectoliters of beer per year (256 barrels), it is now producing another 1,000 hectoliters of whiskey wash. Arnesen says those brews are relatively easy because they ferment and a truck comes to pick them up—no need to package. “So that’s a really nice extra income for us, for sure.”

“This is the psychedelics of brewing. you think you know what the world is for modern brewing, and then you come and see this farmer who’s never heard of John Palmer, who doesn’t give a crap about measuring anything. and he does stuff that either is not in the book, or literally the book says, ‘Don’t do this; this will fuck up your beer.’ and that’s what they’ve been doing, and they’ve been doing it for hundreds of years, and it *works*.”

THE LIBERATION OF LIMITATION

Like many traditional raw-ale brewers, Eik & Tid initially brewed hop teas—simply boiled some hops in water—and added them to the wort. These days, they prefer adding the hops directly to the mash—about 10 IBUs worth, apparently just enough to moderate the lactic-acid bacteria without fully inhibiting them.

Starting with their second batch, Eik & Tid has never boiled their wort. They were adamant about that: “By setting quite rigid limitations for ourselves,” Arnesen says, “we will ensure that we have to get creative to make stuff.” They also took inspiration in that approach from various chefs who limit themselves to local, in-season ingredients, as with the New Nordic cuisine associated with Denmark’s famous Noma restaurant.

Eik & Tid also uses only 100 percent Norwegian malts, rather than buying it from Germany or elsewhere. “I mean, if you’re a French grape farmer making wine,” Arnesen says, “you don’t buy Italian grapes.”

Those self-imposed limitations are what define Eik & Tid beers. Arnesen paraphrases his friend Paul Arney of The Ale Apothecary in Bend, Oregon. “He says that if you order everything from a catalog, and the catalog is basically limitless, you’re not going to be creative. And most craft brewers are catalog brewers—they have access to anything they want, any time. So, this is not the easy way to go. You have to figure stuff out.”

As far as they’re aware, nobody before them was intentionally brewing raw ales that undergo mixed-culture fermentation—so they had no reference point. “You can’t just Google it,” Arnesen says. There was a lot of trial and error—and a lot of dumped batches. “We just keep at it until we figure it out—and we have figured out a lot of stuff. And that’s become a way of thinking for us—it doesn’t feel like a limitation anymore. It feels like we are now finding solutions that we never would have found if we [had] started this as a more normal, mainstream, generic craft brewery,” Arnesen says.

If they had started it that way, “we would just be doing what everyone else is doing, and we would have a shitload of debt in the bank, and we would be making an IPA flagship beer. That’s the way it would have gone down. But we can’t make an IPA—we don’t have a boil kettle.”

Rather than borrow money for an unsellable business idea, they took a cue from farmhouse brewers and repurposed old equipment. Their mash tun is a 10-hectoliter (8.5-barrel) round steel vessel once used to cool milk on a dairy farm; they had a local blacksmith forge the false bottom. Arnesen estimates that the whole mash setup cost about €400 (roughly \$450). For milling their malt, they found a grinder that farmers used to crush grain for feed; that cost another €500. The rest of their equipment is similarly upcycled and cobbled together, with adjustments made over time. “It was pretty shady in the beginning,” Arnesen says, “but now it’s working fine.”

Eik & Tid does most of their primary fermentation in plastic totes before transferring to oak. Their barrelage includes eight 2,200-liter foeders rescued from abandonment, formerly used by Norway’s government-owned Vinmonopole, or Wine Monopoly. Each of those foeders operates as a solera system and is never completely emptied—they draw out 1,000 liters (264 gallons) and replace it with 1,000 freshly fermented liters of raw ale. Then it will be about two months of maturation before they can turn to that foeder again. “We can’t do it any faster than that,” Arnesen says. “We just won’t get the correct balance between the reductive and the oxidative flavors in the beer.”



MAKE IT

Eik & Tid cerasus

This recipe is for a raw ale—that is, no boiling—fermented with a distinctive kveik and later steeped with lots of sour cherries. Eik & Tid cofounder and brewer Amund Polden Arnesen calls it “a beer to capture the experience of eating fresh berries off the vine.”

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.042

FG: 1.004

IBUs: 10-ish

ABV: 5%

MALT/GRAIN BILL

8 lb (3.6 kg) favorite pale malt, local if possible

HOPS & ADDITIONS SCHEDULE

Roughly 10 IBUs worth of any hops (such as 3.4 oz/96 g of 4% AA Hallertauer Mittelfrüh) added to the mash, just after mash-in

6.6 lb (3 kg) fresh-frozen sour cherries

YEAST

Escarpment Hornindal Farm Kveik, if available; or Hornindal Blend plus *Lactobacillus paracasei*; or any Hornindal kveik plus favorite *Lacto* strain (see Brewer's Notes)

DIRECTIONS

Mill the grains and mash at 153°F (67°C) for 90 minutes, adding mash hops just after mash-in. Raise to 167–172°F (75–78°C) for mash-out. Recirculate until the runnings are clear, then run off into the kettle. Sparge as needed to get about 5.5 gallons (21 liters) of wort. *Do not boil*. Chill to about 95°F (35°C) and pitch the yeast—feel free to yeast-scream (*gjaerkauk*) if you like. Ferment at 95°F (35°C) until complete, then transfer to a barrel or other oak-aging vessel.

When the flavors are balanced and stable (usually after 2–3 months), transfer on top of fresh-frozen cherries. Allow 4–6 weeks refermentation to extract the freshest colors and flavors from the cherries without over aging. Rack off the fruit, package, and carbonate to about 2.8 volumes.

BREWER'S NOTES

Kveik: The original kveik collected by Eik & Tid from Hornindal, and adopted as a house culture that is continually re-pitched, includes *Lacto*. Many labs sell a “clean” version of Hornindal that no longer includes that bacteria; however, Escarpment occasionally sells a Hornindal Farm Kveik that includes it, or the *L. paracasei* that was isolated from it. (For much more about kveik, see “Brewing with Kveik: What Have We Learned So Far?” beerandbrewing.com.)

Fruit: Feel free to sub in berries or preferred local fruit. Freezing fresh fruit helps to prepare it for extraction and sanitizes it. You can also reuse the fruit for a second beer; the cherry/berry flavor will taste more candy-like on the second extraction.

MIXED-CULTURE MAGIC

The profile of Eik & Tid beers is unusual and compelling. My own notes, from visits to Norway in 2018 and 2019, mention flavors of lemon and grain, yogurt-like lactic tartness, and a slick, almost savory impression before a dry, refreshing finish. Arnesen says that many people detect a distinct house character of Eik & Tid beers—but that's not from the kveik. Rather, it has more to do with being unboiled in conjunction with the mixed-culture oak-aging.

Normally, beer gets a lot of flavor from the Maillard reactions of boiling. “It turns out that this is much of what we recognize as beer flavor,” Arnesen says. “Just the absence of that makes this a really different-tasting product.” The color is also paler without the boil, sometimes having a faintly greenish or grayish sheen to it.

The kveik, instead of building flavor, is their workhorse—it gets that primary fermentation done, and it gets it done quickly. In winter, when the wort will cool more overnight, Arnesen pitches the kveik as warm as 106°F (41°C); in summer, he'll pitch cooler, since the wort will warm up on its own. Either way, most of the fermentation happens closer to 93°F (34°C). Much of the fermentation happens in the first 24 hours, but at Eik & Tid, they give it a week or so to settle.

The oak-aging begins with all those proteins in solution because there was no hot break from the boil or cold break from rapid chilling. The proteins themselves are flavorless, but then something fascinating happens: The lactic-acid bacteria go to work on them, breaking them down into flavor-active amino acids. Arnesen says they believe that creates a subtle umami-like character that some describe as briny or mineral-like—and may be what I noted as “savory.” Arnesen says this umami-like note provides depth for fruit flavors, helping them to pop—even when no fruit is added. Sometimes, he says, the beer has such an intensely fruity profile that people don't believe them when they say there is no fruit in it.

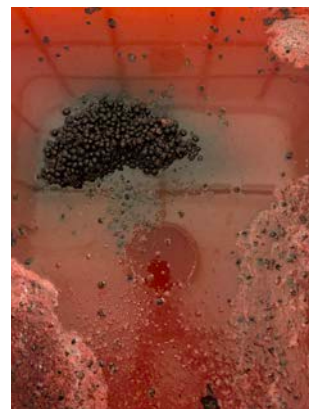
“This is the true importance of working with fermentation flavors,” Arnesen says. “A lot of stuff that's happening in the industry these days is about getting *away* from fermentation flavors. It's supposed to be clean; it's supposed to be single-celled ... and the flavor goes toward the other ingredients. But the magic and the complexity that you can create from fermentation—we still can't copy that.”

When their beers are freshly fermented by the Stalljen kveik, Arnesen says it smells and tastes of green mangos and passion fruit. He likes to imagine farmers in 17th-century Norway—who would never have had the chance to taste tropical fruit—enjoying those flavors. “They were having these sensory experiences, and it's just mind-blowing,” he says. “That is the beauty of fermentation flavors, right? You can create something that is out of this world, and it doesn't compare to anything else, basically.”

CONTRIBUTING ORIGINALITY

“The essence of our brewery,” Arnesen says, “is to use our own heritage and traditions, to create flavors with a sense of place—with a *true* sense of place. ... That's what creates and ensures true diversity in any category of food or drink—that is why food and drink traditions are valued, usually.”

He continues: “It's not that we are Luddites or in opposition to industry or craft in general. It's just that we feel that there is quite a lot of assimilation in beer-brewing in general these days, and we truly value the importance of having diversity. And we hope that our expression of creation here, and our flavors, contribute to that.”





Antidoot wilde fermenten

Kortenaken, Flemish Brabant, Belgium

When brothers Tom and Wim Jacobs started homebrewing, they were buying packets of yeast like anybody else. They also had friends who worked for modern breweries, including Duvel Moortgat. There may have been bemusement at the brothers buying miniature copies of their company yeast.

"And there is something very weird," Tom says. "Because the craft world, they argue that they're bringing something new and fresh to the scene. But actually, they are just buying, say Duvel yeast, or Chimay yeast. So, at the end, the ones who are creating the diversity are not craft

brewers ... because there's no stubbornness with them."

That realization became a driving force behind the evolution of Antidoot Wilde Fermenten: "We had the idea that what's lacking somehow today is this stubbornness, to stick to something—and to create something distinct in that way," Tom says. "Like, you're not creating diversity by just brewing 40 different beer styles, because that's just going with the hype and what's fashionable today. That's not something that lasts. For us, we want to do something that lasts."

TAKING IT FURTHER

Not only a brewery, but also a cidery and small-scale winery—sometimes those products mingle in the bottle to form new ones—Antidoot dabbles in a variety of mixed-culture adventures.

The Jacobs founded Antidoot in 2018, after several years of experimenting as homebrewers. That evolution was something that Tom says happened organically after he and his wife moved to the small town of Kortenaken around 2009. "The idea was to live more self-sufficient on the countryside—so, have our own vegetables, have our own meat," he says. "And we really liked to drink some beer. So, then we started homebrewing. It was just actually a way of making things ourselves. But that was kind of a thing that got a bit out of hand."

Tom says he and Wim were never serious beer geeks, but they enjoyed drinking Saison Dupont, Orval, and the black-label Gueuze Girardin. At first, they brewed tripels or other classic ale styles, but within a few years they were adding *Brett*-laced Orval dregs to their fermentations. Things snowballed from there. They began buying oak barrels, seeking a more complex bacterial profile. "Before we knew it, we had too many big wine barrels in my brother's cellar," Tom says, "and then we had to make a decision. Like, 'What are we going to do with this? Are we going to take it further, or not?'"

For Tom, who was tired of his day job as a philosophy lecturer, the choice was easy. In 2017 they built a small but professional brewery at his house. "In some ways it's still homebrew," he says, "because it's literally at my home that we do it. And it's still very similar to homebrew—it's just that the kettles are a bit bigger." They brew 10 hectoliters per batch, enough to fill three wine barrels each time. Currently they brew only 15 to 20 batches of beer per year, primarily in winter.

Antidoot beers are dependent on the seasons and climate. When I speak with Tom in early December, they've just finished their two-month cider season of picking and pressing. The next step is to clean up and start the beer-brewing season, when the cooler weather allows use of the coolship.

They use the coolship for its original purpose—it cools wort. "We don't have a plate chiller," Tom says. "Everything goes through the coolship. ... We have learned to brew only when it's really cold enough because we've seen some problematic infections when it's too warm. So, we're very careful with that."

They prepare a starter of their house culture and pitch it to get fermentation going quickly, Tom says. This helps to get the pH down, since they're not acidifying their wort. It also helps to ensure fermentation progresses despite the cool temperatures of

their winter brewing season. Inevitably, the culture must also live in those barrels.

THE ORIGINS OF A MIXED CULTURE

The Jacobs brothers describe their house culture of yeast and bacteria as “indigenous.” Over the years, they have done a fair amount of yeast-wrangling around their rural brewery. The popular Milk the Funk website gave them lots of ideas on how to collect the local micro-critters and ferment starters with them.

“We tried different wild captures until we had a kind of capture that we were happy about,” Tom says. “We used different plants and fruits from the garden and the surroundings. And it was a few years of experiments with that.”

Whenever they got one they liked, it would wind up in the mixed culture.

So, what exactly is in that culture? “We have no idea,” Tom says. “We’ve never run lab tests of those cultures. We just know it works. It’s a bit like when you have a sourdough culture—you know how to use it, you know how to feed it, you know how to keep it alive. You know somehow what it does, what its effects are. ... But we don’t know the details, say, on a microbiological level.”

However, based on how the yeast behave, Antidoot can make some safe assumptions: There are *Saccharomyces* strains driving the fermentation; there is *Pediococcus*, since the beer develops a telltale “ropey” viscosity early in its maturation; since the ropiness doesn’t last, there is likely some *Brettanomyces* chewing up the exopolysaccharides that cause the ropiness.

Naturally, there are also lactic-acid bacteria, which they keep under control by using hops. They have been experimenting with the quantity and blend of hops, to get gentler acidity and a more balanced beer. “We want to limit, early on, the *Lactobacillus*,” Tom says. “We don’t want any quick *Lactobacillus* growth. We’ve seen a big difference if we use very few hops, that we get beer with a different acidic profile, which we don’t like so much. We prefer the slow acidification, which probably comes through *Pediococcus*.”

THE ELEMENTS OF AN ANTIDOOT BEER

The hops Antidoot uses are Belgian, and they’re literally a mixed bag: some homegrown, some aged hops, and a few fresh ones. They’re also functional: “It’s all for the antibacterial effects,” Tom says.

The hops go in the kettle for the entire three-hour boil. Why such a long boil? “I cannot really explain it, let’s say, on a scientific level,” Tom says. “It’s an intuition. When you boil that long, it’s [denser]. It’s not about the acidity, but the mouthfeel is also very important for us. We’re look-



“you’re not creating diversity by just brewing 40 different beer styles because that’s just going with the hype and what’s fashionable today. That’s not something that lasts. For us, we want to do something that lasts.”



ing for a beer ... with a bit of a creamy mouthfeel. And we have the idea that with a longer boil, together with all the raw grains that we use, it’s a [denser] wort.”

They also conduct a lambic-style turbid mash for all their beers, to produce more dextrins for their culture to chew on over time. The grist is typically one-third unmalted wheat, or occasionally spelt or a bit of oats. The unmalted grains always come from a local farmer—but that’s not always possible. This season, Tom says, the farmer has no wheat because of an insect problem. So, Antidoot will use spelt while looking for another local source of unmalted wheat.

The rest of the grist is organic pale malt from Dingemans or Weyermann. Tom says they would buy it from a smaller, more local outfit if they could; there are no small maltings in Belgium, though nearby Hof ten Dormaal brewery is beginning to experiment with malting its own barley.

They typically bottle their drinks in attractively labeled 75 cl bottles. About a third of what they produce is cider, and the rest beer. While they do grow their own grapes and make natural wine, they don’t sell the wine; instead, much of it ends up blended with either the beer or cider. “But for us, it’s very similar,” Tom says. “We don’t make a distinction between those.”

Bottles are hard to come by. The brewery is tiny, and early accolades led to an uncomfortable amount of attention from traders and speculators who were re-selling at many times their price for personal profit. So, Antidoot established a club, which received many more applicants than there were spots. They chose 300 successful applications at random. Their website’s membership page currently reads, “Unfortunately, there are no more spots available for 2022. There is also no waiting list.”

TAMING THEIR OWN CREATURE

When they were experimenting with wild captures of yeast, they knew they wanted to focus on capturing *Saccharomyces*, Tom says. They wanted their culture to be a reliable and hardy fermenter—but they also wanted it to be their own. In reading American sources on mixed fermentation, Tom says, “what they mostly do is they use a commercial *Saccharomyces* strain, and then they mix it with, say, *Lactobacillus*, or they add some *Brettanomyces* to it. And that was something we didn’t want to do at all because for us, that’s not wild fermentation.”

They didn’t want the same domesticated strains that anyone can get. “We really wanted to see, what’s the effect of the wild *Saccharomyces* on the beer? With these wild captures, we saw very interesting profiles that had nothing to do with what people normally associate with wild beers—namely, *Brettanomyces* and bacteria. It had all to do with the character of the *Saccharomyces*.”

Of course, there are limits to what their culture can do well—but those limits are part of the point. Their culture produces a lot of fruity esters and some spicier phenolics, too. It would not ferment a nice IPA, Tom says, because the hops wouldn’t shine. However, after two or three weeks of fermentation, he says, the beer resembles a Belgian saison. Those fruity esters mellow over time in the barrel while the house character develops further.

One of the things that makes Tom happiest is when people can identify that house character and say, “Oh, that’s an Antidoot beer.”

In describing the profile, Tom says a typical Antidoot beer tastes herbal, even when they don’t add herbs; the esters are mellow and “aged”; it’s gently acidic, not sour; and there’s a creamy mouthfeel that persists in the bottle. One thing he and his brother don’t like much is *Brett* funk—too much can be distracting, while also tasting too much like other *Brett* beers. As an example, Tom cites natural wine makers making very clean, vivid wines using indigenous yeast.

“Because I think what’s for us interesting is to create, somehow, diversity in the beer scene,” he says. “And what annoys me a bit is that a lot of breweries are just copying each other somehow, or just looking too much at each other.”

So, he believes the main way they can stand out on their own is via fermentation. “The backbone of a beer for us is mostly yeast-driven. And it’s interesting just to be a bit stubborn, and stick to that character, and try to build a house identity on that—rather than on these kind of artificial tricks.”



Kemker Kultuur

Alverskirchen, North Rhine-Westphalia, Germany

“Beer is made for drinking,” says Jan Kemker, “not for overthinking.”

This comment comes, in retrospect, after I’ve asked one too many questions about whether terroir matters.

Kemker—brewer and founder of a German farmhouse brewery that embraces local products, mixed-culture fermentation, and barrel-aging, and is strongly inspired by historical beer styles—says that beer and wine geeks spend too much time dissecting their drinks.

“Like, you have a dead body, and you open the layers—next layer, and the next layer—and you forget in the moment that you had some food on the table, and your

food is getting cold. And, the vibes with your friends are getting cold.

“So, don’t think too much. Drink.”

AN AGRICULTURAL (BREWING) BUSINESS

Kemker founded the brewery in 2017; his partner Nicole Marzec joined two years later to form the duo behind Kemker Kultuur. Their products go beyond beer to include cider, crusty loaves of rye bread, and other treats such as mustard made from the cider and pâté made from the beer. They sell these products online as well as at a weekly *hofverkauf*, or farm sale, at the brewery in the village of Alverskirchen, about 15 kilometers southeast of Münster.

At university, Kemker studied agriculture and the food business, and he knew he wanted to work in that area. Around his hometown of Münster, there were jobs in the agricultural supply chain, but they were tied to conventional farming; he wanted to be part of something he viewed as more sustainable and smaller scale. There was some distant farming background in his family, but there was no farm to take over. Also, farmland in that area is among the most expensive in Europe; simply buying land to start a farm was not an option. “We need to have a business model that kind of works for us,” he says. “It’s not possible to just do farming here, like classical farming. You need to inherit something.”

So, he knew he would have to start from scratch. He also knew that he liked beer.

That interest began as a teenager; the legal drinking age in Germany is 16. He tasted his first Belgian ale at the age of 18, and it was like an awakening. “Back in the day, that was an eye-opener,” he says. “Like, ‘Beer can taste like something!’” He wanted to drink that kind of beer at home, but it was expensive and hard to find in Germany. “And I had the smart idea: ‘Yeah, homebrewing! It’s going to be cheaper!’

“Of course, it was a fun hobby,” he says. However, spoiler alert: “It wasn’t cheaper.”

At first, he jumped from style to style, trying to brew everything from an Irish red to a Cascadian dark ale. Over the years and after more travels, he gradually narrowed down his preferences toward the dry, complex, fruit-forward character he produces and enjoys today.

In the meantime, however, he inevitably began thinking of how to combine his interests in beer and agriculture.

“What was pretty close to farming was brewing,” Kemker says, “especially the way we do things now in the brewery—like working very [closely] with farmers preserving old grain varieties, planting trees for cider, and so on.” He also knew the by-products, such as spent grains and apple pomace, could then be fed to livestock. “So that was the value stream on how we can build a farm ourselves.”

Around 2014, he explained the farm-brewery idea to a professor; she was not amused. A couple of years later, when he had further refined the idea, he pitched the idea to some bankers; they were not amused either. “‘There isn’t a market, it isn’t a proven business model,’ and whatever,” Kemker says. “Well then, fuck it. No one’s giving money for my idea to open a generic craft brewery. Well then, I could at least start small and brew beers that I like to drink.

“And that’s how the idea of Kemker Kultuur was born. ... We started completely bootstrapped.”

Also, he adds, “I’m now brewing the beers that I like to drink, and that’s dry and fruity beers.” He also appreciates beers that are sour, bitter, herbal, or smoky. He generally avoids sweetness—the sweetest beer he enjoys, he says, is Schlenkerla Märzen—and there is nobody telling him to brew a sweet beer, or anything else that might sell better.

CONNECTING WITH LOCAL HISTORY

Kemker knew that Münsterland, where he and Marzec were born and grew up, was where he wanted to be. Yet, for him, there is another attraction to the area: its brewing history, little-known to the current inhabitants. While Münster today has more than 300,000 people who drink mainly industrial pilsner and altbier, Kemker says it was once a town of just 10,000 people boasting 140 breweries making beer in a wide range of styles.

Even in Germany, few people realize the diversity of styles that the country once brewed, including many top-fermented beers in the north. There was a broad belt across the grain-growing, commercially connected regions of Europe brewing pale, acidic beers. The most famous survivors

are lambic and Berliner weisse—“but if you draw a line from Brussels to Berlin, you find lots of cities,” Kemker says. Münster is in that belt, as are Düsseldorf, Köln, Leipzig, and Goslar.

Münster was a grain-brewing city about 600 years ago, and later it was famous for brewing *keut*, which evolved from grain but embraced hopping as fashions changed. By the 19th century, however, Münster’s own version of altbier had become dominant—this was an aged and acidic beer that apparently had its lovers and haters even at the time. Local brewery Pinkus Müller’s unusual Pinkus Alt is a vestige of that tradition, with its own light lactic tang.

“The beers that were brewed here were also sour or herbal beers, and also some table beers, spelt beers,” Kemker says.

Though the brewers’ understanding of them would have been different from our own, those all would have been mixed-culture beers, enjoyed either fresh or with a more vinous character that developed over time. Thus, the local history isn’t only compatible with Kemker’s relatively austere tastes. It’s also compatible with his own mixed culture of yeast and bacteria.

“Like, you have a dead body, and you open the layers—next layer, and the next layer—and you forget in the moment that you had some food on the table, and your food is getting cold. And, the vibes with your friends are getting cold. So, don’t think too much. Orink.”





KEMKER'S KULTUUR

Kemker began developing his house culture during his homebrewing days. It began by pitching in bottle dregs and yeast strains of beers that he liked, but now it's evolved and taken on a life of its own. *Lactobacillus* and *Pediococcus* are in the mix, as are "all three families" of *Brettanomyces*, according to an analysis that Richard Preiss of Escarpment Labs did for him.

One of Kemker's signature beers is Aoltbeer, a barrel-aged, mixed-culture riff on the old Münsterisch altbier, sometimes with grapes, other fruit, or additional hops added. His recipe includes barley and spelt because he believes that's what they were mostly growing in the area back then. He also uses whole-cone hops, somewhat aged, just as they would have before electric refrigeration. (There were no T-90 pellets or walk-in coolers back then. There were burlap sacks, and there were dry attics.)

The beer itself, however, would have matured underground. The Münster brewers had their own cellars below the city where they could store and age the beer, and this would have meant a longer, cooler, slower maturation, and possibly a softer acidic bite. "We had less acetic acid in the beers, compared to lambic," Kemker says. "And that's what we tried to mimic with our current location."

The current location is a former cattle barn that Kemker renovated in 2018. It stays relatively cool, even in summer. Kemker

says this inhibits the acetic-acid production—though he wouldn't mind just a touch more of that vinegar-like sharpness. "Because you need a little bit, like a spice in cooking," he says. "You need to have a little bit of acetic acid to make a barrel-aged beer interesting." Some beers that they have aged longer, for two years, have developed that spice, he says.

Kemker also occasionally brews an interpretation of gruit, in collaboration with local beer historian Phillip Overberg and his Gruthaus brand. The red-brown beer, called Dubbel Porse, is flavored with

what they believe to be the original gruit mixture of Münster: bog myrtle, caraway, juniper, and just a bit of hops.

About 85 percent of Kemker's production is aged in various types of wine barrels. The current oak-aging capacity is about 20,000 liters (5,283 gallons). "We experimented a bit with other barrels. Rum was very disappointing. We threw away the beer; it didn't taste good."

He tends to age the beer for a long time, and he says he thinks in terms of summers instead of years. "I think most of the beers are ready when they have seen two summers," he says. "But sometimes you also have a pretty good beer after one summer. So, it's between 10 months and 20 months."

KEMKER ABIDES, ESTABLISHING ROOTS

Without some kind of validation, it's not the German way to appreciate unusual things that appear in your own backyard.

Outside of a few aficionados and a couple of Münster restaurants with artisanal interests, the locals overlook Kemker's beers; they don't fit the prevailing understanding of what "beer" is supposed to be. The villagers, he says, privately predict the imminent failure of the "sour-beer brewer" any day now. Somehow, he's still there. (Occasionally, a local will take a business trip to Berlin and encounter a Kemker beer, and then some measure of local pride must emerge. "Oh, it actually tastes good!" they'll report.)

For the most part, Kemker's customers are farther abroad. Kemker Kultuur sells beer via their website—often for less than €10 a bottle—and that direct-to-consumer shipping within Europe has been helpful during the pandemic, while making those beers accessible to those who appreciate them.

They don't own the farm, but they rent. In cooperation with the landlord, they've grown older heirloom varieties of oats and barley and planted apple trees for cider. They also planted more apple trees on his uncle's land. They partner with another farmer nearby in growing spelt for the brewery, as well as *schwarze pfauengerste*, or black peacock, a dark-husked heirloom barley.

Embracing those historic grains is one way that Kemker's beers are developing their own local strut. "It was used for brewing 150 years ago," he says of the black barley. "And it was a bit neglected because the yields weren't that good, and it was also tough to grow it. But the malting process was quite good, and the end-product was quite good. And it's also looking quite nice."

When asked about terroir, Kemker responds by explaining that he can't taste the difference between barley grown on loamy soil versus that grown on sandy soil. Instead, what interests him and Marzec is "a local value chain." They *like* that the grains are grown locally (and wish there were a small maltster nearby). They *like* that the by-products of their beer and cider help to feed nearby livestock.

Why brew beer this way? "Why not?" he asks. "The brewery started bootstrapped, so it's not investor-driven. So basically, we can do what we want [as long as] we still make turnover, or profit. There are not lots of people who can talk—it's Nicole and me, we are making the decisions, and we decided that we wanted to go this route."

They know there are easier ways—and cheaper ways. "I could buy conventional grain and save some thousands of bucks per year, but then I don't have anything to tell," Kemker says. "Finding stories is also challenging. So, if you do something good, then you have something to talk about."

There is something else, too: never quite knowing the next plot twist, whether tragic or sublime. Either way, it will be something new.

"It's a very repetitive process, what we do, but the outcomes are often very different," Kemker says. "Because the organic grains, they are inconsistent, they change all the time. Then the climate in the brewery changes all the time. Barrels behave differently. The yeast culture behaves differently [during] the year."

"I don't know if we need to call it terroir," he says. "It's liquid storytelling, I think." 🍷

FARMHOUSE BEERS & MIXED CULTURES

MIXING IT UP: COMPLEX FERMENTATIONS MADE SIMPLER

Opening your fermentations to a wider array of yeasts and bacteria can add great complexity to your beers. It can also add complexity to your brewing process—but the challenge is both surmountable and rewarding. **Josh Weikert** explains.

I REMEMBER MY FIRST mixed-culture fermentation: I was so nervous about infecting my home brewery that I pitched a *Lactobacillus* culture into my Berliner weisse wort in the open-air environs of my deck, far from my precious *not*-bacteria-laden equipment and fermentors.

The resulting beer (my Scared Sour Berliner Weisse, beerandbrewing.com) was successful, and I avoided creating a runaway *Lacto* infection in my brewhouse. That turned out to be an unjustified fear on my part. The biggest lesson I learned is that mixed cultures are nothing to be scared of, while they can be an outstanding way to expand your repertoire of flavor compounds, combinations, and profiles as a brewer.

A few quick hits before we go any further:

- First, don't assume that when we say "mixed culture" we're *always* talking about sour beer. That's not necessarily the case—though the spectrum can vary from just a pleasant kiss of funk to bracing sourness, via gentle tartness.
- Second, a mixed-culture fermentation is not the same as spontaneous fermentation, where native cultures in the air or wood go to work on the beer. Creating a true "wild ale" entails considerations and risks that we won't get into here. (For more on that, see "Spontaneity: Prospecting for Bugs," beerandbrewing.com.)
- Last, and most important, is this: *Don't expect the bugs to do your work for you.*

Too many brewers seem to think that the hard work is done the moment they pitch an exotic fermenting agent into their wort. Although a mixed-culture fermentation has the potential to create a more interesting beer than we may have brewed before, it's still incumbent upon us to drive that beer to where we intend it to go. This requires attention to detail, and especially to the fermentation.

"Be as meticulous when crafting a mixed-fermentation beer as you would when brewing a beautifully crisp lager," says Patrick Chavanelle, R&D brewer at Allagash in Portland, Maine. "Just because it's a wild beer doesn't mean that you can be careless."

With that thought fresh in our minds, let's get to work.

KNOW YOUR BUGS

Before starting any job, it's a good idea to make sure we understand our tools. A

"mixed fermentation" is any fermentation that uses more than one of several genera of microorganisms as a fermentation agent. For our purposes, that's probably going to be *Saccharomyces*, *Brettanomyces*, *Lactobacillus*, or *Pediococcus*. That's not remotely an exhaustive list, but those are the organisms we have the most history with in the context of brewing.

Saccharomyces is what we conventionally think of as "brewer's yeast"—that's our go-to workhorse in the brewhouse. Dozens of strains from a range of producers and sources give us a wide collection of flavor profiles, attenuation rates, and preferred temperature ranges. *Sacc* is a robust organism, grows up quickly, and will convert simple sugars into ethanol and CO₂ with few off-flavors (when well-managed). It will (usually) form the base of our beer's fermentation profile.

Brett, by comparison, is more of a slow-and-steady fermenter. It will consume a wider diet of sugars—and consume virtually all of them—but it will take its time. Left to its own devices, if pitched as the sole yeast

"Be as meticulous when crafting a mixed-fermentation beer as you would when brewing a beautifully crisp lager," says Patrick Chavanelle, R&D brewer at Allagash in Portland, Maine. "Just because it's a wild beer doesn't mean that you can be careless."



for primary fermentation, *Brett* will produce a beer with a surprisingly clean profile given its funky reputation. Essentially, it produces that funk only when forced to work harder to consume sugars—for example, when *Sacc* or other yeast get there first. Since we're talking mixed cultures here, it makes sense to expect and embrace those funky notes—which can vary widely and might be described as fruity, tropical, floral, vinous, barnyardy, sweaty, and more. There are many types of *Brett*, and they will produce different aromas depending on their environments.

Notably, there are two common misconceptions about *Brettanomyces*: One is that it will turn a beer sour, and the other is that it will *not* turn a beer sour. The truth is that it depends on you and your control of fermentation. *Brett* won't produce lactic acid, but in the presence of oxygen it *will* produce undesirable levels of acetic acid. Avoiding oxygen will keep you from making vinegar. If there's one thing to remember about *Brett*, it's this: *purge, purge, purge*.

Moving away from the yeasts, we find two highly useful bacteria.

One is *Lactobacillus*, which has the virtue of producing a healthy amount of good, clean, brightly flavored lactic acid with minimal funky undertones. *Lacto* generally consumes simple sugars and works quickly, *but ...* it's touchy. Other yeasts and bugs tend to out-compete it, and it's highly sensitive to hops, which limit its productivity. By the same token, however, you can also use a bit of hops to intentionally restrain that acidity.

"The best mixed-fermentation beers tend to be made with intention as opposed to by accident."

Pediococcus is another lactic-acid producer. However, where *Lacto* is sensitive and simple, *Pedio* is like its brooding sibling: Expect some lactic acid, but also expect diacetyl, fruity notes (often like grape jelly), ropiness in texture, and the potential for a range of other funky flavors. The flavor of *Pedio* can be hard to predict, but it's also hard to imitate—when you need it, you need it; it's integral to the character of lambic, for example. Here's a neat trick: Given time, *Brett* will break down the diacetyl and ropiness that *Pedio* can create.

Are there other bacteria and yeast out there? You bet, and more than we can discuss here. The core principle is this: Be conscious of the properties, propensities, and potential of what you're adding. Keep it intentional.

Putting mixed cultures to work

For starters, it's a good idea to think about what a "simple" version of your mixed-culture beer would look like. Just as Allagash's Chavanelle cautions us to brew deliberately with mixed cultures, we need to know where we're starting.

"Knowing your base beer, and how it develops over time with a known culture, fleshes out the individual natures of the microbes in play," says Sarah Resnick, blender and wood-program quality specialist at pFriem Family Brewers in Hood River, Oregon.

My prior experiences have validated this approach. If you don't know what the beer does under simple conditions, it's extremely difficult to predict accurately how it will behave under more complex conditions.

With the base-beer profile in mind, our next choice revolves around a classic dilemma: control of the details versus simplicity of method.

If you want to maximize control, plan to pitch individual strains of microorganisms. This approach not only lets you select specific varieties of yeast and bacteria, it also allows you to "tune" your beer to a specific set of factors and aim at a smaller target for each. You can make environmental choices that empower healthy and productive fermentation, thus leading (one

hopes) to a more accurate prediction of results. Timing and order of pitches, use (or not) of fermentation supports (oxygen, nutrients, etc.), temperature at different stages of fermentation, and more—those are yours to control. This puts the ball squarely in your court—but it might be a game you don't want to play.

On the other hand, to maximize simplicity, you may choose to pitch a premixed set of cultures. These mixed cultures—available from many yeast vendors—are designed to emulate certain beers, regions, or styles in their mix of fermenting flora. One pitch, and you're done. However, what you gain in simplicity you lose in control: As discussed in the previous section, different organisms have different parameters for optimum performance. Using a premixed culture will limit your options because *all* of your bugs are in the wort at the same moment. It's a trade-off, but one that might be worth making, especially because it increases replicability (i.e., you can repeat the process with the same premade pitch).

This brings us to a fork in the procedural road: whether to pitch all your organisms at once (co-pitching) or to add them in sequence (staggered pitching). If you're using the premixed culture, that's decided: You're co-pitching. But for those working with independent cultures, you *may* choose to give some strains a head start. Research on this shows variable effects—unsurprising, given the number of variables involved—but for a general method, I like to work from "fast-and-sensitive" to "slow-and-indiscriminate." If you're going to stagger (and you're not going to measure pH or titratable acidity for timing), here's what I recommend:

1. Initial pitch: *Lacto*.
2. At 48 to 72 hours: *Sacc*.
3. Upon stabilization of gravity—or at 14 days, if not measuring—transfer to secondary vessel, then add *Brett* and/or *Pedio*.

This approach mostly keeps each strain from stepping on the others' toes while reducing the need to take a strictly "diagnostic" approach.

So, we have the what and the when. Now let's focus on the "how." Below, we review some recipe and process advice to help you get the most out of your mixed-culture fermentations.



embracing uncertainty

All of this guidance comes with a big caveat: *Mixed-culture fermentations are much more variable in outcome than single-culture fermentations.* We can guide, limit risk, and work with the end in mind, but these beers still require a certain willingness to embrace uncertainty. (Obviously, that's easier for us as homebrewers.)

Again, brew deliberately. Pay as much (or more) attention to temperatures, time, and fermentation environment as you would in a simpler beer.

FOCUS ON PITCH RATE. Under-pitching a monoculture *Sacc* beer still gets you that same base beer. However, when we're using diverse organisms with different "work rates," it helps to know when helping them along with a bigger pitch is warranted to get our basic profile.

PAY ATTENTION TO FERMENTOR MATERIALS. Glass rather than plastic will help limit oxygen in longer rests. Wood is another traditional option that can be inoculated.

THE YEAST OR BACTERIA STRAIN MATTERS. It's not just about which kinds of organisms you choose, but also which specific variety is at work. Just like *Sacc*, there are multiple strains of each bug. Do some research into the performance factors and flavor profile of specific strains (and/or go with a premixed culture) to ensure you're working toward the flavors you want.

CONSIDER LATE ADJUSTMENTS. Despite all that deliberation and care, you *still* might not get what you want. This is when post-fermentation doctoring can help. One option to consider: Brewing up different, simpler beers, and then blending them to taste.

Resnick at pFriem is one brewer who suggests trying this method, if you have space for it: "The availability of a variety of blending stock, including several strains of *Brett* and batches of beer guided by lab-produced cultures, has made us more agile," she says. Controlling acidity is a challenge, she says, and blending is a good way to balance the final product.

Chavanelle at Allagash also suggests keeping an open mind when blending. "Keep your options open for blending in other mixed-ferm and non-wild beers, as both can be useful for adjustments to acidity and aroma," he says. Another tip: Graduated cylinders are really handy for keeping track of your blending ratios.

To that expert advice, I'll add this: Don't be afraid to use food-grade lactic acid, added at packaging, to "cheat" your way to a brighter and bigger acidity. The final product will speak for itself.

Other adjustments: Resting on fruit or wood can add complexity, acidity, structure, and new flavors; adding *Brett* at packaging (hey, it's good enough for Orval) can allow a touch of funk to evolve with time. (Just take care to avoid over-carbonation and bottle bombs.)

Blending and augmenting won't fix every problem—it's hard to blend out aggressively acetic or phenolic flavors, for example—but they're in the toolkit. Be patient: Mixed-culture beers usually take at least three months and may take a year or more. Choose and use flavors deliberately and keep working toward your goal. The beer's not done until you say it's done.

ending at the beginning

Just as pitching multiple yeasts and bugs isn't the sum total of what makes a great mixed-culture fermentation, mixing cultures is no cure-all. It isn't a Band-Aid for dull or bad beer.

"Do you have a batch of beer that you're considering adding wild yeast or bacteria to because it didn't turn out as expected?" asks Chavanelle at Allagash. "You'll likely have better luck moving on and starting from scratch as opposed to crossing your fingers hoping for the best. The best mixed-fermentation beers tend to be made with intention as opposed to by accident."

Mixed-culture fermentations represent some of the best in brewing because they demand sizeable mastery of our art *and* our science. As brewing challenges go, this is about as good as they get. Do you need another reason to try?



MAKE IT

Jester King Le petit prince

Courtesy of Jeff Stuffings, founder of Austin's Jester King brewery, this homebrew-scale recipe for their highly regarded rustic table beer uses funky bottle dregs combined with a blend of saison yeasts to approximate their unique house culture.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.022

FG: 1.000

IBUs: 22

ABV: 2.9%

MALT/GRAIN BILL

3.3 lb (1.5 kg) pilsner

13 oz (368 g) malted wheat

HOPS & ADDITIONS SCHEDULE

0.75 oz (21 g) U.S. Goldings at 60 minutes [16 IBUs]

0.5 oz (14 g) U.S. Perle at 10 minutes [6 IBUs]

1 tablet Whirlfloc at 10 minutes

1 tsp (5 ml) yeast nutrient at 10 minutes

0.5 oz (14 g) U.S. Fuggles at flameout

0.75 oz (21 g) each of U.S. Perle and U.S. Fuggles at dry hop

YEAST

Co-pitch Wyeast 3711 French Saison and White Labs WLP565 Belgian Saison with the bottle dregs from a favorite wild ale.

DIRECTIONS

Mill the grains and mash at 152°F (67°C) for 60 minutes. Vorlauf until the runnings are clear, then run off into the kettle. Sparge and top up as necessary to get about 6 gallons (23 liters) of wort—or more, depending on your evaporation rate. Boil for 60 minutes, adding hops, Whirlfloc, and yeast nutrient according to the schedule, including the hops at flameout. Chill to about 72°F (22°C), aerate well, and pitch the combined yeast strains and bottle dregs. Ferment at 75°F (24°C) until it reaches terminal gravity, then dry hop for 3 days. Crash, package, and carbonate to 3 volumes of CO₂.

BREWER'S NOTES

Malt: We use TexMalt Llano Pilsner and TexMalt Denton County Wheat from TexMalt in Fort Worth, Texas.

Hops: Our hops come from The Oregon Hophouse, an organic grower in Aurora, Oregon.

Water: For anyone who wants to imitate the well water at Jester King, the report on our profile (in parts per million—ppm) is calcium (91), magnesium (63), sulfate (324), sodium (119), chloride (61), bicarbonate (305), with an alkalinity of 250.



CRAFT Beer & Brewing

PRESENTS THE

minnesota

CRAFT BEER

festival

MINNEAPOLIS-ST. PAUL > APR 9, 2022

CELEBRATE THE BEST OF CRAFT BEER **APRIL 9, 2022**

WITH **SPECIAL BEERS** FROM SOME OF THE
BEST BREWERS IN THE COUNTRY PLUS **GREAT LIVE MUSIC.**

GET INFO NOW: **MINNESOTACRAFTBEERFESTIVAL.COM**

BREWERY LINEUP INCLUDES:

SPONSORS:





Tasted

This survey of Belgian and Belgian-style beers from our blind-review panel spans everything from familiar **abbey styles** to **farmhouse ale** and **saison, pale ale, and table beer**, along with examples of **lambic, wild ale, and spontaneous fermentation**.

PHOTO: MATT GRAVES/WWW.MGRAPESPHOTO.COM

INSIDE CB&B

How We Taste & Test

Reviewing beer may sound like a dream job, but our tasting and review panel takes the role seriously. Composed of professional brewers, certified Cicerones, and Beer Judge Certification Program (BJCP) judges who have all studied, trained, and been tested on their ability to discern characteristics in beer, our panel is independent and diverse. The panel tastes all beer blindly—they do not know what brands and beers they are tasting until the tasting is complete.

Our goal is to inform you about the strengths and weaknesses of these beers as well as their relative differences (not everyone has the same taste in beer, so accurate descriptors are more valuable than straight numerical values). The quotes you see are compiled from the review panel's score sheets to give you a well-rounded picture of the beer. To add to that snapshot, we also include a brief review from an editor, although that editor's input does not impact the score.

As our reviewers judge, they score based on the standard BJCP components: Aroma (max 12 points), Appearance (max 3 points), Flavor (max 20 points), Mouthfeel (max 5 points), and Overall Impression (max 10 points). We've listed these individual component scores, and the bottom-line number is derived from adding then doubling these component scores to produce a rating on a 100-point scale. Note that the component scores are rounded automatically to the next whole number, so numbers here may not appear to add correctly. Rest assured that the score calculation is built off the numbers before rounding.

Our judges use the following scale in valuing scores:

95-100 » Extraordinary

World-class beers of superlative character and flawless execution

90-94 » Exceptional

Distinguished beers with special character, style, and flavor

85-89 » Very good

Well-crafted beers with noteworthy flavor and style

80-84 » Good

Keep one thing in mind as you read these reviews—your perception of a beer is more important than that of our review panel or editorial staff, and reading reviews in a magazine (or on the Web or in a book) is no substitute for trying the beer yourself.

TASTED: TABLE BEER



Creature Comforts Table Beer

95

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Hop-forward Belgian-style ale featuring Sterling, Saphir, Lemondrop, and dry-hopped with Cascade and Comet. An earthy, floral, and citrus hop character balanced by complex Belgian yeast flavors, which leads to subtle bitterness on the finish."

What our reviewers thought:

"Fruity notes in the aroma—citrus and perfumy in nature—with a peppery spice. Honey-like malt character in the flavor with a bit of bread dough. Easy to drink and enjoy. A slight hint of citrus in the middle with a pleasant bitterness to back it up. The carbonation plays well with the medium-dry finish, leaving you wanting another sip."

What our editors thought:

"Faint fruit notes with a bit of wet hay and rye-like spice in the nose. The sip is rustic without being funky, as rough-hewn plank meets subtle dough with an herbal hop buzz."

ABV: 4.2% IBUs: 30

Loc: Athens, GA



Side Project Brewing à la Table

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Fermented with wild Missouri yeast and our house saison blend before being aged in Missouri oak for several months, then naturally conditioned."

What our reviewers thought:

"Lively aroma with hints of stone fruit, citrus, leather, tart cherry pie, and wet hay gives way to a subtle and gentle flavor profile equal parts refreshing and crisp. An initial blast of nectarine-like acidity with hints of chardonnay grape quickly fades into a soft, thin, crisp body that slowly fades into nothingness ... in a good way. Just enough tartness and complexity to inspire another glass—sessionable funk."

What our editors thought:

"Subtle peach and white-blossom notes structure a light nose with just a bit of leaf-pile earthiness. The sip brings a bold lemony tartness a bit out of balance with the light body, but intensely flavorful despite the low ABV. Prickles the tongue with the sharp acidity and bright carb."

ABV: 2.5% IBUs: N/A

Loc: Maplewood, MO

Cruz Blanca Corn Grisette

85

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Native bacteria, house saison, and Brett cultures."

What our reviewers thought:

"Aromas of leather, wet hay, Froot Loops, barnyard spice promise complexity, yet it's more monotone than dynamic. A hit of acidity melds into the stone fruit and corn but quickly fades to a watery finish."

What our editors thought:

"Wine grape and a woody Roeselare funk on the nose leads into a round sip that pulls in unsweet pineapple and lime juice, unbaked sourdough, worn saddle leather in the sun. More meandering than direct."

ABV: 4% IBUs: N/A

Loc: Chicago



Wild Provisions & Primitive Bière de Coupage

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Mature *méthode traditionnelle* spon and foeder mixed-culture table beer."

What our reviewers thought:

"Strong wild character, like a well-aged lambic. Lemon, old wood, dank buttery notes. Lots of barnyard, hay, and hints of leather. Medium-sour with a light acetic tang. Characterful, demanding attention. Very tart, refreshing, complex."

What our editors thought:

"Light, bright, vivacious energy with faint stone-fruit notes on the nose and a very light mineral funk overlaid on a gentle straw body. Minimal, but characterful."

ABV: 3.8% IBUs: N/A

Loc: Boulder, CO





Von Ebert Islands in the Stream

99

AROMA: 12
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Can-conditioned saison brewed with white wheat, triticale, and pilsner malt."

What our reviewers thought: "Tropical soap perfume—papaya, melon, dried peach, and strawberry—meld with pepper and clove spice. The malt sweetness carries pleasantly complex hop notes that combine hints of old-school Noble character with a fun tropical twist. There's just enough phenolic spice to round things out, and the dry finish is a pleasant palate cleanser."

What our editors thought: "Quirky and clever mix of traditional saison herbal and floral notes with a very light contemporary tropical-fruit edge. In the sip, the aspirin note is buffered by softer tropical edges—mango and papaya with just a touch of citrus. Subtle, but entertaining."

ABV: 5.4% **IBUs:** N/A

Loc: Portland, OR

Baere Brewing Saison

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Brewed with barley, wheat, and rye."

What our reviewers thought: "Classic saison aromas of spicy phenols, fruity esters, cracker malt, herbal hops. Moderate sulfur aromatics slowly dissipate and reveal hints of pepper and bread-like malt. The flavor is a lively back-and-forth with peppery spice."

What our editors thought: "A classic nose, as peppery phenols balance overripe plantain with a sweet potato-skin earthiness. Light zesty lemon notes add a highlight. The sip delves into a purple vibe—like unsweet grape knocked down a couple of octaves, with a zippy bitterness."

ABV: 5.2% **IBUs:** N/A

Loc: Denver



Fair Isle The Knitting Circle S1.c

96

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Oak-aged saison."

What our reviewers thought: "Pepper, citrus notes dominate the nose. Hints of earthiness. Vanilla in the flavor, imparts sweetness to balance the acidity, bitterness. Pleasant dose of funk. Finishes dry but not aggressively bitter."

What our editors thought: "Soft peach with a crisp lemon-peel edge on the nose. In the sip, peach, apple, pear, an oak note that recalls bourbon. Punchy, layered, structured, and deeply engaging."

ABV: 7.2% **IBUs:** N/A

Loc: Seattle



Grand Canyon Wild Saison

84

AROMA: 11
APPEARANCE: 2
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Wild-capture yeast. Lemony, peachy, funky."

What our reviewers thought: "Stone-fruit and orange sweetness in the aroma with a touch of barnyard and light earthy and smoky hops. Blood orange-like notes provide a healthy dose of acidity. Light smoky bitterness emerges and lingers into the semi-dry finish."

What our editors thought: "Strong hops element to the nose with a lemon-lime and herbal bent. In the sip, strong acidity shapes the hops into citrus candy with a bitter phenolic finish."

ABV: 6.8% **IBUs:** N/A

Loc: Williams, Arizona



Brix Brew & Tap Lu Rae

85

AROMA: 10
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Bright acidity and fruity funk. Notes of white wine, champagne, and pear."

What our reviewers thought: "Pear, grape, melon, light banana dominate the aroma. Medium malt sweetness, with dank earth notes. Balances toward acidity. Low funk character. The wine and moderately tart sourness take front."

What our editors thought: "Woody and round, with a hint of squash on the nose. The sip is sweeter but sharply acid-forward, with a bracing bite but lower carbo that works against the whole. Wine and fruit notes dominate."

ABV: 5.5% **IBUs:** 20

Loc: Greeley, CO



Fair Isle Montgomery

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Oak-fermented and aged in gin casks."

What our reviewers thought: "Light bread, lemon on the nose. Hint of black pepper. Lively berry and lychee. More citric acid than lactic sourness. Hint of barnyard. Effervescent mouthfeel."

What our editors thought: "Exquisite fruit range on the nose—lime peel, kumquat, with a bit of raspberry, hint of herbal spice. In the sip, the light herbal notes put a crisp cucumber line on the fruit flavors—expressive without over-emoting."

ABV: 7% **IBUs:** N/A

Loc: Seattle



Great Divide Colette

91

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Fruity and slightly tart, with a dry finish."

What our reviewers thought: "Peppery phenols coupled with floral and mint-like hop notes with a hint of bubblegum-like esters. The initial peachy malt sweetness in the flavor quickly gives way to a gentle but non-descript bitterness that fades into a semidry finish. Great effervescence and dry finish make it more-ish."

What our editors thought: "Bread crust, papaya, and a light minty pepper note in the nose lead into flavor that tightly balances that light tropical fruit with punchy pepper in a vibrant push-pull."

ABV: 6.5% **IBUs:** 35

Loc: Denver



Highland Park Green Chimera

86



AROMA: 10
APPEARANCE: 2
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Rustic saison made up of a blend of oak-aged spontaneous beer, oak-aged mixed-culture beer, and fresh lager."

What our reviewers thought:

"Big citrus notes with a very enjoyable sour quality lingering on the tongue. Yeast spiciness underneath is very subtle. Limoncello-heavy nose, light tart lime, and a hint of grass clippings."

What our editors thought: "Crisp herbal hop notes support bigger citrus notes, amplifying the juice character. In the sip, the unsweetened citrus juice of the nose blooms with a pointed acidity that becomes mouth-filling for an intensity that's big but not quite supported by the body."

ABV: 5.5% **IBUs:** N/A

Loc: Los Angeles



Is/Was Brewing Spandrel

93



AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Brewed with aged hops and *Brettanomyces*."

What our reviewers thought:

"Perfumed and spicy phenolics, cornbread, citrus, cherries, herbal hops mix with classic 'funk' to create an inviting, complex aroma and flavor. A touch of acidity balances."

What our editors thought:

"Bright, structured, lightly herbal and floral, dry. Light honey note on the nose with a bit of yeast ester that plays between earth, banana, tropical fruit. The sip is brisker, with white-flower blossom, a prickly carb, and a bit of unsweet fruit flesh."

ABV: 4.9% **IBUs:** N/A

Loc: Chicago



Kros Strain Dry Hopped Saison 750.3

96



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Lightly dry hopped with Crystal and Wai-iti hops."

What our reviewers thought:

"The ideal aromatics for a farmhouse saison—light funk, cherries, spice, fruity hops, wood, lemon, tangerine aroma give way to flavor that balances stone fruit and tropical hop bitterness."

What our editors thought:

"Soft overripe guava and lychee on the nose with a touch of herbal hop to balance. Sip is light with a gentle tartness, a softer carb, and a subtle earthy fruit-rind bitterness. Earthy but light, fruit-forward but buffered by a bit of gauzy Brett."

ABV: 5.05% **IBUs:** 2

Loc: La Vista, NE



Odd Breed Meandering Thoughts

93



AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Fermented with our mixed culture of wild yeast and bacteria."

What our reviewers thought:

"Funky, horsey nose. Acidic up front but quickly moves into more complex notes of earth and dry sherry with dry lemon. Dry finish feels appropriate. A wild ride from acid to complexity to clean, quick finish."

What our editors thought:

"Pillowy lemon and orange on the nose with a touch of hay. Sip brings a gentle jolt of acidity for a sunny demeanor. Bubbly and outgoing."

ABV: 5.5% **IBUs:** 25

Loc: Pompano Beach, FL



Highland Park Philosophy of Love: Cypress

90



AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Gin and wine barrel-aged rustic saison."

What our reviewers thought:

"Very light bread aroma and flavor are enhanced with moderate lemony notes and a resinous wood character. Moderate lemon zest and lime notes with juniper-like conifer. Fun ingredients that blend into something greater."

What our editors thought:

"Cohesive herbal nose pulls together with soft apricot and spicy juniper. The sip shies away from sweetness, opting for a lightly woody herbal dryness highlighted by a touch of fruit. Beautifully compelling, like a finely made cocktail."

ABV: 6% **IBUs:** N/A

Loc: Los Angeles



Jester King The Oregon Hophouse

93



AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Experimental hops from The Oregon Hophouse."

What our reviewers thought:

"New-school hops meet old-school yeast—fruit, citrus, bubble-gum, spice. Flavor speaks of black pepper, crackers, citrus, peaches, light acidity. Bready malt supports pine, smoke, green onion, and lemon hop notes."

What our editors thought:

"Woody, stemmy, cedar, coconut—almost Sabro-adjacent—hops on the nose. In the sip, a sweeter coconut citrus feel pushes a frozen cocktail vibe."

ABV: 6.9% **IBUs:** N/A

Loc: Austin



New Anthem Beer Project Pillar Of Fire

95



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Pear, baking spice, and pepper."

What our reviewers thought:

"Woody and herbal hops blend with a judicious hand of yeast-driven spice. Lemon grass and earthy floral notes give way to a nice bitter flavor profile with hints of pine, perfume, and a touch of pepper. The finish is dry, and the bitterness lingers."

What our editors thought:

"A joy in the nose as woody hops play against subtle Noble floral notes and crisp and peppery yeast notes. The sip finds a beautiful balance between the crackle of pepper, herbal bitterness, and softer fruit esters. Finishes with a snap."

ABV: 6.1% **IBUs:** 33

Loc: Wilmington, NC



Our Mutual Friend Saison Trystero

85



AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 4
OVERALL: 9

What the brewers says: "Brett saison."

What our reviewers thought:

"Earthy, spicy hops on the nose with some barnyard funk underneath. Flavor is a muted medley of pepper, citrus notes. Very light mouthfeel doesn't match what comes next—firm bitterness, light funk, a popping spiciness."

What our editors thought:

"Touch of woody, almost smoky funk on the nose. Subtle with a hint of Noble-ish hops. Sip has a round body that feels less precise."

ABV: 6.86%

IBUs: N/A

Loc: Denver



Ozark Beer Early Train

87



AROMA: 12
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 3
OVERALL: 8

What the brewer says: "Barrel-aged golden ale with Brett."

What our reviewers thought:

"Funky and complex nose with hints of peach, vanilla, leather, lemon, and wet hay. Classic Brett cherry pits, leather, and funk lead into a full-bodied sweet white-wine finish. Low acidity."

What our editors thought:

"Light peach skin is understated in the nose. In the sip, subtle notes of white peach, chamomile tea, and pinot grigio, but with a very, very light acidity."

ABV: 6% **IBUs:** N/A

Loc: Rogers, AR



Perennial Prism: Hallertau Blanc

85



AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 8

What the brewer says: "Saison dry-hopped with Hallertau Blanc and Centennial."

What our reviewers thought:

"Hints of pine and earthy dankness punctuate the subtle cracker malt and lightly peppery aspects of the aroma. The earthy character carries through into the flavor serving as a constant undertone."

What our editors thought: "Curious nose blends herbal oomph with a bit of dank cannabis and overripe citrus, as anise notes cling to the edge of the glass and swirl through the nose. The sip dials that down, as a musty hop note takes the pointed edge off the nose."

ABV: 5.5% **IBUs:** N/A

Loc: St. Louis



Roaring Table Beth

85



AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 8

What the brewer says: "Rustic yet refined, pairs perfectly with great food."

What our reviewers thought:

"Light floral hops in the aroma punctuated by a peppery phenolic note and a hint of barnyard.

Pineapple and stewed fruit. Balanced bitterness and effervescence, but the mineral character strips nuance."

What our editors thought: "Light, slightly sweet malt nose with a touch of vague tropical-fruit esters. The sip offers a bit of chalky bitterness, energetic but just a hair off the expected dryness."

ABV: 6.7% **IBUs:** N/A

Loc: Lake Zurich, IL



Side Project Saison du Blé (Blend 11)

91



AROMA: 10
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "The harmony of a fluffy wheat saison and a tart, Missouri saison."

What our reviewers thought:

"Light hay and breadly malt, with notes of pear, melon, lemon, and sweaty T-shirt. Citrus and tart, with smooth acidity. Medium black pepper lingers into the finish."

What our editors thought: "Traditional Sacch saison yeast notes in the nose—a bit of earth, but light pepper and a faint floral note. In the sip, a juicy tangerine note pushes to the front, with a punch of acid brightness and pithy bitterness."

ABV: 6% **IBUs:** N/A

Loc: Maplewood, MO



Perennial Artisan Ales Carolina Gold

87



AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Lagered saison ale brewed with heritage rice."

What our reviewers thought:

"Semi-classic saison aromas with a hint of Coors Banquet leads to spicy flavor and coarse effervescence. Light hints of sweet corn dance within the subtle aroma with notes of stone fruit, pepper, and leather. Firm bitterness balances the full-bodied finish."

What our editors thought:

"Phenolic spice plays against a bit of sweet alcohol in the nose, amplifying the touch of fruit aroma. The sip plays a bit too loose, as a firm but pleasant bitterness comes over the top of the lighter body, leaving it unsupported."

ABV: 5.2% **IBUs:** N/A

Loc: St. Louis



pFriem Barrel Aged Saison IV

94



AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Joyful aromas of pineapple and lilac, refreshing notes of white grape and tangerine."

What our reviewers thought:

"Earthy and peppery with subtle funk in the middle and finish. Light Brux-y aromas of cherry pie and funk. Hop bitterness up front with spicy cucumber and melon hops. Light dusty funk with a medium dry finish."

What our editors thought: "Dried lime leaf and a spritely and fresh herbal zip on the nose wrapped in gentle white-wine tones. The flavor sees bold and lightly bitter white-wine and Brett notes drop with a light pepper finish."

ABV: 6.6% **IBUs:** 33

Loc: Hood River, OR



Roaring Table Dutch Sailor's Eyes

90



AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Sweet notes of lemon, fields stubbled with blue and yellow flowers ... a dry and beguiling beer."

What our reviewers thought:

"Funky and horsey in the aroma and taste. Complex yeast character—citrus, earth, and pepper. Tart and acidic up front, some light citrus and oak barrel as it opens up."

What our editors thought: "A bit of decaying forest and wet hay with lighter hits of grapefruit and lime. In the sip, citrus sweetness as the earthier elements subside, but that lingering bitterness keeps it from finishing sweet."

ABV: 6.5% **IBUs:** N/A

Loc: Lake Zurich, IL



Sovereign Brewing Dissensus

89



AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 19

What the brewer says: "Belgian-style strong pale ale, aged in oak."

What our reviewers thought:

"Light Brett in the aroma melds with a white-grape aspect in the flavor. Funky, cherry fruit, Brux-y-like nose. Sharp, white wine-like flavor and tannin, mild acidity, a little horsey, sweet in the middle but an off dry finish."

What our editors thought: "Wormwood note plays against cherry and a faint hint of curry in the nose. The sip brings unsweet bubblegum to bear with bold Brett bitter floral and juniper-berry notes. Let it sit for a few years."

ABV: 6.8% **IBUs:** N/A

Loc: Seattle





Cruz Blanca Vidamiga

96

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Aged 16 months in French oak puncheons and finished with dried black lime."

What our reviewers thought: "A very inviting nose nicely balances sour bread and citrus, and the flavor is a perfect harmony of sweet and sour raw bread dough with a firm but restrained earthy citrus finish. Earthy lime notes with hints of ginger and mint in the aroma give way to a flavor profile that adds a hint of salinity and smokiness to the mojito-like lime and ginger notes. A touch of pine-like bitterness coupled with a bright acidity carries through into the finish."

What our editors thought: "Energetic and exuberant gin-like nose with a touch of juniper and squeeze of lime over a bubbly botanical base with a bit of Cointreau. The sip explores a broader range of fruit and herbs, with notes of orange, lime, fortified white wine, almond, and mint. The acidity is thoroughly supported. Concise yet rich and enveloping, punchy yet never too loud."

ABV: 6.2% **IBUs:** N/A **Loc:** Chicago

American Solera Spritz Culture

91

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Beer-wine hybrid raspberry rosé spritz with lime."

What our reviewers thought: "Background raspberry, plum, hay, grape, melon, and lychee aroma. Flavor is fruity sweet, candy-like raspberry Jolly Rancher. A light wine character adds a nice dimension to the raspberry."

What our editors thought: "Gorgeous rosé color. Honeydew and raspberry in the nose with a squeeze of lime. Champagne-like effervescence provides a very light bitterness to play against the soft, sweet wine-grape notes in the sip, and the very faint acidity makes it imminently accessible and, dare we say, ... fun?"

ABV: 6% **IBUs:** N/A

Loc: Tulsa, OK



Blaugies Bière Darbyste

90

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Saison made with wheat and fermented with fig juice."

What our reviewers thought: "Lightly toasted malt and complex esters—pear, melon, grape—with a touch of smoky phenolic in the aroma. Slight bready and honey malt notes support the light stone-fruit flavor character. Light lactic acidity in the finish. Fruit adds a subtle lightness to the body."

What our editors thought: "Walnut wood, chestnut, charcoal, and roasted plum aroma leads into a quirky sip that rides the impossible edge between soft fruit-forward accessibility and phenolic definition."

ABV: 5.8% **IBUs:** N/A

Loc: Dour, Belgium



Casey Fruit Stand Golden Sweet Apricot

89

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Oak-fermented and -aged saison with whole organic apricots."

What our reviewers thought: "Expressive apricot, plum, and lemon aroma with mushroom or damp straw. Funky barnyard notes of old hay and black pepper linger into a very dry finish. Sharp acidity."

What our editors thought: "Apricot fruit and leaf with an herbal undertone in the aroma. The sip leans into juicy soft stone fruit, lemony acidity, soft tannin and vanilla, and a small jolt of acid."

ABV: 5.5% **IBUs:** 10

Loc: Glenwood Springs, CO



Baere Brewing Amparo

95

AROMA: 10
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Aged on sosoa wine pomace."

What our reviewers thought: "Strong fruity aroma plays coy with the fruit used. Aroma is fermentation-derived with pear, peach, and grape. Light citrus sourness with earthy notes of hay, wood, and barn. Light wine-like finish."

What our editors thought: "The color suggests fruit, but the nose offers just a broad red-fruit note with hefty hay. In the sip, thoughtfully downplayed grape adds a spritz without jammy notes."

ABV: 5.4% **IBUs:** N/A

Loc: Denver



Burial Before Us, Above Us, Within Us

87

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Made with freshly zested Florida grapefruit and crushed white peppercorns."

What our reviewers thought: "Fresh and citrusy aroma with light black pepper. Grapefruit zest and pith in the flavor with a light bready note. Hints of apricot linger into a quite peppery finish that tends to overpower the rest of the flavor. A note of fresh hay rounds out a fairly clean yeast profile."

What our editors thought: "Peppery phenols play with softer orange tones and a fennel note in the nose. The sip brings a soft banana sweetness played against herbal bitter notes. Unusual, but effective."

ABV: 5.5% **IBUs:** 24

Loc: Asheville, NC



Cellar West Gin Barrel Checkerback

93

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Aged in Vermont honey gin barrels with fresh lime zest."

What our reviewers thought: "Spicy cinnamon or allspice with juniper, wood, and moderate floral and perfumy notes. Bergamot orange esters. Spicy, sweet, and warming flavor with lingering cedar and dried figs or cherries. Strong gin botanical flavors."

What our editors thought: "A bit of herbal spice with a juniper and berry tannin backbone. In the sip, pepper, floral, and light berry notes swirl in an intriguing blend."

ABV: 6.9% **IBUs:** N/A

Loc: Lafayette, CO



Creature Comforts Tastes Like Flowers

85

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Made with local roses, yarrow, marigolds, and chamomile."

What our reviewers thought: "Chamomile and yarrow aroma with subtle rose. Dry hay, horse blanket, and wood combine to form a complex union. Some wood and ash aromas as the beer warms. A moderate tart sourness lingers into a slight floral finish."

What our editors thought: "Hay-like nose echoes Wasa crackers with a touch of fennel. The sip throws unsweetened orange juice together with spice cake in a cautious breadly spice mix."

ABV: 6.3% **IBUs:** N/A
Loc: Athens, GA



Our Mutual Friend Apricot Biere Ovale

87

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Foeder-fermented, mixed-culture Brett beer aged on Colorado apricots."

What our reviewers thought: "Aroma comes across as a mix of apricot, tangerine, and pineapple—pleasant but not distinct. Wild fermentation notes of damp earth, hay, and rainfall."

What our editors thought: "Peach leaf and caramelized peach on the nose set a sweet expectation with a hint of funky earth, but the sip brings a concentrated peach and lemon-juice acidity."

ABV: 4.9% **IBUs:** N/A
Loc: Denver



TASTED: BELGIAN-STYLE PALE ALE



Brasserie de la Senne Taras Boulba

93

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Noble hop session beer. It develops fragrances of Noble hops in dry hopping, which give it herbal, floral, and light citrus notes."

What our reviewers thought: "Impressive robust head. Earthy hop-forward nose. Peppery citrus component in the flavor melds with earthiness. Slightly floral and spicy hop flavor up front. Moderate but pleasant bitterness lingers in the finish. A very attractive beer."

What our editors thought: "Boldly effervescent and profoundly hop-forward in the nose with a spicy herbal and pepper note. The sip drops into very dry white-pepper and floral notes with an energetic carb and a lingering soft Noble bitterness. Pulsing with quick staccato bursts that gradually fade."

ABV: 4.5% **IBUs:** 57 **Loc:** Brussels

De Ranke XX Bitter

92

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Very bitter but still balanced. Distinct hop taste."

What our reviewers thought: "A fun medley of melon, apple, strawberry. Moderate bitterness comes in the middle of the taste and becomes slightly more intense as it lingers on the tongue. Light Tellicherry pepper and melon esters in the back. Cold Belgian IPA?"

What our editors thought: "The nose offers a play of earthy/woody with a bit of creamy orange and grapefruit. The sip confounds expectations for a fermentation-driven beer, throwing a wall of hop bitterness that only a few glimpses of fruit can shine through."

ABV: 6% **IBUs:** 60
Loc: Dottignies, Belgium



Jester King / Tired Hands H. EXECUTE

92

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "A blend of hazy double IPA with Texas oranges and three-year-old Jester King SPON."

What our reviewers thought: "Funky fermentation and dank hops, with a layer of bright citrus. Old hay and farmhouse note. Substantial grapefruit and orange notes."

What our editors thought: "Woody and dank, with punchy pineapple, lime, and vague tropical notes in the nose. The jolt of acidity in the sip flips the hop notes toward lemon-lime with a bit of dank background bitterness."

ABV: 7.2% **IBUs:** N/A
Loc: Austin



Roughhouse Brewing Floral Print

88

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Featuring calendula flower petals and fermented with yeast harvested on the property."

What our reviewers thought: "Pale straw color, excellent clarity, and a tight head. Initial aroma is floral but fleeting. Light earthy aroma dominates, with a sweet pale-malt background. Pleasant floral and orange fermentation esters."

What our editors thought: "Light pepper and white-flower definition with creeping notes of earthier blossom. The sip throws punchy herbal and floral notes with zippy carb against a generally sprawling cracker and bread body."

ABV: 4.5% **IBUs:** 27
Loc: San Marcos, TX



Light the Lamp Still Single

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A Belgian-style single brewed with Mosaic and dry-hopped with Citra."

What our reviewers thought:

"Clear gold with an army of bubbles. Aroma is heavy bubblegum, light pepper, light cherry. Malt-forward initially with light grainy flavors, then cherry and strawberry ester-led yeast flavors enter, finishing with a slight hint of spiced-dirt hop flavor and toasty honey malt."

What our editors thought:

"Melon and cucumber on the nose with very light pepper underneath. Crisp as it hints at refreshing. The sip crackles with a stiff carb, but the tropical-flavor notes are a bit of a departure for the style. Modern and intriguing."

ABV: 4.5% **IBUs:** 22
Loc: Grayslake, IL





pFriem Belgian-Style Christmas Ale

99

AROMA: 12
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Brewed with coriander in a rich, dubbel base, its toffee aromas and hints of fresh, ripe orange will leave Santa feeling generous."

What our reviewers thought: "Clear medium amber, well-carbonated with an off-white head that never goes away. An intoxicating licorice character in the aroma, with light lemon, coriander, and caramel malt. Spice and more licorice in the flavor with some bready malt in the background work well with a creamy mouthfeel and body. Sweet malt, a touch of toast, and lightly spiced hops play well into the integrated coriander flavor. Semidry, smooth bitter finish. Offers something new in the flavor and complexity each time you come back."

What our editors thought: "Beautiful hazy chestnut color. The nose blends sweet bubblegum with stroop waffle and an elegant herbal background. The flavor tightens the reins on those esters, holding a steady line between cocoa bitterness and bubblegum ester, offering bits of indulgence before quickly course correcting. It's worked over and thoroughly smoothed but retains its kick with a sly wink that assures you glass three and four could mean trouble."

ABV: 8% **IBUs:** 30
Loc: Hood River, OR

Allagash Brewing Tripel

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Aromas of passion fruit and honey accompany a dry finish."

What our reviewers thought: "Citrus and earthiness in the aroma, then a subtle lemon character with a more prominent spiciness. Soft, light phenol, lightly spicy hop flavor. Creamy with a clean, dry finish that leaves a refreshing impression on the tongue."

What our editors thought: "White pepper and faint lemon on the nose, with a rounding melon note. On the sip, subtle melon and stone fruit, soft but defined with clever edges. It finds a unique voice in an established category."

ABV: 9% **IBUs:** N/A
Loc: Portland, ME



Broad Brook Bière de Pêche

90

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 8

What the brewer says: "A Belgian-style blonde ale brewed with peaches, cinnamon, and vanilla."

What our reviewers thought: "Cinnamon dances around the aroma, revealing glimpses of earthy peach and a hint of apple pie. Spice takes center stage in the flavor, but it's restrained. Spicy phenol and moderate stone-fruit esters meld well with the peach. Fermentation character provides much of the complexity."

What our editors thought: "Stone fruit and pumpkin pie with pulses of pepper in the nose. The sip plays on the sweet and spicy theme, quickly presenting round peach notes, then snatching them back in a tight peppery fit."

ABV: 6.8% **IBUs:** N/A
Loc: Suffield, CT



De Ranke Guldenberg

86

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A full-bodied abbey beer that balances between sweet and bitter."

What our reviewers thought: "Impressive lacing with a velvety head. Strong spicy, peppery notes with an earthy backbone. Soft peach and apricot as it warms with a very pleasant subdued bitterness. Mouthfeel is very soft and velvety."

What our editors thought: "Bubblegum esters and a sweet flower nectar sit over sawn log and bread crust. In the sip, a quirky soft bitterness suggests a bit of oxidation, allowing some funky tropical-fruit notes to push through, but at the expense of definition."

ABV: 8% **IBUs:** 40
Loc: Dottignies, Belgium



Dubuisson Scaldis Caractère

85

AROMA: 10
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Surprising aromas of ripe fruits including banana, touches of 'cuberdon' sweets, and caramel."

What our reviewers thought: "Velvety mouthfeel and a luxurious malty quality in the flavor—caramel, biscuit, and toast. Smooth and estery with stone fruit, cherry, and raisin. Phenols balance nicely."

What our editors thought: "Broadly fruity in the nose, with a Juicy Fruit gum vague tropical note. The sip relies on alcohol more than bitterness to balance the honey sweetness in the body, but flirts with a medicinal note. The bright carbonation helps cut it, but that alcohol lingers."

ABV: 12% **IBUs:** 25
Loc: Pipaix, Belgium



De Halve Maan Straffe Hendrik

94

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Delicate dryness with hints of coriander, dark fruits, anise, and roasted chestnuts."

What our reviewers thought: "Coconut-heavy nose with notes of dried apricot, cherry, clove, and pipe tobacco. Toasted coconut in the flavor with burnt-sugar malt sweetness, honey notes, and some raisin."

What our editors thought: "Familiar caramel and toffee notes play off subtle Belgian esters, with a faint hint of PNW musty citrus and forest hops. The sip leans to the sweeter side—a proper indulgence. Esters fade into orange blossom and chocolate croissant before making a quick exit."

ABV: 11% **IBUs:** 35
Loc: Brugge, Belgium



Duvel Moortgat Duvel

96

AROMA: 11
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "A natural beer with a subtle bitterness, a refined flavor, and a distinctive hop character."

What our reviewers thought: "Long-lasting head with a chewy marshmallow character. Light mineral and earthy hop nose with light grain. Fruity esters emerge—orange and banana. An earthy, lemon, spice-forward hop flavor. Very clean and dry finish."

What our editors thought: "Gorgeous pilsner-like foam sits in a sculpted mass. Light honey-malt notes in the nose with bits of pepper. The sip is both soft and inviting and tautly structured, with lightly fruity hop bitterness to play against the inherent sweetness."

ABV: 8.5% **IBUs:** 33
Loc: Puurs, Belgium



Four City St. Cloud Dubbel

87



AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Our Belgian ale made with pilsner, pale, and Munich malt with a generous amount of dark Belgian candi syrup."

What our reviewers thought: "Malty with a nice light phenol, peppery, bubblegum yeast. Yeast-driven flavor, pepper, light cherry gum, raisin, and phenols. Soft, with a punch of alcohol toward the back and a medium semi-sweet finish."

What our editors thought: "Standard Belgian ester profile in the nose with a bit of bubblegum, light hints of cocoa, and some sweet tobacco. The sip is lean and a bit sparse, with the fruity esters adding some heft."

ABV: 7.6% **IBUs:** N/A
Loc: Orange, NJ



Left Hand Brewing St. Vrain Tripel

75



AROMA: 9
APPEARANCE: 3
FLAVOR: 14
MOUTHFEEL: 4
OVERALL: 8

What the brewer says: "A Belgian-style golden ale with intricate aromas of fruit and spice."

What our reviewers thought: "Aroma is a little off, funky but in an unpleasant way. Pungent ester and spice in the aroma. Slightly rubbery. Thin mouthfeel, slightly alcoholic, strawberry-banana flavor in the back with damp earth-flavored hops and light spiced hop flavor."

What our editors thought: "Mid-key ester with a subtle doughiness on the nose. In the sip, a bit of apple and pear with some tighter floral bitterness behind it, but it's hampered by body that lacks definition. It crosses the palate like a blob."

ABV: 9.3% **IBUs:** 18
Loc: Longmont, CO



pFriem Belgian-Style Dark Ale

91



AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Fig dipped in dark chocolate, ripe fruit, and toffee."

What our reviewers thought: "Nutty breadcrust nose with a substrate of mild phenol. Light hints of American hop resin, with apricot and golden currant esters plus vanilla oak notes. Rich toffee, fig, and sweet-roll malt flavor. Low soft hints of clove and a touch of pepper phenol."

What our editors thought: "Toasted hazelnut offers a suggestion of sweetness, but a clinical floral note chastises the appearance of indulgence. The sip brings familiar esters and phenols, tied up in a leathery bitterness. Alcohol offers warming comfort."

ABV: 10% **IBUs:** 38
Loc: Hood River, OR



TASTED: LAMBIC,
SPONTANEOUS & WILD



Oud Beersel Oude Geuze Vieille

100

AROMA: 12
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Distinguished by its notable fruity character and hoppy notes."

What our reviewers thought:

"Fantastic start to finish. Leads with a beautiful nose with hints of black pepper and peach. Lots of interesting funk and fruit, along with a moderate lactic sourness. Layers of fermentation complexity without overly weird rough edges. Tart cherry and lemon, with some notes of papaya and guava. The funk skews toward wet hay with some light leather lingering in the finish. The base beer is still there to provide a soft grainy backdrop, and the finish has a soft tartness that accentuates the farmhouse character through the swallow. Incredible, an amazing beer."

What our editors thought: "Bold mineral nose with a soft stone-fruit edge, like peaches served on wet slate. It softens as the glass sits. The sip balances very light caramel maltiness (more substantial than expected) with zippy floral and tropical citrus notes. High carbonation keeps it tight and vibrant."

ABV: 6% **IBUs:** N/A
Loc: Beersel, Belgium

Hoppin' Frog Pentuple

94



AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 19

What the brewer says: "Like a tripel that's somewhat hoppy, light in color, but supercharged for more flavor."

What our reviewers thought: "Malt-forward toffee and sweet bread aroma. Deep dried apricot and stone fruit, low floral alcohol. Sweet malt flavor—toffe, burnt sugar, and treacle with light sweet tobacco. Smooth and warming."

What our editors thought: "Rich and boozy in the nose with strong burnt sugar and caramel notes highlighted by a lightly fruity cherry ester. In the sip, the booze is unapologetic, but the caramel waves offer the liqueur richness of a fine aperitif."

ABV: 15.1% **IBUs:** N/A
Loc: Akron, OH



New Belgium Trippel

90



AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "High note of sweet citrus before delivering a pleasantly dry finish with a warm, strong boozy bite."

What our reviewers thought: "Big fruity esters in the aroma, light citrus and banana, bubblegum. Low medium bitterness that interplays with the fruitiness. Spicy, yeast-driven flavor. Slightly creamy mouthfeel. Medium to medium-dry finish. Easy to drink."

What our editors thought: "Peppery pear and plantain on the nose, the phenolic edge squarely balancing the lighter fruit notes. The sip leans ever so slightly sweeter, balancing the heftier ethanol note as the sparkling punchy phenolic bitterness appears."

ABV: 8.5% **IBUs:** 43
Loc: Fort Collins, CO



Urbanrest Wine Barrel Blonde

96



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Blonde ale fermented with monastery yeast. Conditioned in French oak red-wine barrels."

What our reviewers thought: "Assertive oak with vanilla strands. Light chardonnay wine grape and sourdough. Light spice hiding among the low bitter notes from the hops. Solid tannic structure. Elegant complexity."

What our editors thought: "A bit of bold wine in the nose, chardonnay-like in woody intensity, leads into a straw-driven body with just a glint of tropical fruit around the edges. The wine character builds as it warms."

ABV: 7.7% **IBUs:** N/A
Loc: Ferndale, MI



3 Fontein Cuvée Armand & Gaston

94 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Blend No. 80, Season 17/18. Blended with lambics from seven different barrels."

What our reviewers thought: "Leathery funk and light stone-fruit aroma. The flavor brings out apricot, wet wool, tobacco, clean lactic acidity. Slight breadiness and grainy malt notes. Finishes dry with appealing apricot and black pepper notes."

What our editors thought: "Peach with sharper floral underpinnings and just a touch of light mineral in the nose. The sip brings a round and engaging peach lemonade element with present but tamed acidity. Finishes with a brisk mineral/hop crispness."

ABV: 6.5% **IBUs:** N/A
Loc: Lot, Belgium



Crooked Stave Stay the Funk In

85 AROMA: 10
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Methode traditionnelle spontaneous golden sour ale."

What our reviewers thought: "Low carb undermines expression, despite the significant acidity. Aging notes with leather and a hint of tobacco linger into a long dry but stone-fruit finish. Moderate musty cellar note."

What our editors thought: "Delicate mineral funk on the nose with light glints of citrus. The sip is under carbonated, settling into a broad citrus sweetness and acidity with gentle funkier notes, but the effect is more wide-burst than honed blend."

ABV: 6% **IBUs:** N/A
Loc: Denver



Firestone Walker Feral One

90 AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Aromas of lemon pith, oak, orange zest, vanilla."

What our reviewers thought: "Funky leather Brett notes followed by peach, pear, and apricot with oak in the background. Sharp tartness builds with raspberry and orange. Brett provides a soft minerality and woody flavor."

What our editors thought: "Red grape skin, French oak, cellar must, apricot marmalade, and a bit of tire rubber on the nose. The flavor presents tangerine and orange with a zesty bitterness and a drying tannin."

ABV: 6.1% **IBUs:** N/A
Loc: Paso Robles, CA



Jester King 2020 All-Texas SPON

87 AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Lambic-style beer with all Texas-grown raw ingredients."

What our reviewers thought: "Pleasant lightly tart nose with some grassy hop character. Bright lemon dominates at the expense of subtle character. Hints of mushroom, musty cellar mid palate. Abrupt finish with hop bitterness."

What our editors thought: "A hit of ethyl acetate with minerality in the nose. The sip brings in meatier fruit notes—fibrous peach flesh, pink grapefruit, overripe pineapple—with a subtle hop bitterness."

ABV: 5.8% **IBUs:** N/A
Loc: Austin



BKS Artisan Ales Collec- tion (7/21/21)

92 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "[Aged] with a blend of *Brettanomyces* isolates and wild-captured yeast and *Lactobacillus*."

What our reviewers thought: "Beautiful head, with a soft, complex nose to match. Distinct body profile with candi sugar 'dry sweetness' that provides hints of stone fruit, strawberries, lime zest."

What our editors thought: "Clean floral and pepper saison-like notes punctuate the nose, while the flavor brings crisp Brett bitter floral notes softened by subtle pear and white-grape esters. Sits between the tautness of a Brett beer and the fruity acidity of a wild ale."

ABV: 6% **IBUs:** 10
Loc: Kansas City, MO



De Ranke Cuvée de Ranke

91 AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Full-bodied sour flavor, with notes of oak."

What our reviewers thought: "Initial light smoky notes. Old cherry swaddled in a mild Brett horse blanket or tobacco with peach and pear. Mild crust, biscuit malt. Moderate lime, persimmon esters help to emphasize some sweetness while balancing acidity."

What our editors thought: "Charred lemon, punchy floral, and wet slate on the nose. A malt-forward bread-crust warmth takes the edge off the citrus acidity."

ABV: 7% **IBUs:** 35
Loc: Dottignies, Belgium



Green Bench Alice (Blend 3)

89 AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Stone-fruit and tangerine aromas, spicy French oak tannin, rich minerality, and medium acidity."

What our reviewers thought: "Unassuming nose, but light layers of mango, raspberry, peach, citrus with white-pepper spiciness. Moderate tart lactic acidity in the initial flavor fades to cotton-candy stone fruit."

What our editors thought: "Lighter pear, cherry, lime, and orange play against cocoa powder and citrus-tree wood in a clever push-pull. The sip is lighter than the nose suggests, as acidity pops in a quick orange-lemon flare with faint bitterness and very subtle funk."

ABV: 6.6% **IBUs:** N/A
Loc: Saint Petersburg, FL



Jester King Texas Whisky BA SPON

89 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Lambic-style beer aged in Balcones Texas Single Malt Whisky barrel."

What our reviewers thought: "Whiskey-like oak and vanilla aromatics complemented by hints of leather, horse blanket, wet hay. An initial peat-like smoke flavor slowly fades into a leathery funk."

What our editors thought: "Caramel sweet citrus on the nose, backed by a sweet woody vanilla note. In the sip, that citrus note pushes over the caramel middle, with punchy mineral funk notes highlighting the edges. It moves in multiple directions—malty middle, sharper citrus high end."

ABV: 8% **IBUs:** N/A
Loc: Austin



Kros Strain Ratio 79

94

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Flavors of fresh-picked tart berries, peaches, and hints of vanilla."

What our reviewers thought: "Clean lactic acidity is a nice counterpoint to the apricot and lemon yeast notes. Mid-palate is an awesome blend of earthy funk and stone fruit. Light hay shows up in the finish. Refreshing like lemonade with funky beer undertones."

What our editors thought: "Overripe tropical fruit with a mineral line through the nose leads to a bright sip that presents as more acid-forward than it is. Lemon flavor sweeps clean quickly for a taut and concise sip."

ABV: 4.2% **IBUs:** 2

Loc: La Vista, NE



Odd Breed Wild Ales Red Vermouth

92

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Tur-bid-mashed, mixed-culture wild ale aged ... in red vermouth barrels."

What our reviewers thought: "Bright oak woody note with underlying hints of stone fruit and red wine. Interesting spicy/herbal/fruity note that blends black pepper, green leaf, tart raspberry."

What our editors thought: "Soft herbal funk in the nose with faint bits of strawberry. In the sip, an initial burst of grape-like acidity and zippy grapefruit gives it a bit of a sparkling sangria energy."

ABV: 6.5% **IBUs:** 30

Loc: Pompano Beach, FL



Primitive Cursed Heirloom: Irish

98

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "MT3 spontaneous beer aged an additional year in a single Irish whiskey barrel."

What our reviewers thought: "Smoky phenols with black pepper and bread. Oak notes add spice to the light fruit sour character, as the barrel plays off the peppery yeast."

What our editors thought: "Light smoked peach and toasted oak on the nose. The sip synthesizes common themes—spritz stone fruit, warm and boozy citrus, soft wet-stone minerality, tight citrus acidity—pulled together in a beautiful package."

ABV: 7.2% **IBUs:** N/A

Loc: Longmont, CO



Roaring Table Ex Libris 2021

88

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Mixed-culture wild ale pulled solera-style."

What our reviewers thought: "Light breadly note and fresh pineapple in the aroma. The flavor has a nice honey-malt note, but the main attraction is the funk and earthy notes—spicy black pepper and cellar must."

What our editors thought: "Stone-fruit jam on toast in the nose leads into soft cotton-candy grape flavor notes, but the sprawling fruit notes eschew ordering structure, and the effect feels a bit uncontrolled with only acidity reining it in."

ABV: 6.5% **IBUs:** 7

Loc: Lake Zurich, IL



Lindemans Cuvée René Oude Gueuze

91

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "A blend of different foudre-aged lambics."

What our reviewers thought: "Green tobacco-like notes in the nose with hints of tar, wet hay, light fruit. Rustic and earthy with hints of smoke, leather, dried fruit, and a rich umami mushroom finish. Soft tartness lingers on the tongue as pineapple but blends well."

What our editors thought: "Expressive stone fruit and asphalt, mineral nose—tires on hot pavement, with a peach kicker. Sip pushes dirty sulfur funk with glimmers of brighter fruit on the edges. A lingering hop bitterness."

ABV: 5.2% **IBUs:** 16

Loc: Vlezenbeek, Belgium



pFriem Spontanée I

96

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Finished with a blend of fragrant giant hyssop, whole roses, wild-harvested cedar tips."

What our reviewers thought: "Pleasant, rich fruity nose with candy undertones. Grainy malt adds a foundation for a clean lactic sour character with hints of peach, white pepper, guava, mango, fresh leather. High carbonation adds bite and definition to the finish. Bright and crisp, but with enough complexity to stay interesting."

What our editors thought: "Apple-pear on the nose with a bit of wet earth. Very acid-forward in the sip, with a strong stone-fruit-lemon-lime attack."

ABV: 6% **IBUs:** 6

Loc: Hood River, OR



Primitive Cursed Heirloom: Rye

87

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "MT3 spontaneous beer aged an additional year in a single rye whiskey barrel."

What our reviewers thought: "The aroma has almost a raw cereal-like quality that almost suggests a dry, funky rice wine. Light malty sour in the flavor with vinous notes and leather, then woody, spicy notes express as it warms."

What our editors thought: "Smoked stone fruit and a bit of tire rubber offer a sweet-funky push-pull in the nose, but the fruit notes in the flavor run unchecked."

ABV: 7.2% **IBUs:** N/A

Loc: Longmont, CO



Sovereign Brewing Chiromancer

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 8

What the brewer says: "Witbier aged in oak for an extended period to develop a balanced acidity."

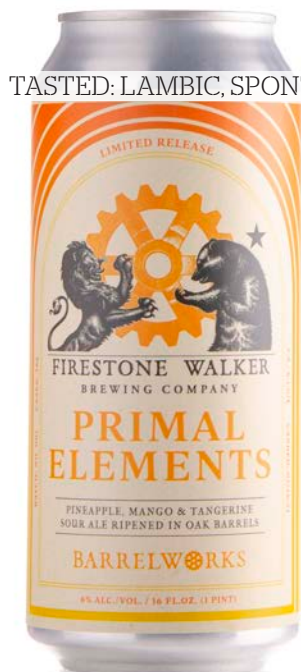
What our reviewers thought: "Orange Pixy Stix candy-like notes and hints of peppery spice in the aroma carry through into the flavor. The citric spice notes linger into the crisp and sharp finish. Simple, but delivers on its promise."

What our editors thought: "A bit of funky Brett plays against very light citrus with a mineral note behind it. In the sip, unsweet but somewhat thin orange and peach juice play against a small but tight mineral bitterness."

ABV: 5.4% **IBUs:** N/A

Loc: Seattle





Firestone Walker Primal Elements

95 AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Pineapple, mango, and tangerine sour ale ripened in oak barrels."

What our reviewers thought:

"Tropical fruit-punch notes jump out of the glass, giving the impression of nectar-like richness. The nose is tropical and inviting, almost like a fruit smoothie. Fruit-punch notes carry through into the flavor, but the nectary sweetness is tempered by a healthy dose of tart acidity with each flavor element deftly complementing the other. Incredibly smooth for a sour beer and drinks almost like a delicious beverage found at a beach-juice shack. Perfect balance of all the elements."

What our editors thought:

"Tropical cocktail nose with punchy pineapple, warming earthy mango, and a burst of higher-key citrus—juicy without reservations. The sip is equally gorgeous and far less sweet than expected, with beautifully structured acidity and bitterness that provide the perfect support for fruit top notes. It trades away some 'beer' flavor in favor of the tropical excess, but you won't miss it."

ABV: 6% **IBUs:** N/A

Loc: Paso Robles, CA

3 Fonteinen Hommage

91 AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Blend No. 110, Season 18/19. We have blended raspberry lambic and sour-cherry lambic."

What our reviewers thought:

"Raspberry and cranberry-like aromas with sourdough bread and leathery funk. Bold sour raspberry slowly fades into a mouthcoating funk with hints of leather, smoke, and a light oaky tannin."

What our editors thought:

"Tight phenolic nose toys with smoke but finds earthy berry, a sharp herbal note, and leathery fruit flesh. In the sip, acid is chewy and intense."

ABV: 8.8% **IBUs:** N/A

Loc: Lot, Belgium



Amalgam Brewing Boysenbarrel

90 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 8

What the brewer says: "Jammy boysenberries with the biggest oak expression we've had to date."

What our reviewers thought:

"Sweet berry notes coupled with hints of orange cream-sicle, brown sugar, vanilla. In the flavor, a bold acidic and tart punch of blackberry and currant."

What our editors thought:

"Horse stall, berry stem, and dried-fruit tea on the nose subvert jammy expectations set by the vivid color. The sip finds a bit of berry sweetness, with elements of earth and grape skin."

ABV: 6.4% **IBUs:** N/A

Loc: Denver



American Solera Dama de Tigre

90 AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Farmhouse ale aged in oak tanks with raspberries."

What our reviewers thought:

"Raspberry aroma is clean, fresh, and distinctive. Raspberries in the flavor enhance the fairly high clean lactic sourness, then linger into a quite dry finish. Fruit, acidity, and tartness are balanced very nicely."

What our editors thought:

"Bold and confident berry notes clearly expressed in the nose transition evenly in the sip, capturing all of the jammy richness with little distraction. It's one note, but rings loud."

ABV: 6% **IBUs:** N/A

Loc: Tulsa, OK



Amalgam Brewing Blushing Star

91 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Golden sour aged on Blushing Star peaches."

What our reviewers thought:

"Big ripe peach aroma. Flavor follows up with substantial ripe peach plus a big lactic sourness and low funk. Slight grainy malt. The finish is quite fruity with exaggerated sweet peach notes."

What our editors thought:

"Juicy peach with cherry and strawberry flourishes on the nose. The sip is bracingly acid-forward, with a round earthy peach flavor that would be irresistible but for the overwhelming acid."

ABV: 6.2% **IBUs:** N/A

Loc: Denver



American Solera Caballo Azul

93 AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Farmhouse ale aged in oak tanks with blueberries."

What our reviewers thought:

"Big blueberry aroma, tart and not sweet, with old barnwood. Fresh blueberry flavor lingers into the aftertaste with melon and stone-fruit esters. Tannic astringency adds a pleasant structure and body."

What our editors thought:

"Minty blueberry in the aroma with wine grape. Earthy berry notes, fluid tannic structure, and a juniper-berry bitterness create a luxurious sweet-spicy-earthy trifecta."

ABV: 6% **IBUs:** N/A

Loc: Tulsa, OK



Area Two Black Raspberry Lambic

94 AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "More than 4 lbs of black raspberries per gallon, yielding a beautiful, ink-like appearance."

What our reviewers thought:

"Rich and decadent aroma of raspberries. Syrupy smooth, sweet, candied-raspberry flavors slowly fade into a rich and drying finish. Luxurious despite its singularity."

What our editors thought:

"Sourdough, tannic berry skin, sweet berry juice, and a wet leather funk on the nose. Luxurious wine-like berry notes fill the sip, offering a silky texture despite being fermented to dry. Decadent yet piquant with a bold acidity and berry spice."

ABV: 6.6% **IBUs:** N/A

Loc: Stratford, CT



Baere Bring the Greenback

92



AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Mixed-culture sour ale aged on spruce tips."

What our reviewers thought:

"Notes of guava, pineapple, mango jump out of the aroma. The initial flavor profile is a mix of earthy citrus and sweet vinous notes. A healthy dose of acidity tempers things, but it quickly passes."

What our editors thought:

"Berry-fruit notes with an herbal, almost lavender-chamomile tea, note behind them and a mountain-forest freshness carry from the nose into the flavor. Acidity is bright and scaled to the beer."

ABV: 4.6% **IBUs:** N/A

Loc: Denver



Beachwood Coolship Chaos w/ Pinot Noir

88



AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 8

What the brewer says: "Spontaneously fermented and aged in oak barrels with pinot noir grapes."

What our reviewers thought:

"Light, refreshing, and fun with a sophisticated edge. Grapes add a beautiful color. Tannic structure avoids astringency, and a light fruitiness on the finish is still bone dry."

What our editors thought:

"Leathery earthy fruit and mineral notes in the nose. The sip pushes strong acidity tempered only slightly by the fruit. Big, bold, spicy. Tannins offer a bold balance to the grape sweetness. Intense all around without overwhelming."

ABV: 8% **IBUs:** N/A

Loc: Long Beach, CA



Creature Comforts Hickory Diamond

90



AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A blended oak-aged beer with local strawberries."

What our reviewers thought:

"Earthy, funky strawberry nose with barnyard, leather notes as it warms. The strawberry in the flavor comes across a bit smoky, amplifying the peppery barnyard-funk notes."

What our editors thought:

"Strawberry candy note in the nose is bolstered by a light herbal earthiness. The sip captures strawberry with a jammy clarity that's difficult to find in beer, while an angular acidity and very light bitter-herb note provide depth."

ABV: 7.9% **IBUs:** N/A

Loc: Athens, GA



Crooked Run Drupelet

87



AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 8

What the brewer says: "Turbid mashed, aged in oak barrels, refermented on Virginia raspberries."

What our reviewers thought:

"Hints of candied raspberry blend well with subtle funk and a hint of oak. Tart tannic flavors hit first in the flavor and slowly fade into a bittersweet, mouth-coating lactic note that lingers into the finish."

What our editors thought:

"Incredibly creamy nose, almost cheesecake-like, supports the soft berry with a sweet edge. The sip is assertive, as tannic berry and hop bitterness add bite. Lingering bitterness mingles with fruit notes."

ABV: 5% **IBUs:** N/A

Loc: Leesburg, VA



Beachwood Coolship Chaos w/ Cherry

95



AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Spontaneously fermented and aged in oak barrels with Balaton cherries."

What our reviewers thought:

"Cherry-pie notes with hints of cinnamon, ginger, allspice. Cherry tartness balances the spicy/sweet cinnamon with subtle bread-like malt and light funk. Finishes fairly dry and crisp."

What our editors thought:

"Soft but funky powdery nose. The sip hits a strict rhythmic meter, with pitched acidity, bright fruit, touch of hops/Brett bitterness, and a vague hint of cellar must. Comes together beautifully. Firm but not overbearing structure."

ABV: 5.7% **IBUs:** N/A

Loc: Long Beach, CA



Cerebral Brewing Lucidity 01

93



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Oak-aged sour ale with blackberry, black currant, and Ugandan vanilla beans."

What our reviewers thought:

"Dark fruit and sweet-sour nose packs loads of aroma with vanilla and currant dominating as it warms. The flavor is a mix of sour raspberry and vanilla with hints of clove and light sourdough."

What our editors thought:

"Sweet berry-smoothie nose, creamy. In the sip, a bold berry tannin and acid burst subsides into softer rounded fruit with a bit of leather and a light phenolic note."

ABV: 6.8% **IBUs:** N/A

Loc: Denver



Creature Comforts River Ridge Red

88



AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A blended oak-aged beer with red raspberries."

What our reviewers thought:

"Candied-raspberry aroma dances over light funk and hints of cinnamon, pepper. Flavor is a balance of barnyard funk and tart raspberries with a hint of bread-like malt. Finishes lightly sweet and coats the mouth as it slowly fades."

What our editors thought:

"Exquisite, gentle, delicate, lightly funky, raspberry without the heft. Assertive and demure, confident yet simple, slight fruity hop bitterness, gorgeous juicy fruit. Acidity, fruit, carbonation, and funk hit the golden mean."

ABV: 6.6% **IBUs:** N/A

Loc: Athens, GA



Crooked Run Persica

87



AROMA: 10
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Mixed-fermentation golden sour, barrel-fermented, then heavily fruited with peaches."

What our reviewers thought:

"Subtle peach character is on the fringes. Quite tart in the body with an earthy astringency to the finish. Pleasant, refreshing, and very sour."

What our editors thought:

"Gentle but firm acidity, well-pointed without overwhelming, assertively underscores the sharper peach notes in the flavor. Energetic and bright for the acid heads without alienating those who seek more subtlety."

ABV: 5.5% **IBUs:** N/A

Loc: Leesburg, VA



Firestone Walker Nec Bones

94 AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "American wild ale matured with Honey Fire nectarines."

What our reviewers thought:

"Aroma suggests peachy orange popsicle, with just enough peach skin to convince you it's not fake. The flavor is anything but artificial, with juicy ripe peach flavors tempered ever so slightly by a light tannic character and a hint of skin."

What our editors thought:

"Hyper-real light stone-fruit and citrus notes on the nose suggest a touch of sweetness with vivid definition. The flavor supports the juicy thesis, with fat but colorful sour fruit tones and subtle toasted wood accents."

ABV: 6.3% **IBUs:** N/A

Loc: Paso Robles, CA



New Belgium Transatlantique Kriek

86 AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A sour blend from two continents featuring an intense cherry nose."

What our reviewers thought:

"Muted cherry nose followed by a subdued flavor with a gentle cherry note balanced by light acidity and a hint of tannin. The aftertaste is peppery and dry, with herbal fruit."

What our editors thought:

"Deep leathery and woody cherry notes on the nose, with a bit of pie spice—layered and complex with a rich jamminess. The sip plays between sweet and tart. Bold but balanced, layered yet lively."

ABV: 6.2% **IBUs:** 8

Loc: Fort Collins, CO



Odd Breed Wild Ales Syrah Bugs

92 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Aged in syrah barrels before refermenting with syrah grapes and wild blueberries."

What our reviewers thought:

"Indistinct 'red' fruitiness backed with an aggressive, but pleasant, lactic sourness. Light grainy, cherry, and raspberry aroma with lingering leather and cherry tobacco in the flavor."

What our editors thought:

"Wet forest, cellar must, and a slight fruity tint on the nose. The sip is boldly lactic acid—forward with an unbridled intensity that, thankfully, remains clean and composed. General red-wine grape notes appear as the wave of acidity subsides."

ABV: 10.5% **IBUs:** 25

Loc: Pompano Beach, FL



Single Hill Brewing Pêche

86 AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "A blend of golden strong ale and young house sour, refermented with white peaches."

What our reviewers thought:

"Very subtle stone-fruit and grape aroma followed by a subdued flavor. Hidden within the light acidity are hints of melon, stone fruit, and some gentle oak character."

What our editors thought:

"Faint peach soda on the nose, with a hint of sweetness and a bit of leaf and skin. The sip feels like a sparkling peach wine—less beer or funk, more bright fruit with just a hint of ethanol and effervescent brightness."

ABV: 7% **IBUs:** N/A

Loc: Yakima, WA



Jester King Modern Science

86 AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Refermented with Texas Hill Country peaches, then blended with aged hop terpenes."

What our reviewers thought:

"Aroma highlights overripe peaches with earthy notes and straw, plus pear, plum, melon. Light butyric-acid notes give a buttery impression. The flavor is strongly funky with old hay, old wine corks, cellar notes. Fermentation adds a dankness."

What our editors thought: "Light peach and wet hay on the nose, with a bit of stable floor. The sip trades the funkier for the familiar, embracing big warm juicy peach notes at the expense of all else."

ABV: 8% **IBUs:** N/A

Loc: Austin



Odd Breed Fresh Off the Farm w/ Kumquats

88 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Aged in French oak puncheons before refermenting on fresh Florida kumquats."

What our reviewers thought:

"Earthy tropical and lightly cheesy notes coupled with a moderate funk and hints of pepper and coriander. Nectarine-like notes accentuated by a bold acidity and hints of leather, wet hay, and barnyard."

What our editors thought:

"Wet granite meets tangerine bright citrus funk. Petrichor sunshower notes. In the sip, medium acidity and tight higher-key citrus."

ABV: 6.5% **IBUs:** 30

Loc: Pompano Beach, FL



Russian River Small Batch Peach Beer

88 AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 8

What the brewer says: "Barrel-aged peach beer using 6 lbs of peaches per gallon."

What our reviewers thought:

"Big ripe peach aroma, along with a hint of honey. Green tobacco note distracts. Medium tangerine and citric-acid notes in the flavor with a lingering peach character and a fairly dry finish. Pleasant but a bit rough on the edges."

What our editors thought:

"Gorgeous soft and powdery peach on the nose, lightly dusted with a bit of lemon zest. The sip is soft peach juice, very subtle acidity, and a demure but confident peach character."

ABV: 7.06% **IBUs:** N/A

Loc: Windsor, CA



Westbound & Down Meta Blackberry

89 AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A blend of golden sour ales refermented on whole blackberries."

What our reviewers thought:

"Funky, barnyard berry and currant nose with brilliant clarity. Light body with a very earthy, herbal, fruity flavor that finishes dry and lightly spicy. Just a hint of tannin."

What our editors thought:

"Smoky cigar bar and leather upholstery strike a steakhouse vibe in the nose, with hits of pinot noir between whiffs of ashtray. The sip is dry berry with bold jamminess and juicy fruit."

ABV: 7% **IBUs:** N/A

Loc: Idaho Springs, CO



NOTABLE BELGIAN-STYLE BEERS FROM PAST ISSUES


Allagash Coolship Red

94


American Solera Coolship Roadtrip

99


Beachwood Sketches of Senne Apricot

99


Burial Separation of Light and Darkness

95


Cantillon Kriek 100% Lambic Bio

88


Casey Family Preserves: Raspberry

95


Cellar West Artisan Ales Nightingale

96


Creature Comforts Barrel No. 64

99


Crooked Stave Funk It Up

98


Deep Ellum Wealth & Taste

98


Fonta Flora Carolina Custard

93


Funk Factory Foeder Saison Vint. Hallertau

97


Hill Farmstead Florence

99


Kros Strain Brewing Saison 625

99


Little Fish Petit Poisson

95


Lost Abbey Carnevale

98


Orpheus Fragmentation of Silencea

97


Perennial Artisan Ales Hainut

95


Prison City Laser Brain

97


The Referend Sanctus Blend No. 3

98


Russian River Intinction Pinot Noir

93


Scratch Strawberry Sumac

99


Societe The Harlot

94


Speciation Laurentian Lake Michigan

97


Transient Anachronism Batch #3

96


TRVE Meditation is the Practice of...

97


Urban Artifact Triceratops

96


The Veil Brewing Culminate

98


Wiley Roots Galaxy DH Funk Yo Couch

100


Yazoo Brett Saison

100

AD INDEX

Our advertisers help make it possible for us to bring you great content from the best contributors, issue after issue!

Anvil Brewing Equipment	32
Bairds Malt	18
Blichmann Engineering	33
Canada Malting Company	9
Cascade Floors	22
Country Malt Group	C3
Great Western Malting	17
Hopsteiner	15
New Belgium Brewing	C4
ProBrew	1
Ss Brewtech	2
Two Roads Brewing Company	5
Willamette Valley Hops	C2
Yakima Chief Hops	7
Yakima Valley Tourism	25
Zahm & Nagel Co Inc.	19

For more information about advertising in Craft Beer & Brewing Magazine®, please contact Media Sales Director Blake Osmond at bosmond@beerandbrewing.com or 888.875.8708 x707.



Café Culture. I was once a newsperson. I only started writing about beer because my wife and I moved to Belgium 15 years ago, and I needed something to do. Since then, I've gone back as often as possible, describing the beers and hospitality in the *Good Beer Guide Belgium* and elsewhere, including this magazine. The truth: I love the cafés and their atmosphere even more than the beers. I love a place you can sit a long while, admiring quirks that have accumulated over years or decades or, sometimes, generations. My photos don't do them justice, but here are scenes from those homes away from home. —Joe Stange