

CRAFT **Beer** & Brewing

Make It!

Czech Pale and Dark Lagers,
West Coast Pils, Red Corn Lager,
Witbier, Session IPA & more!

FOR THOSE WHO
MAKE AND DRINK
GREAT BEER

Lager Lucidity

From Czech Lager
Traditions to West
Coast Pils Innovation,
Explore the Broad
Lager Landscape

Tasted: 143 Lagers

From Helles to
Baltic Porter

Cracking the Freshness Code

Understand How
Beers Go Bad

SUMMER 2023 » \$14.99 US » \$17.99 CANADA



CRYO 

LESS IS **MORE**

OUR CUSTOMERS HAVE REPORTED UP TO A
10% INCREASE PER BATCH YIELD
AFTER REPLACING PART OF THEIR STANDARD HOP CHARGE
WITH **CRYO HOPS® BRAND PELLETS**.*



Yakima Chief Hops Cryo Hops brand pellets remain an industry game changer. With a patented pelleting process that promises less handling, and less exposure to oxygen and heat than other enriched pellets, Cryo Hops delivers more hop character, more concentration of oils, more yield both in the brewhouse and the cellar, delivering you more potential.



**FIND OUT HOW MUCH MORE
YOU CAN MAKE WITH LESS.**

*Results will vary by brewery, recipe, and methods used.



the originators.
nzhops

nzhops ^{Ltd}



Evoking the unmistakable aromas of the tropics, Nectaron® captures the senses and tantalizes the tastebuds, with crafted notes of pineapple, passionfruit, peach and grapefruit. Already proven to add abundant character to styles such as Strong Pale Ales and IPAs, this is a hop that can sing by itself or add an undeniable 'wow' to any brew in the making.

Scan to find
a distributor
near you



Watch the
Nectaron®
Video Trailer



science meets art



EURO-PILS MALT

**WE'RE SUPER HAPPY
WITH THE PERFORMANCE
OF EURO-PILS MALT FROM
CANADA MALTING CO.**

"We did a sensory comparison to a previous batch of beer, which used a different Pilsen malt. The batch with Euro-Pils has a more pronounced bready/doughy malt character. The colour between both batches was nearly identical. The foam retention as well as the extract in the brewhouse was also better with the Euro-Pils."

**JONAS HURTIG,
HEAD BREWER AT CABIN BREWING**

Travis Bezaire holding Luminosity German Pilsner, brewed with Euro-Pils at Cabin Brewing.

Canada Malting Co.'s Euro-Pils Malt is locally produced at our historic malthouse in Montréal, Québec and showcases the true character of a Continental European Pilsner Malt, with clean biscuit flavour. Benefits include low protein, high extract, no step mash required, increased head retention and an overall cost-effective domestic malt option.

AVAILABLE EXCLUSIVELY THROUGH





A Malt Made For Summertime Sippers

Time to break out that refreshing pour perfect for sipping away a sunshiny day. Whatever summer vibes you're dreaming up on your brewhouse floor, **Prairie Pils™** is the ideal malt to help you start the season off right. This versatile Pilsner malt imparts a delightful, bright color and satisfyingly crisp, clean flavors.



The SVBS has become one of the most elusive products in Ss Brewtech history, but we're excited to announce it is finally here. With a clear vision of what we wanted, we had to bend a few rules. Countless design revisions, and one or two complete restarts, and we now have a product we feel will one day be as iconic as our original Brew Bucket. An all-in-one brewhouse that draws inspiration from every facet of Ss Brewtech, a true passion project for our entire the team, the SVBS.

— Ss Brewtech

SVBS

SINGLE VESSEL BREWING SYSTEM

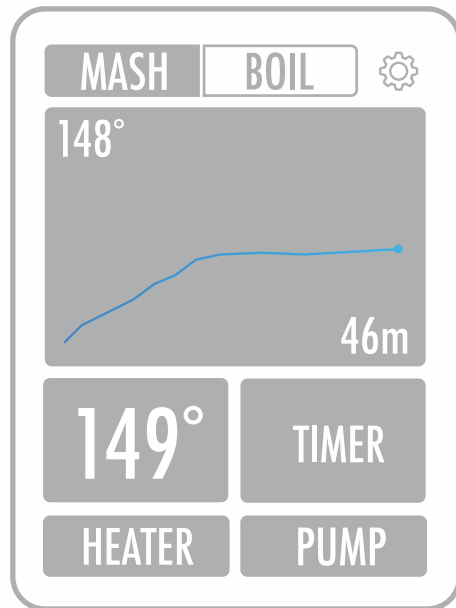


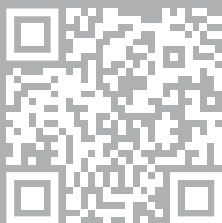
PHOTO-CHEMICAL
ETCHED
MASH BASKET
& HOP FILTER RING



⚡ 4600W POWER

INTEGRATED PUMP &
PURE FLOW VALVING

LEARN MORE



ENGINEERING BETTER BEER
SSBREWTECH.COM

RECIRCULATION



WHIRLPOOL



KNOCKOUT





63

54

The American Grain

Corn has long held an important place in brewing across the Americas. Today, craft maltsters and brewers are embracing more flavorful heirloom varieties.

58

Cracking the Code on Freshness

By better understanding how flavors change over time, we can brew beers built to last longer—and we can better appreciate them when they're fresh.

63

Lager Lucidity

64 | The Art of the Addictive

Ready to brew a more authentic Czech-style lager?

72 | Writing (& Breaking) the Rules of West Coast Pilsner

Pilsner drinkability plus West Coast hops—the best of both worlds?

76 | Seeking the Cold Truth About Lagering Times

There are lots of myths and rules of thumb ... but no magic formula.

80 | Brew an Incendiary Schwarzbier

82 | The Case for Cask Lager

The joys of bottom-fermented beer served in the British ale tradition.

85 | Lager, Under Pressure

Mastering pressurized fermentation to make more lagers, faster.

88 | Malt Liquor: American Nostalgia, Extracted

Lean, strong, and adjunct-laden, malt liquor can evoke simpler times.

91 | Tasted: Lager, Lager, Lager



54



88

| CONTENTS |

The Mash

- 13 | Infographic
- 14 | Editors' Picks
- 16 | Whalez, Bro.
- 18 | Love Handles
- 20 | Fresh Beers (Sponsored)

Pick Six

- 22 | New Belgium's **Lauren Woods Limbach** guides us through a sixer that represents excellence and those moments that remind you what it's all about.

Brewing

- 28 | Special Ingredient: Jackfruit
- 30 | Style School: Gammeltøl
- 34 | Style School: Witbier
- 38 | Direct Fire! West Coast IPA
- 40 | Make Your Best: American Porter, Fruited Wheat, Dunkelweizen, and Session IPA
- 50 | Gearhead: There's a Pump for That

Cooking with Beer

- 46 | Hot Bites for Cold Beers

More

- 111 | Advertiser Index
- 112 | Chill Plate

Summer 2023, Issue 57 • *Craft Beer & Brewing Magazine*® (print ISSN 2334-119X; online ISSN 2334-1203) is published four times a year in January, April, July, and November for \$39.99 per year by Unfiltered Media Group, LLC at 1300 Riverside Ave, Ste 206, Fort Collins, CO 80524; Phone 888.875.8708 x0; customerservice@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.



82



46



34



30



64



WEBSTORE 2.0: **CLICK. SHIP. BREW.**



ORDERING MADE EASY!

- Shop for your brewing and distilling needs online.
- Order from hop and malt contracts.
- View and manage your account.
- Schedule shipments up to two weeks in advance.
- Make payments online.

Building the perfect webstore has been a humbling journey, but our team doesn't quit. We're determined to create a custom, digital solution for managing your brewing and distilling needs online. Over the past several months, we've made key improvements to our webstore, and we encourage you to experience its many benefits. It's our mission to make your life easier so you can focus on your craft.

Try our webstore today to shop our extensive portfolio of products from more than 30 different global brands, from anywhere, at anytime and from any device.



**CONTACT YOUR SALES REP TO
GAIN ACCESS AND RECEIVE
YOUR LOGIN INFORMATION.**



Homebrew Recipes

Misfit Outpost
Subcontinental Jackfruit
Rice Lager
Sarah Nadeem & Juan Sanchez,
Misfit Outpost
PAGE 29

19th Century Danish Old
Beer (Gammeltøl)
Simon Wrisberg & Joe Stange
PAGE 32

Allagash White
Allagash Brewing
PAGE 37

Great Lakes Edmund
Fitzgerald Porter
Great Lakes Brewing
PAGE 41

Swamp Head
Tropical Vibes
Nick Dunn, Swamp Head Brewery
PAGE 43

Hitzewelle Dunkelweizen
Josh Weikert
PAGE 44

Kleiner Hund
Session IPA
Josh Weikert
PAGE 45

Cruz Blanca Fade Away
Red Corn Lager
Jacob Sembrano, Cruz Blanca
PAGE 57

Bus Beer Světlý
Ležák 12°
Khris Johnson of Green Bench
with Cohesion, Halfway Crooks,
Monday Night, Schilling Beer &
Threes
PAGE 71

Finback Crispy Town
Kevin Stafford, Finback Brewery
PAGE 75

Incendiary Schwarzbier
Adam Goetz, Incendiary Brewing
PAGE 81

Good Word Only
Memories Remain
Dark Lager
Todd DiMatteo, Good Word
Brewing & Public House
PAGE 84

Vier Sterne Unter
Druck Pilsner
Josh Weikert
PAGE 87

Annie's Olde Patterson
0600 Malt Liquor
Annie Johnson
PAGE 90

| CONTRIBUTORS IN THIS ISSUE |



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.



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.



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 chocolate lab and three backyard chickens.



Josh Weikert is a founding member of the Stoney Creek Homebrewers, has medaled in every BJCP beer style, is a BJCP Grand Master Judge and Certified Cicerone, and is a two-time Eastern Pennsylvania Homebrewer of the Year. His work includes consulting on quality control, recipe design, and service for GABF and WBC medal winners.



David Nilsen is a beer writer and educator living near Dayton, Ohio. He's an Advanced Cicerone and member of the North American Guild of Beer Writers and the National Book Critics Circle. He hosts the Bean to Barstool podcast and is cofounder and editor of the *Final Gravity* zine. Find him online at davidnilsenbeer.com and on social @davidnilsenbeer.



Michael Stein is president of Lost Lagers, Washington, D.C.'s premier beverage research firm. An award-winning writer, his historic beers have been served at the Smithsonian National Museum of American History. Co-owner and senior staff writer at DC Beer Media, his research with Jamaal Lemon has most recently won a James Beard Media Award.



Share the Rays

**MAKE EVERY DAY A SUNNY DAY
WITH A LAWSON'S FINEST IPA**

SIP OF SUNSHINE 8% • LITTLE SIP 6.2% • HAZY RAYS 5.3%

LAWSONSFINEST.COM

ANTICIPATION IS A POWERFUL THING. I just watched our local NBA team, the Denver Nuggets, finish off the Miami Heat to take the championship trophy after 46 seasons of never appearing in the NBA Finals at all. It was a long journey to get here—past eras with standout stars that never netted a championship, fits and starts with permutations of the current lineup hampered by injuries and other setbacks. It was a long time coming.

The current atmosphere around the team is something fresh, though. I attended games back when we moved to Colorado more

than a decade ago—I worked for *NBA Hoop* and *NBA Inside Stuff* magazines back in the early 2000s in New York City, and spent a fair amount of time at games. The gametime mood in the early 2010s in the old Pepsi Center (now the Ball Arena) was low-key compared to many arenas I'd been to, surely inspired by the inconsistent energy the team expressed on the court.

But the past few years in Denver have found a new energy, inspired by a coach and players who expect more from themselves. The anticipation

built over the course of the past couple of seasons finally hit critical mass, as this Nuggets team did what no team before them could.

The possibility and the expectation of quality that the team delivered both in their performance on the court and in stoking the energy of the crowd has been palpable. It brought more and more followers into the fold. Success has a way of doing that, doesn't it? With a deep understanding of the power of anticipation, the first thing Nuggets head coach Michael Malone said as he accepted the championship trophy was that this wasn't the end. The expectation is that he and the team will win another. Achievement, in a sense, is a letdown. It's certainty. It's known. Anticipation and the unknown are where the excitement lies, and the achievement is the thing that keeps future expectations high.

We see the same in beer, as that anticipation for beers we haven't tried creates a unique energy. Brewers create anticipation with flowery descriptions, exotic ingredients, and high-minded collaborations. Beer drinkers buzz with the anticipation of visiting new breweries. I find excitement in the anticipation of the experiences we'll create at our own events, then while at those events—while we're in the moment and enjoying the experience itself—the question always arises, "When will the next one be, and where?" Even in the throes of the actual experience, the anticipation of the next one still holds psychological power. As much as I might encourage everyone to soak up the present and enjoy the experience we're having together, I understand the inclination to revise goals and reset the horizon. It's in our nature to look forward and not rest.

This lager issue is a chance, I think, to find some balance in anticipation. Endlessly resetting goals—to focus on the next medal, the next check-in, or the next brewery visit on one's list—is valid. But it's also rewarding to find presence in the comfortable and familiar, like anticipating a well-made lager and conversation with a friend.

Whether this is your championship year, your rebuilding year, or just a year where you're playing for the sake of playing, I hope you enjoy this issue. We made it for you.



Jamie Bogner

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



CRAFT Beer & Brewing

Editorial Director Jamie Bogner

Managing Editor Joe Stange

Contributing Editor Kate Bernot

Contributors Jeff Alworth, Kate Bernot, Christopher Cina, Lars Marius Garshol, Adam Goetz, Annie Johnson, Kevin Kain, Randy Mosher, David Nilsen, Michael Stein, Lana Svitanova, Don Tse, John Verive, Josh Weikert

Photographer Matt Graves

Illustrators Jamie Bogner, Ansis Puriņš

Production Mark Dobroth

Proofreader Lavon Peters

Print Management Trish Faubion

Tasting Panel Cy Bevenger, Mark Boelman, Kale Bystrom, Geoff Coleman, Nelson Crowle, Greg Crum, Soren Daugaard, Patrick Dawson, Blake Ernst, Jester Goldman, Stan Hieronymus, Fred Hirsch, Phillip Joyce, Matt Kunze, Chris Levesque, Ted Manahan, Andy Mitchell, Ryan Pachmayer, Andy Riedel, Nathan Rooen, Geoff Shideler, Ryan Thomas, Adriana Terron, Jim Turk

Tasting Panel Stewards Gene Elliott, Paul Hutchings

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 Martin

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

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 © 2023 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

BEER YEAST FOR PROFESSIONALS

BF16 is a Swiss lager yeast to brew a wide range of lager and pilsen beers with quick start fermentation and high attenuation. The yeast profile allows to brew a high quality drinkable lager beer. It has an excellent fermentation performance, and the ability to produce clean, bright lagers with minimal diacetyl, refreshing taste and floral notes.



visit our website



 **Angel**
en.angelyeast.com

Congratulations to all of the 2023 Medalists!

Well deserved. With 2,566 entries in 56 categories, 100+ judges, and 3 intense days of tasting... a record number of breweries battled it out. And medals were awarded only to those worthy.

To view a thorough list of medalists, including beer names, categories, and number of entries per category, please visit us at:

BestofCraftBeerAwards.com

Cheers. And see you next year!



Large-Size Brewery of the Year

Widmer Brothers Brewing

Portland, OR

Medium-Size Brewery of the Year

Sunriver Brewing Co.

Sunriver, OR

Small-Size Brewery of the Year

Humble Parlor Brewing

Philadelphia, PA

—MEDALISTS—

Amber Lagers

GOLD – Burke-Gilman Brewing Co.

SILVER – Resonate Brewery

BRONZE – Resolute Brewing Co.

American Sour Beers

GOLD – 10 Barrel (East Side)

SILVER – Sugar Creek Brewing Co.

BRONZE – Wild Ride Brewing

American Wheat Beers

GOLD – Widmer Brothers Brewing

SILVER – Catawba Brewing Co.

BRONZE – GoodLife Brewing Co.

Barley Wines, Wheat Wine, & Rye Wine

GOLD – Breakside Brewery & Taproom

SILVER – Flix Brewhouse – Des Moines

BRONZE – Little Brother Brewing

Belgian Ales

GOLD – True North Ale Co.

SILVER – Unibroue

BRONZE – Figurehead Brewing Co.

Bocks

GOLD – IMBIB Custom Brews

SILVER – Hop Valley Brewing

BRONZE – INC82 Brewing

Bohemian Pilsner

GOLD – Fritz Family Brewers

SILVER – Zilker Brewing Co.

BRONZE – Faubourg Brewing Co.

Brett Beers

GOLD – Logboat Brewing Co.

SILVER – Oregon City Brewing Co.

BRONZE – Deschutes Brewery

Cascadian Dark Ale

GOLD – Beachcrest Brewing

SILVER – Local Brewing/Laughing Monk Brewing

BRONZE – Baerlic Brewing Co.

Classic Saisons & Farmhouse Beers

GOLD – The Good Society Brewery/Public House

SILVER – Ike & Oak Brewing Co.

BRONZE – White Bluffs Brewing

Coffee Beers

GOLD – Scamp Brewing Co.

SILVER – Sunriver Brewing Co.

BRONZE – Untold Brewing

Dark Lagers

GOLD – Danville Brewing Co.

SILVER – Chilton Mill Brewing

BRONZE – Beach Cat Brewing

THANKS TO OUR SPONSOR

SnoTemp°



English Ales

GOLD – Steeplejack Brewing Co.

SILVER – Logboat Brewing Co.

BRONZE – Mt Tabor Brewing Co.

Experimental Beers

GOLD – 10 Barrel (East Side)

SILVER – Meddlesome Brewing Co.

BRONZE – 10 Barrel (East Side)

Experimental Hop-Forward & Other IPAs

GOLD – Mountains Walking

SILVER – True North Ale Co.

BRONZE – Sugar Creek Brewing Co.

Flavored Beers

GOLD – O.H.S.O Brewery – Gilbert

SILVER – Spilled Grain Brewhouse

BRONZE – 10 Barrel (West Side)

Fruit & Field Beers

GOLD – Matchwood Brewing Co.

SILVER – Samuel Adams Brewery

BRONZE – Denver Beer Co.

Fruited Mixed-Culture Beers

GOLD – Prison City Brewing

SILVER – 10 Barrel (East Side)

BRONZE – Three Rivers Brewing Co.

German Pilsner

GOLD – Kulshan Brewing Co.

SILVER – Burgeon Beer Co.

BRONZE – Offset Bier Co.

German Sour Beers

GOLD – Freebridge Brewing

SILVER – Reuben's Brews – The Taproom

BRONZE – IMBIB Custom Brews

German Wheat Beers

GOLD – Cedar Springs Brewing Co.

SILVER – 2C Family Brewing

BRONZE – Brothers Cascadia Brewing

Gluten-Free Beers

GOLD – Buck Wild Brewing

SILVER – Ghostfish Brewing Co.

BRONZE – Buck Wild Brewing

Golden or Blonde Ale

GOLD – Sun King Brewery – Indianapolis

SILVER – Twin Oast Brewing

BRONZE – Thunder Island Brewing Co.

Hazy or Juicy Pale Ale

GOLD – Sunriver Brewing Co.

SILVER – Triptych Brewing Co.

BRONZE – Migration Brewing Co.

Hazy or Juicy IPA

GOLD – Humble Parlor Brewing

SILVER – LUKI Brewery

BRONZE – Chainline Brewing Co.

Hazy or Juicy Imperial IPA

GOLD – Ravenna Brewing Co.

SILVER – Knee Deep Brewing

BRONZE – Marto Brewing Co.

Hop-Forward Lagers

GOLD – Silva Brewing

SILVER – Trap Door Brewing

BRONZE – Sunriver Brewing Co.

Hop-Forward Session Beers

GOLD – Western Collective

SILVER – Bombshell Beer Co.

BRONZE – Aeronaut Brewing Co.

Imperial Porters & Brown Ales

GOLD – Von Ebert Brewing

SILVER – Pond Farm Brewing Co.

BRONZE – Pond Farm Brewing Co.

Imperial Stouts

GOLD – Sound to Summit Brewing

SILVER – New Heights Brewing

BRONZE – Fort George Brewery – Kingpin

IPA

GOLD – Three Rivers Brewing Co.

SILVER – Grains of Wrath Brewing

BRONZE – 2C Family Brewing

Imperial IPA

GOLD – Block 15 Brewing Co.

SILVER – Sunriver Brewing Co.

BRONZE – StormBreaker Brewing

Kölsch

GOLD – Bravery Brewing

SILVER – New Holland Brewing

BRONZE – Mt Tabor Brewing Co.

Light Lagers

GOLD – Von Ebert Brewing

SILVER – Revelation Craft Brewing Co.

BRONZE – ForeLand Beer

Non-Alcoholic Hop-Forward

GOLD – Kit NA Brewing Co

SILVER – Fremont Brewing

BRONZE – Libra

Non-Alcoholic (Other)

GOLD – Go Brewing

SILVER – Go Brewing

BRONZE – Athletic Brewing Co.

North American Lagers

GOLD – Mother Earth Brew Co.

SILVER – Liquid Mechanics Brewing

BRONZE – Kulshan Brewing Co.

Pale Ale

GOLD – Von Ebert Brewing

SILVER – Burgeon Beer Co.

BRONZE – Formula Brewing

Pale European Lagers

GOLD – Von Ebert Brewing

SILVER – Templin Family Brewing

BRONZE – Lucky Envelope Brewing

Porters & Brown Ales

GOLD – Stoup Brewing

SILVER – Brothers Cascadia Brewing

BRONZE – Gratitude Brewing

Rare & Historical Beers

GOLD – Wolf Tree Brewery

SILVER – Steeplejack Brewing Co.

BRONZE – Moontown Brewing Co.

Red or Strong Red Beers

GOLD – NOST Brewing Project

SILVER – Stoup Brewing

BRONZE – Marto Brewing Co.

Rye Beers

GOLD – Gathering Place Brewing Co.

SILVER – Reuben's Brews – The Taproom

BRONZE – Bent Barley Brewing Co.

Scottish Ales

GOLD – LocAle Brewing Co.

SILVER – Stone Arch Brew Pub

BRONZE – The Pike Brewing Co.

Smoke Beers

GOLD – Trails End Brewery

SILVER – Level Beer

BRONZE – Steeplejack Brewing Co.

Specialty Grains & Fermentables

GOLD – Grid City Beer Works

SILVER – Whistle Hop Brewing Co.

BRONZE – Bent Barley Brewing Co.

Specialty Saisons & Farmhouse Beers

GOLD – Idyll Hounds Brewing Co

SILVER – Dirty Couch Brewing

BRONZE – Sunriver Brewing Co.

Spontaneous Fermentation & Mixed-Culture

GOLD – Dwinell Country Ales

SILVER – Sun King Brewery– Indianapolis

BRONZE – Main St. Brewing

Stouts

GOLD – Legion Brewing Co.

SILVER – Old Schoolhouse Brewery (South Campus)

BRONZE – ForeLand Beer

Strong Ale/Old Ale & Scotch Ale/Wee Heavy

GOLD – Coast Fork Brewing

SILVER – Bowigens Beer Co.

BRONZE – Steeplejack Brewing Co.

Strong Belgian Ales

GOLD – Taxman Brewing Co.

SILVER – Unibroue

BRONZE – Sugar Creek Brewing Co.

Strong Wood- & Barrel-Aged Beers

GOLD – Three Rivers Brewing Co.

SILVER – Boss Dog Brewing

BRONZE – 10 Barrel (West Side)

Wood- & Barrel-Aged Specialty Stouts

GOLD – Breakside Brewery

SILVER – Conversion Brewing

BRONZE – Alesong Brewing and Blending

Wood- & Barrel-Aged Stouts

GOLD – Revision Brewing Co.

SILVER – Fort George Brewery – Public House

BRONZE – Czig Meister Brewing

Wood- And Barrel-Aged Beers Under 8%

GOLD – Deschutes Brewery Portland Public House

SILVER – Montavilla Brew Works

BRONZE – Breakside Brewery & Taproom





Put Your Marketing on **Autopilot**

An unlimited marketing + web development
subscription to scale your craft business.

UNFLTCREATIVE.COM

30-day money-back guarantee

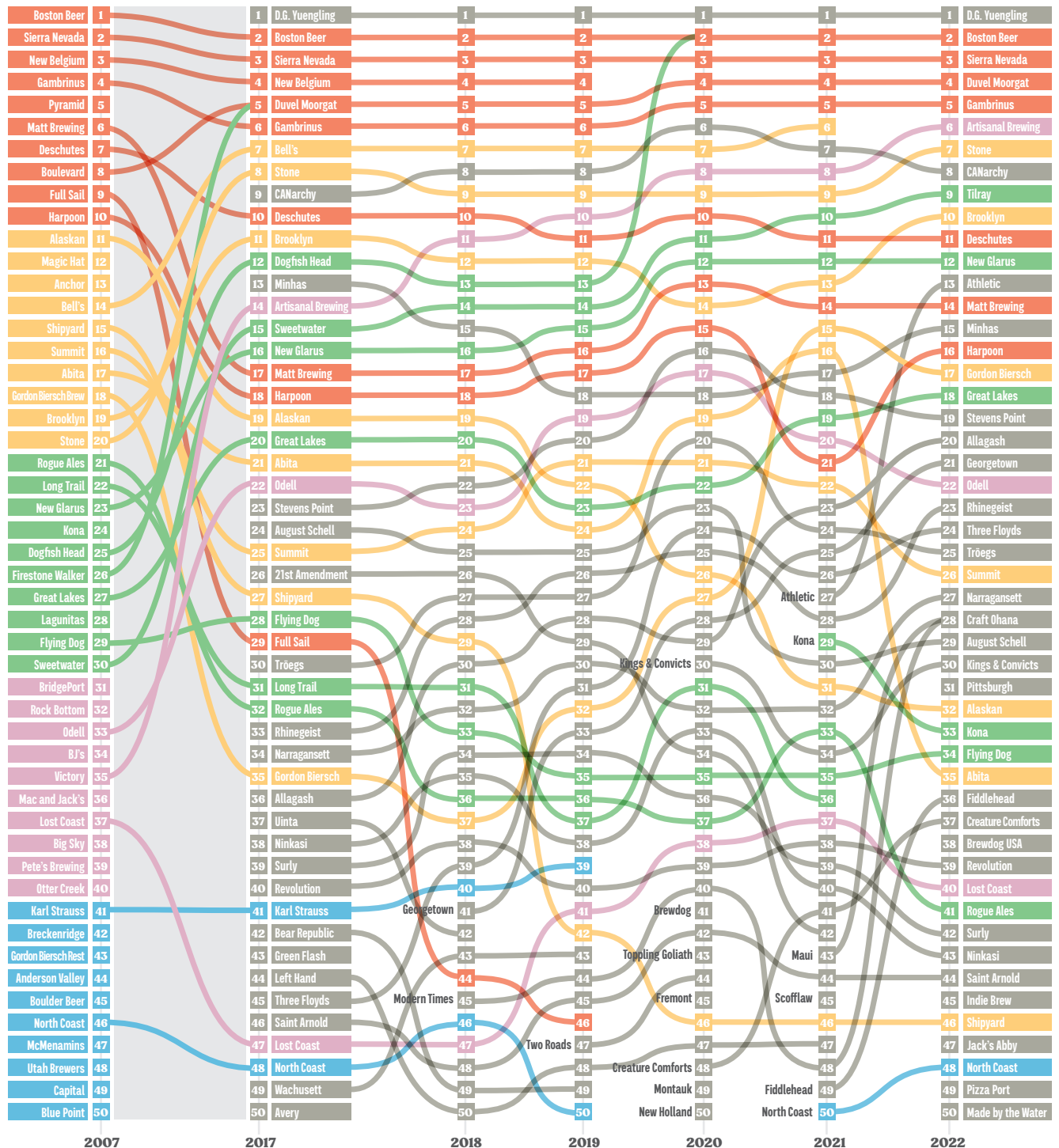
From the same team that brings you:

CRAFT Beer & Brewing



Craft Top 50

In this yearly update, we plot the moves in the Brewers Association's top 50 craft brewers by production volume, from 2007 to the present. To simplify the data and make it easier to follow, we fast-forward from 2007 to 2017 and pick up from there.



Source: Brewers Association

Editors' Picks



Four Picks to Help You Brew Like a Pro (at Small Scale)

One of the beautiful things about brewing as a hobby is that we can decide where and when we want to wing it (even if that's pretty much *all* the time) and in which specific areas we're willing to throw money at better quality or greater precision. When it comes to products that can help us do that, the range is often limited compared to what's available to the pros. With that in mind, here are four ways to raise the consistency and quality of our beers without buying in bulk or taking out a business loan.

Exogenous Enzymes

Industrial breweries have been adding enzymes to beer to achieve various goals for decades, but smaller craft brewers didn't *openly* embrace them until relatively recently (thanks, brut IPA). While most of the products on the market are aimed at commercial brewers, there are a few available at a size and price that can still make sense in our kitchen or garage. These include the following products from **CellarScience**:

Brutzyme glucoamylase—for breaking down starches into simpler sugars, to fer-

ment to dryness—comes in a 1 oz (30 ml) bottle (\$7, *various retailers*), with ¼ tsp (1.5 ml) good for five gallons (19 liters) of beer.

Clearzyme—a protease that breaks down haze-forming proteins, to prevent chill haze—also comes in a 1 oz (30 ml) bottle (\$23), with ¼ tsp (1.5 ml) good for five gallons (19 liters) of beer.

ALDC prevents the formation of diacetyl—a handy way to beat the hop creep when you're dry hopping. Just add a dropper's worth to 5 gallons; a 1 oz (30 ml) dropper bottle (\$30) has about 35 doses.

Flowable Hop Extracts

What brewers once saw as an industrial shortcut has been gaining mainstream acceptance at small breweries, with many products now variety-specific and meant to boost flavor and aroma “downstream” rather than bitterness in the kettle. Often, they're best used in combination with hop pellets. Most of these products are available only in bulk sizes meant for commercial breweries, but **BarthHaas** offers two types at homebrew and nano scale:

Incognito Citra and **Mosaic** in 20-gram jars (\$14.99, yakimavalleyhops.com), meant for the whirlpool and just about right for a five-gallon (19-liter) batch.

Spectrum Citra, **Eclipse**, **Galaxy**, and **Mosaic** in 20-gram sachets (\$24.99, yakimavalleyhops.com) meant for adding at dry hop.

Oxygen-Purged Dry Hops

As brewers keep fine-tuning their methods to not only boost hop aroma but to make it last as long as possible, more are turning their attention to reducing oxygen exposure at just about every step in the brewing process (notable exception: oxygenating the wort for healthy fermentation). Many homebrewers, likewise, have gotten into the healthy habit of purging tanks and kegs with CO₂. However, a key point at which many brewers expose their precious wort to air is when they add dry hops. One solution to that problem is the **KegLand Hop Bong Pressure Pack for FermZilla** (\$179.99 from *various U.S. retailers*).

Attached via tri-clamp to your fermentor, the Hop Bong's pressure-safe chamber can

The Rundown

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

be sanitized, filled with about six ounces (170 g) of hop pellets, sealed, and purged before you open the ball valve to drop the hops into your fermentor. It also works for keg finings, such as gelatin—and it can even be rigged as a Randall-like device to push beer through the chamber full of hops (or lime zest and habanero, or Chocolate Frosted Sugar Bombs cereal, or whatever). And, indeed, it does look like a bong. The only thing left to decide is which variety of hops you'll put in there (dank ones, obviously).

Better Data

Robust quality analysis and control are a hallmark of consistent brewing. Homebrewers have never needed full-on labs—and our tolerance for variance, er, varies—but even the laxest among us (ahem) can still pick and choose the data we want to collect when there are areas that we want to improve. In that context, the miniaturization of lab tech is an exciting development.

In past issues we've reviewed two generations of the **Anton Paar EasyDens**, a digital hydrometer that makes it easy to take gravity readings and track fermentations via smartphone. Late last year, the Austria-based analytical-equipment company added the **SmartRef** (\$269, easydens.com), a portable refractometer that measures a wide range of variables, including gravity, sugar percentage (on a range of scales and metrics), temperature, salinity, and even glycol percentage. It works with the same intuitive Brew Meister (and Wine Meister) apps as the EasyDens, making it easy to collect and track your readings over time and over various batches.

If you already own an EasyDens, the SmartRef might not be worth the extra investment. On the other hand, if you're into cider, mead, or wine—or you're just hooked on data—it could be a smart bet for taking your quality and consistency to the next level.



Upcoming Craft Beer & Brewing Events and Dates to Know

Sign up at newsletter.beerandbrewing.com for timely updates.

Sep 1–8, 2023

Voting Opens for the Readers' Choice Categories in our Annual Best in Beer Issue

Cast your vote in our annual Best in Beer Readers' Choice survey. Look for the survey link via email on September 1.



Sep 9, 2023

Beer Submission Deadline for our Annual Best in Beer Issue

Are you a pro brewer with beer you'd like us to consider for our annual Best in Beer Editors' Picks? Visit help.beerandbrewing.com for more info on submitting beer for review.

Oct 8–11, 2023

Brewery Workshop: Denver

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



The Latest from the Craft Beer & Brewing Podcast



- Ep.296** Pilsner Urquell's Václav Berka Tells the Story of Pilsner and Preaches Excellence in Lager Brewing
- Ep.297** Pivovar Proud Brewmaster Lenka Straková Has a Place to Play in Plzeň
- Ep.298** Aleš Potěšil of Prague's Břevnov Monastery Brewery Is Perpetually Pushing for Pitelnost
- Ep.299** Lukáš Tomsa of Dva Kohouti Brews the Beer, but the Bartender Makes the Beer
- Ep.300** Direct Fire! West Coast IPA Now, Revisited
- Ep.301** Zdeněk Rosa of Bohemia Hop Is Bullish on the Future of Czech Hops
- Ep.302** Jared Welch of Southern Grist Balances Progression and Intention
- Ep.303** Peter Kiley of Monday Night Is Creating A Framework that Supports Innovation
- Ep.304** Adam Brož of Budějovický Budvar Loves Talking about and Brewing Great Lager
- Ep.305** Matthias Trum of Schlenkerla Isn't Preserving the Ashes, He's Keeping the Rauchbier Fire Burning
- Ep.306** Celebrated Hop Breeder Ron Beatson Discusses the Unique Characteristics of New Zealand Hops
- Ep.307** Brewers Retreat Panel on Hazy IPA with Monkish, Trillium, and WeldWerks
- Ep.308** Brewers Retreat Panel on Wine-Beer Hybrids with Russian River, Side Project, and Hanabi

Visit beerandbrewing.com/podcasts to listen and subscribe.

Whalez, Bro. By Ansis Puriņš



The Complete Beer Course, 2nd Edition

By Joshua M. Bernstein, Union Square & Co., hardcover \$35, 340 pages

We know how difficult it can be to keep up with beer trends—a lot changes in a year or two, let alone a decade. Yet a decade has passed since the publication of Josh Bernstein's first *Complete Beer Course*—high time for a full revision to help new enthusiasts get to know a landscape that in many ways has shifted dramatically.

All the classic styles and their back stories are still here, from American ambers to Trappist tripels, and the book leans toward suggesting foundational greats that have persevered while mostly avoiding trendy picks. On the other hand, notable new developments such as cold IPAs and smoothie beers are here, too, as they should be. The idea is to welcome the proverbial newcomers

to craft beer—do such people still exist? we hope so—into the much wider world of culture and flavor, sharing the enthusiasm and arcana that hooked so many of us in the first place.

To read Bernstein's book (or to meet him in person, for what it's worth) is to remember something important: Craft beer is *fun*. That's the whole point. Whether he's reminding us about overlooked classics, or that we ought to try pairing oysters with stout, or that it really is okay to add the damned lemon wedge to the wheat beer if you like it better that way, the *Complete Beer Course* never loses sight of the pursuit of pleasure. Thus, jaded old hands are likely to enjoy the book as much as the neophytes to whom it should be gifted. —J.S.



Jim Cibak,
Brewmaster, Revolution Brewing

REVOLUTION BREWING FINDS THEIR NORTH STAR

“We have to react quickly. It's great to have the flexibility and know North Star Pils™ is [there] if we need it. That's taken a lot of stress out of my life.”

Scan below to learn how using Rahr North Star Pils made his life easier.



Available through BSG
800.374.2739
bsgcraft.com



shorturl.at/jmCT3

Love Handles

Great places to drink great beer.



Mount Powell Tap Room

Deer Lodge, Montana

Comfortable, family-friendly beer bar where locals rule

What it is: Named for a 10,100-foot (3,079-meter) mountain in the Flint Creek Range, this spacious bar literally filled the beer-shaped hole left by the closure of Elk Ridge Brewing, moving into the brewery's former space in downtown Deer Lodge in 2021. Yet it's not only the town's residents who are grateful for the bar: It's also a prime stopping point for travelers on I-90 between Missoula and Butte or Bozeman. With a fireplace, free popcorn, and plenty of long tables for kids and backpacks, it's ideal for groups.

Why it's great: If the draft list doesn't clue you in, the taxidermy will: There's a mountain lion, mounted moose head, great horned owl, antler chandeliers—hey, you're in Montana! The 20 taps focus on beers made in-state or in northern Idaho, with a handful of regionally made ciders and hard seltzers on draft, too. (Macro beers and wine are available in cans and bottles.) It's obvious that the bar is locally loved, with regulars' sticker-covered mugs lining the back bar. An air fryer and toaster oven behind the bar turn out simple snacks and pizzas, or guests are free to bring takeout. The bar will also fill growlers if you need to get back on the road. —*Kate Bernot*

Hours: noon–10 p.m., Sunday & Monday; noon–11 p.m., Tuesday–Saturday

Address: 320 Main St., Deer Lodge, Montana

Web: facebook.com/mountpowelltaproom



Society Clubhouse

Toronto

A celebration of women in beer

What it is: In Toronto's West End, this women-owned, community-driven, multipurpose space is the physical manifestation of the Society of Beer Drinking Ladies. Founded in 2014, the SOBDL is a community of women in a male-dominated industry who simply love beer. From its five cofounders, the SOBDL has grown to a membership of thousands having events and get-togethers, brewing collaboration beers and supporting women in the beer business. The Clubhouse opened in 2021 as a brick-and-mortar space for that community and anyone who enjoys beer.

Why it's great: There are four beers on draft and dozens more in cans and bottles—and all are from women-owned breweries. These are available to drink at the Society Clubhouse or for takeaway via the in-house bottle shop. A small retail area sells Society merchandise along with artisanal goods made by local women. There's also a 200-person space for hosting events such as book launches, weddings, healing circles, and everything in between. The overarching goal is to create a safe space for women to enjoy beer, but all are welcome. —*Don Tse*

Hours: 5 p.m.–9 p.m., Monday–Tuesday; 11 a.m.–9 p.m., Wednesday–Saturday; 11 a.m.–5 p.m., Sunday

Address: 967 College St., Toronto

Web: societyclubhouse.to and ladiesdrinkbeer.com



Fork & Bottle

Zurich

Brunches, barbecues, and the best of Swiss craft

What it is: Self-billed as “Zurich's first craft beer-focused restaurant,” this is now a decade-old institution that delivers on all counts: delicious food, welcoming and attentive staff, and an impressive beer list selected with love backed by knowledge. It's also family-friendly, featuring a kids' menu and play areas both indoors and outdoors. With its huge yet cozy garden, it can also serve as an event space. Equally enjoyed by locals and expats, it's usually filled with a gleeful rumble of casual chatter among all kinds of visitors—cyclists and runners after workouts, seniors, families with strollers, colleagues after work, and so on.

Why it's great: Beer pairing suggestions for brunch and the seasonal menu are thoughtful touches. Its rotating list of 40-plus beers mixes Swiss craft in equal measure with European all-stars and the occasional American import. If you're with folks who aren't so into beer, there's an extensive wine list plus a few ciders. The barbecue parties and special dinners are also a sight to behold—not to mention the banana salted-caramel pancakes with bacon, one of the best brunches I've ever had. Tip: Book your table in advance for the brunch because it's usually packed full. —*Lana Svitankova*

Hours: 5 p.m.–10 p.m., Tuesday; 11:30 a.m.–10 p.m., Wednesday–Friday; 10 a.m.–8 p.m., Saturday & Sunday

Address: Allmendstrasse 20, Zurich, Switzerland

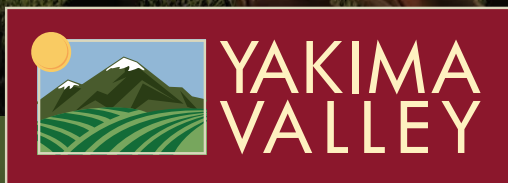
Web: forkandbottle.ch

HIT THE ONLY HOP COUNTRY *Craft Beer Trail*



Cowiche Creek
Brewing Co.

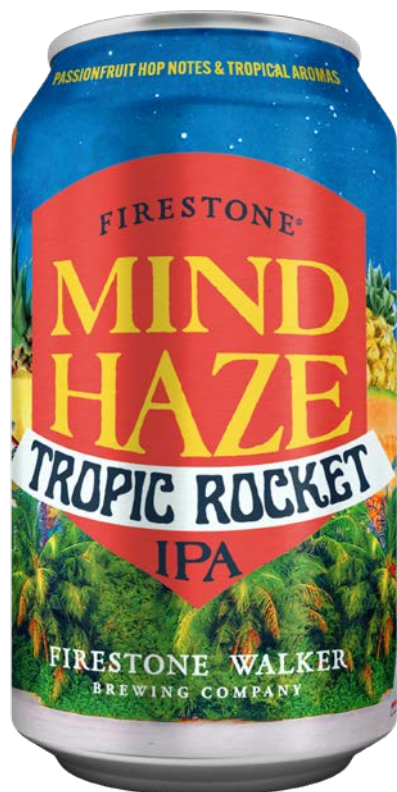
**PLAN YOUR TRIP TO THE
HOME OF THE HOPS**



GET YOUR FREE TRAVEL GUIDE AT VISITYAKIMA.COM

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

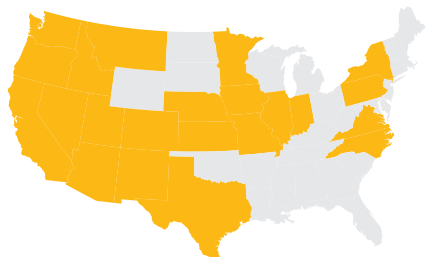
Fresh Beers



Firestone Walker Tropic Rocket

Blast into a psychedelic world of tropical hop flavor with Tropic Rocket—the latest creation from the minds behind Mind Haze. Let your tastebuds take flight through flavors of passion fruit, melon, and strawberry. Whether you're on land or in space, you won't want to miss this taste. Available exclusively in the new Mind Haze Tropical Hazy Mixed Pack.

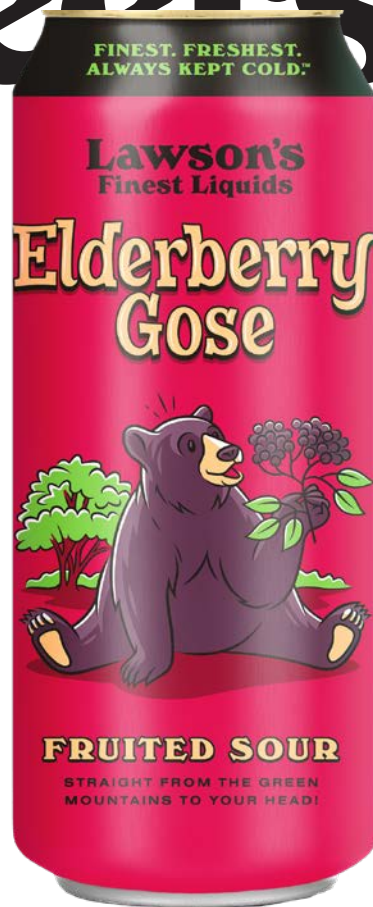
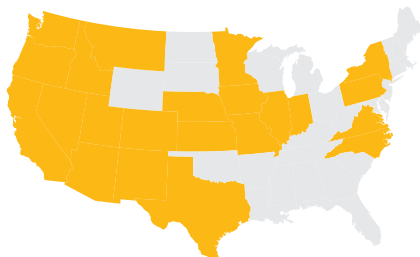
firestonebeer.com



Firestone Walker Another Life

Greet the sun with this bright blonde cold IPA featuring a blend of Citra, El Dorado, Centennial, and Chinook hops. Part classic citrus and pine, part ripe pineapple and watermelon candy, all crispy. Available exclusively in Firestone Walker's new IPA Mixed Pack.

firestonebeer.com



Lawson's Finest Liquids Elderberry Gose

Deep purple with a violet foam, this tart treat is a touch sweet thanks to a hefty dose of elderberry. Kettle-souring and a light malt base provide a pleasant pucker that gives way to a clean, refreshingly fruity sip.

lawsonsfine.com/





SalvoTM

HEAT

**PRONOUNCED
HOP FLAVOR**

**NEGLIGIBLE
BITTERNESS**

**YIELD
ENHANCING**

**VARIETY
SPECIFIC**

**EASY AS
HEAT. OPEN. POUR.**

OPEN



Hopsteiner

Hopsteiner.com
sales@hopsteiner.com
1-800-339-8410

POUR



**DARE TO
BREW
DIFFERENT**

| PICK SIX |



PICK SIX

For Occasions Exquisite and Everyday

From New Year's Eve to breakfast to making new best friends, New Belgium's Lauren Woods Limbach guides us through six beloved beers that represent excellence as well as those moments that remind you what it's all about. **As told to Jamie Bogner**

AN EARLY TRAILBLAZER in the realm of American barrel-aged, mixed-culture beers, Lauren Woods Limbach is master blender and director of the wood cellar at New Belgium in Fort Collins, Colorado. Besides being one of the industry's most respected experts in blending, mixed fermentation, and sensory analysis, she's overseen the development of many of New Belgium's most beloved beers.

When we asked Limbach to name her own top six, what we got was a super-pack of beers that represent elaborate craft, high quality, and great character, each one connected to a fondly remembered occasion—whether they occur once in a lifetime, once a year, or every Saturday in the mountains.

Oud Beersel Bzart Kriekenlambiek

(Beersel, Flemish Brabant, Belgium)

"I'm just wild about the *champenoise* method applied to the oude kriek style. For me, that just brings something that's already so amazing, and the Bzart came from a 2008 World Beer Cup winner [when Oud Beersel Oude Geuze won a silver medal]. Gert Christiaens has a friend who does the champenoise method. So, they uncorked all the bottles from that 2008 vintage, then they went through and added sugar and went back through the refermentation, and then degorged. That beer, to me, is like the icing on the cake. It couldn't get

any better. And it's just that incredible champagne-like foam and fizz that you get on top. My favorite beer will always be either Oud Beersel's or Frank Boon's Oude Kriek, and this takes takes an already beautiful beer and makes it even more special. Gert is always pushing—you know, Gert is almost New Belgium in a funny way because he's so *old* Belgium, so traditional—but whether or not he will admit it, he's constantly pushing the boundary while being wildly and just passionately traditional.

"I don't think he's made a batch since that first one. The last time I had a Bzart was last New Year's Eve. Instead of having champagne, we had a bottle and rang in the new year. It was extra special. It was snowing, and we were in a hot tub. We were pouring it in champagne glasses, and it was so carbonated that it continuously spilled over the rim of the glasses. We were laughing the entire time because it wouldn't stop. So bizarre. It's that lively. It is *the* life of the party."

Dupont Avec Les Bons Vœux

(Tourpes, Hainaut, Belgium)

"My second from Belgium would be, especially during the holiday season, Dupont Avec Les Bons Vœux—the very best, best wishes from the brewery. The first time I ever tried Avec Les Bons Vœux was the first time I was in Belgium. I was sitting at Brugs Beertje [in Bruges]. I had ordered this bottle, and I was sitting there kind of in a corner by myself, just marveling at the fact that this is a saison with no herbs, nothing added to it. And it was so interesting the amount of citrus, and this amazing lavender and rosemary—all these crazy herbs—knowing that it's just

ILLUSTRATION: JAMIE BOGNER



POWERED BY THE SOIL OF THE PACIFIC NORTHWEST

Great Western Malting uses locally grown barley to consistently create a base malt with the greatest quality and flavors, batch after batch.

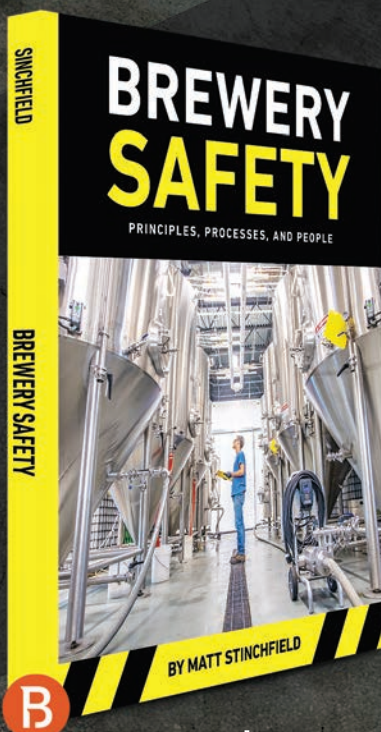
For generations, Premium Two Row has been our pinnacle base malt. It's perfect for all beer styles, especially American ales and lagers, producing a very clean, smooth finish. When you want peak performance, there's no better choice than our Premium Two Row.

Also available in certified organic!

GREAT WESTERN MALTING®

Learn more at GreatWesternMalting.com and CountryMalt.com

ON SALE AUGUST 22



SAFETY: AN ESSENTIAL INGREDIENT FOR SUCCESS

A comprehensive guide to evaluating, educating, and executing safety measures and putting brewery staff, operations, products, and visitors first.

Learn more at: BrewersPublications.com

| PICK SIX |

season yeast. This was 1999. My mind was blown, right? Because I didn't know what saison yeast was. Also, I think that [dry] hops are part of their thing—it has some [dry] hops added to it. And that kind of gives it that extra thing, that thing that you can't describe.

"So, every year, I get really into the holiday spirit, and that is my favorite. It's also a higher alcohol content [9.5 percent ABV]. It's really great for the holiday times—extra holiday cheer in your cheeks. So, Avec Les Bons Vœux will always be forever imprinted on me. It's phenomenal."

Perennial Barrel-Aged Abraxas

(St. Louis)

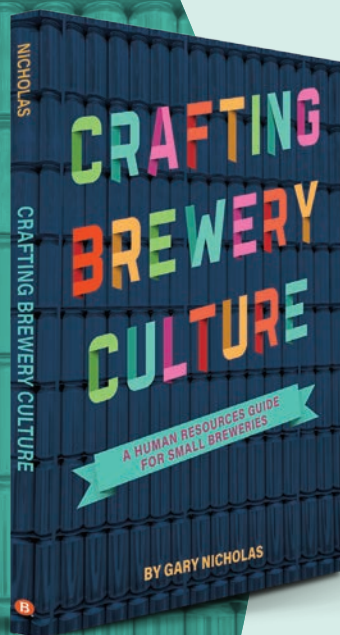
"The next three are going to be stouts because that's really where my heart is. And I think that's kind of funny. A long time ago, I said that Barrel-Aged Abraxas is my favorite beer in the entire world, and I will stand by that every single time. I haven't had it in years, but I wouldn't ever leave it out of my six-pack. It will be in until the end of time. It's all the things I like in the world. It's just so heavily barreled. It's so heavy-handed and all the things, and it just works for me. I've never finished an Abraxas and thought, 'I wish I had had a different beer.' I love the spice. I love the warmth of the cinnamon. I love the warmth of the ancho chiles. I really like the addition of the vanilla because it really goes with the heavy barrel. I just think that year after year, they just prove that they are *that* good. Barrel-aging is kind of their thing."

Fremont 2018 Coconut B-Bomb

(Seattle)

"But then, I'll go ahead and say that of the other stouts [and] winter ales in the world, Fremont B-Bomb is going to always be in my six-pack because I just love it. It's not a stout—it's a winter ale. But my favorite is the 2018 Coconut B-Bomb—the one where the Yeti has a coconut bikini top and a grass skirt on. I am, admittedly, that person who likes the coconut. I have no shame in that. It is so good to me. If I'm going to go and drink something like that, if I'm in that mood, I'm going to go to 11. And that's the B-Bomb to me."

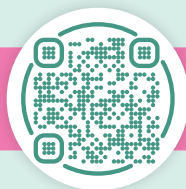
"They have Cinnamon Coconut, and they do all the variants like the Dark Stars. But, for me, the B-Bomb has just got that sweet depth that I absolutely adore. It's like you're actually chewing a caramel. It is so good. And I just think



BUILD
CULTURE
INSPIRE
TEAMS
PLAN
A SUCCESSFUL
FUTURE

SHOP:

BrewersPublications.com



Hop Revolution

New Zealand

Nelson Sauvin™ | Motueka™ | Riwaka™ | Pacific Sunrise™ | Kohatu® | Moutere™ | Wai-iti™ | Rakau™ | Waimea™

Fresh thinking.



Revolutionise your brewing

Let our Recipe Book spark your creative fire to take Lagers and Pilsners somewhere new with Motueka™ and Riwaka™.

Scan & download
Recipe Book



Crop Year 2023 Available now

Spot orders and contracting of premium farm-direct T-90 and **CGX** formats, shipping now out of multiple warehouses in the USA and internationally.

Get in touch

sales@hoprevolution.co.nz

CGX™ - Trademark of Crosby Hops™

Hop Varieties - Trademark of New Zealand Hops LTD.

hoprevolution.co.nz

that they do barrel-aging unbelievably well, and I'm always just astounded by how good they are at that. So those are my two barrel-aged stout/winter ales."

Horse & Dragon Sad Panda Coffee Stout

(Fort Collins, Colorado)

"What do I buy? I live right across the street from Wilbur's [a local liquor store]. Pete and I go camping every weekend, and I go across and get a six-pack of Sad Panda. So, we camp, and in the morning, we're making bacon, eggs, and English muffins, and we are popping coffee stouts. Tim and Carol [Cochran, co-owners of Horse & Dragon] are forever going to be on my best-humans list.

"I try coffee stouts all the time. I always ask Jeff [Matson, beer buyer for Wilbur's], 'What's the latest coffee stout?' We'll pull a bunch of them out. And I'll do that, *plus* Sad Panda. He always finds me the good ones, and then I add Sad Panda. It's light. It's drinkable. It's a cup of coffee—in a stout. We joke around and say it's like you're drinking a stout, drinking a cup of coffee, drinking a stout, drinking a cup of coffee. It has almost equal of both those

flavors. It's exactly the beer that you want. And you can drink more than one, which I can't say of the other two that I just listed. So, Sad Panda—if there were a pie chart of my spending on beers, Sad Panda would be a really giant chunk of pie. Of the beers I actually purchase, I would say that Sad Panda is squarely 30 to 40 percent. I mean, no matter what I'm getting, it's that and a six-pack of Sad Panda. And if I don't come home with that, if we don't have a coffee stout in the fridge, it doesn't make sense. You know, when you're making the eggs, you open the coffee stout. So, it's acceptable. If you're camping, you're allowed to drink at eight in the morning."

Hana Koa Window to Eraclea

(Honolulu)

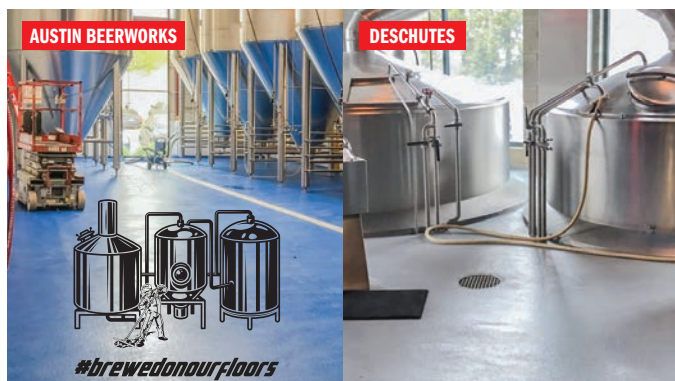
"We were recently there [in Honolulu] for a beer release. We were doing a couple of events, and we met Josh Kopp [cofounder and head brewer at Hana Koa] and the other brewers and humans who were there. There are those kind of people who you meet, and you're like, 'Have we been best friends for forever?' We were just having amazing, amazing times. We hung

out with them for like three days solid. And then you leave and you're like, 'Am I ever going to see these people again?'

"We tried every single thing on the list. One beer that we were tasting was from one of their horizontals—Window to Eraclea. It's a helles that uses Eraclea malt, the Italian malt. It was like this perfect helles. It was in their horizontal. It had been there for like five weeks. The brewery itself was just beautifully clean, absolutely made you want to be there. Every single tool was exactly where it was supposed to be every single time. You could eat off the floors. I was stunned at how wonderful this brewery just made me feel. People were so welcoming, and they're just so passionate about everything.

"And then we tasted this beer off the pigtail, and it was perfect—technically perfect. And it was an experience.

That trip reinvigorated me a lot. One, because Hawaii still likes dark sour beers, God love 'em. I wept on several occasions from happiness. But it was a really fun time, after being away for so long and not doing a lot of trips. It was unexpected. You know, you find the perfect helles in Honolulu, in the Ward district of Honolulu." 🍻



Great Breweries Know the Value of Quality Floor Surfaces. With Over 2 Million Square Feet in 375+ 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

Consistently Connect Your Business with New Craft Customers

Brewers trust *Craft Beer & Brewing Magazine*®, the *Brewing Industry Guide*, the *Craft Beer & Brewing Podcast*, Brewery Workshop events, and more for best-in-class insight and pragmatic solutions to today's brewing and brewing-business challenges. To reach this highly engaged, highly focused audience, contact Director of Media Sales Blake Osmond via email at bosmond@beerandbrewing.com or call 888.875.8708 x707.





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 at

beerandbrewing.com/podcasts



SPONSORED BY:





SPECIAL INGREDIENT

Jackfruit

Popular in South Asia, this hulking tropical fruit with a sweet, creamy flavor may have something unique to add to the conversation. **By Joe Stange**

THE WORLD IS FULL of interesting things to eat and drink, yet most of us get to taste only a fraction of them. For example: I'd wager that most of us in North America had never heard of jackfruit until relatively recently—sometime in the past decade, say.

Some of that rising jackfruit awareness has been driven by vegetarian cooks looking for fleshy, plant-grown texture that can be shaped into meat-like foods. Yet still more has been driven by the inexorable movement of foods via globalization—specifically, cooking shows and social media showing us more of the world's cuisines, and Asian markets in urban and suburban neighborhoods, there to serve immigrants, Asian-Americans, and curious cooks from anywhere.

So, what's a jackfruit? For starters, it's a tropical fruit in the same family as figs and mulberries, and the trees are widely grown in South and Southeast Asia. It's also big: The fruit are among the largest in the fruit kingdom, with a few getting as big as 100 pounds (45 kg) or more, though most are around 20 to 30 pounds (9 to 14 kg).

It has a tough, bumpy, pale-green exterior; cutting it open reveals the pale, yellow, segmented flesh inside. Its flavor when ripe

is a creamy sweetness sometimes compared to banana, ripe mango, or pineapple—or to custard, a treat often made with jackfruit and one that's also evoked by its softness. When unripe, it has what some describe as a texture like shredded meat—one reason that vegetarians have embraced it for riffs on pulled pork or other barbecue dishes.

Jackfruit may be most popular in South Asia, including Bangladesh (where it's officially the national fruit), India, Pakistan, and Sri Lanka. On the subcontinent, it finds its way into curries, desserts, dosas (Indian pancakes), and jams; people also eat them fresh, ripe, and raw. While other warm parts of the world also grow and eat jackfruit—including in Africa, Australia, and South America—for many South Asians, its taste is one that they might identify with home.

Nowhere, however, is it common to put jackfruit into beer.

South Asian Flavor

If jackfruit beer does take off, we can thank Ruvani de Silva.

Founder of an online forum called the South Asian Beer Club, de Silva has taken the lead on efforts to connect South Asian brewers and beer enthusiasts wherever

they happen to be and, thus, to strengthen their representation in the industry. In November 2021, she chaired a panel at the Beer Culture Summit at Chicago's Brewseum, entitled "Where Are All the South Asians in Beer?" That discussion led eventually, earlier this year, to a collaboration among four breweries with owners of South Asian heritage. Those breweries are Azadi in Chicago plus three in Texas: Misfit Outpost in Cypress, Roughhouse in San Marcos, and Windmills in Dallas.

Looking for a distinctive flavor to represent their heritage, the brewers decided on jackfruit. The only rule: They each had to brew a lager with it—any style of lager—given that lager is by far the most popular type of beer on the subcontinent. Beyond that, each brewer could get as creative as they liked.

At Misfit Outpost, co-owner and assistant brewer Sarah Nadeem opted to brew a rice lager. With cofounder and head brewer Juan Sanchez, she developed a recipe and a plan.

Brewing with Jackfruit

Given the ever-widening variety of aseptic fruit purees available to brewers, it shouldn't be a shock that jackfruit is one of them. Nadeem, however, opted to work with whole fruit and process it herself.

She cut open the whole fruit, carefully removed the arils—those are the sweet, fleshy bits that you want to eat—and then removed the seeds from the arils. "When you cut open a jackfruit," Nadeem says, "it's a bit scary-looking because there's a lot going on." She pureed the deseeded arils in a blender and froze the fruit—to help break down the cell walls—before thawing and adding it to the fermentor.

Seeking a jackfruit accent for their crisp lager rather than dominant fruit flavor, Nadeem and Sanchez used about eight ounces in a half-barrel batch—or a bit less than three ounces per five gallons (roughly 4 grams/liter). "Ultimately this is purely a brewer's choice, if they would want more or less fruit presence in their final beer."

Because jackfruit lacks much in the way acidity, leaning mainly on its sweetness for flavor, fermentation is going to strip away *some* of that character. With that in mind, Nadeem and Sanchez opted to give the flavor a little boost with a modest whirlpool hop addition.

"Taste-testing the jackfruit prior to adding to beer gave us a sweet mango-apple-like flavor with subtle banana notes," Nadeem says. "We decided to use Talus hops to balance these notes, keeping in mind that it would be possible that any sweet notes may be lost during the refermentation. We were left with a hint of mango-like flavor that plays extremely well with this style."

MAKE IT

Misfit Outpost Subcontinental Jackfruit Rice Lager

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.042 (pre-fruit)

FG: 1.008

IBUs: 20

ABV: 4.8% (post-fruit)

MALT/GRAIN BILL

4.8 lb (2.2 kg) IREKS

Pilsner malt

3.4 lb (1.5 kg) flaked rice

2 oz (57 g) acidulated malt

HOPS & ADDITIONS SCHEDULE

0.6 oz (17 g) Talus at

60 minutes [18 IBUs]

1 tsp (5 ml) yeast nutrient at
10 minutes

1 tablet Whirlfloc at
10 minutes

0.6 oz (17 g) Talus at
whirlpool [2 IBUs]

3 oz (85 g) jackfruit puree at
primary (~1.026 SG)

YEAST

Lallemand Diamond Lager

DIRECTIONS

Mill the grains, mix in the flaked rice, and mash at 148°F (64°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, yeast nutrient, and finings according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to create a vortex, cooling to 170°F (77°C) if possible; add the whirlpool hops, continue to swirl 20 minutes, then steep for 20 minutes more. Chill the wort to about 53°F (12°C), aerate the wort, and pitch the yeast.

Ferment at 55°F (13°C) until the beer is about 50 percent attenuated (1.021–1.026), then add the jackfruit. Continue at 55°F (13°C) for 5–7 days, then gradually raise to 65°F (18°C) over 24 hours and continue fermentation at that temperature for about 10 days, until complete and the beer passes a forced diacetyl test (see “Hunting for Diacetyl,” beerandbrewing.com). Gradually cool to 35°F (2°C) over 3 days, rack off the fruit to secondary, and lager until ready to package and carbonate to 2.4–2.5 volumes of CO₂.

BREWER'S NOTES

Water profile: Calcium 14 ppm, magnesium 0 ppm, sodium 12 ppm, sulfate 28 ppm, and chloride 20 ppm.

Preparing the jackfruit: To make your own puree, start with a sanitized knife and cut the jackfruit in half. Carefully remove only the arils—the sweet, yellow portions in the middle of the fruit that resemble huge corn kernels—then remove and discard the seeds found inside the arils. Puree the arils in a sanitized blender, then fill sanitized ziplock bags and freeze for 24 hours. Thaw before adding to the fermentor.

200 YEARS OF QUALITY MALT

2023 is a momentous year in Bairds history, as we celebrate our 200th year of producing some of the UK's best malt.

While we're celebrating looking back over decades of quality malt production, we're also looking forward. 2023 will also mark the opening of our newest maltings in the heart of the Scottish Highlands.

This new state of the art maltings will see us increase capacity of our malting operations, enabling us to partner with more of the world's best distillers and brewers who have UK Quality Malt at the heart of their craft.

Find out more through your local CMG sales rep.

BAIRDS MALT

QUALITY MALT SINCE 1823

WWW.BAIRDS-MALT.CO.UK

PROUDLY DISTRIBUTED THROUGHOUT NORTH AMERICA BY

THE
COUNTRY MALT
ESTD. GROUP 1995

STYLE SCHOOL

Gammeltøl: Denmark's Strong Harvest-Time Ale

Typically, gammeltøl was brewed in March for drinking in the autumn, but the Danish tradition of brewing this strong, smoky raw ale has virtually died out. *You* can help revive it. **By Lars Marius Garshol**

MOST OF DENMARK IS ideal for farmers: flat, fertile soil with plentiful rain, yet also warm and sunny. In the old days, that meant that farmers had more than enough grain to feed themselves, so they did what any sensible person would do: They brewed beer with the rest.

In fact, they brewed so much that Danish farmers drank beer against thirst every day. The custom was that on the table in the living room a big beer mug would stand, and anyone who was thirsty would go there and drink their fill. If the mug was empty, they went into the cellar to refill it. And if the barrel was about to run out, the housewife would brew more. In summer she might do that every other week.

While Danish farmers certainly cared about their beer, it was also an everyday thing, and opening a new beer barrel was

no cause for much anticipation or fuss—except, however, for once a year. That was when they broached the barrel of *gammeltøl*.

Around the Farmhouse Table

The literal translation of gammeltøl is “old ale.” The tradition was that in March or April, before the hot weather made brewing uninfected beer difficult, the farmers would brew a batch of extra-strong beer. Often twice the strength of the ordinary beer, this was kept in a separate cask over summer and opened only in the autumn. By then it was “old” compared to the normal beer; hence the name.

One source describes how as a child he was allowed to sit “quiet as a mouse” in the background when three neighboring farmers came by for the solemn tapping of the gammeltøl barrel. The guests sat around the oval table in the finest dining room, with one glass for each, and then the farmer’s wife would bring a mug of gammeltøl. She’d set it on the table, saying, “You’re welcome.” The farmer would then pour a

PHOTO: MATT GRAYES/WWW.MGRAYESPHOTO.COM



MAKE IT

19th Century Danish Old Beer

Adapted from Simon Wrisberg's historical book, *Danish Beer 1850–1950*, here's a traditional recipe for gammeltøl. It's a distillation of several 19th century recipes, translated for modern kit. "The fermentation was normally done in barrels with top-fermenting yeast," Wrisberg says. "If the barrel was filled with wort, the surplus of yeast would run out of the bunghole [and] was used for baking."

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.067

FG: 1.013

IBUs: 48-ish

ABV: 7.2%

MALT/GRAIN BILL

13.5 lb (6.1 kg) alderwood-smoked malt

HOPS SCHEDULE

5.5 oz (156 g) whole-leaf Spalter, boiled separately, at primary [48 IBUs]

YEAST

Favorite kveik, baker's yeast, or expressive ale yeast, optionally with *Brettanomyces* and/or *Lactobacillus*

DIRECTIONS

Mill the grains and mash at about 149°F (65°C) for 90 minutes. Recirculate until the runnings are free of particles before running off into the fermentation vessel; or run off directly through a mat of straw into a bucket, barrel, or fermentor. *Do not boil*. When the wort has cooled to about 65–75°F (18–24°C), pitch the yeast and ferment. Do not seal the vessel; use a sanitized piece of foil to cover the opening if necessary. After 2 days, boil the hops in a small pot of water for 60 minutes, then cool, strain, and add to the beer. When fermentation activity has subsided, attach an airlock and age 5–6 months. Cool and carbonate as desired before serving.

BREWERS' NOTES

Variations: One 1872 recipe from Conradine's *Town and Country Household Cookbook* is for a barrel of gammeltøl and includes the addition of one pot of aquavit and a quarter pound (113 g) of cinnamon—though it doesn't specify when to add them. You could also follow the practice of dropping in an egg (and seeing if it's still there when you tap the barrel at harvest time).

Raw, or Not: Although traditionally unboiled, a couple of late 19th century recipes do mention boiling the wort with hops, but they're vague about how long: "The wort was boiled in the kettle with the hops until it was separated," Wrisberg writes. "The wort was strained from kettle to fermentation tun through a cloth in order to separate the hops from the wort."

Hops: Any low-alpha Noble or Noble-esque hop works here. Add the hop tea to the fermentor to taste or pour in the whole thing and roll with it. Mash hops are another method to consider, while some old recipes call for adding the hop tea directly to the mash.



beer to the guest on the left and proceed around the table counter-clockwise. Finally, he would say, "Welcome, let's taste it," and everyone would raise their glasses to admire the color of the beer. Every single time, it was considered "fully satisfactory," and sometimes one neighbor would exclaim that "the devil's own beer could have no better color."

Then they'd drink and solemnly consider the taste before nodding and putting the glass down. Someone would remark that "the taste didn't leave much to be desired, either," and sometimes the housewife's skill as a brewer would be praised. This source adds, "And that she deserved, because my mother was a skilled brewer."

Brewing the Gammeltøl

Now, gammeltøl was, strictly speaking, not a style. The gammeltøl was basically the same beer the farmer's wife brewed during the year, but with extra malt and hops. So, most of the various kinds of Danish farmhouse ales had their own gammeltøl version.

However, over the past century or so, Danes seem to mostly have associated the gammeltøl with the farmhouse brewing on the island of Funen. Part of the reason could be that a couple of breweries on Funen brewed gammeltøl commercially. Many of the other descriptions of gammeltøl also come from Funen, so it seems fitting to home in on specifically that type of gammeltøl.

On Funen, the malts were all made from barley, heavily smoked using a few different types of kilns that let the heat and smoke rise up through the drying malts. The wood used was mainly alder, just like in present-day Stjørdal, and the malts must have been rather similar (see "The Cult of the Kiln," beerandbrewing.com).

The brewing process was fairly simple. The brewers would heat water, pour it on the malt, and stir it in. Later they would move the mash to the lauter tun, which was a tub with a hole in the bottom; the filter in the bottom was normally straw. There also was a long rod rising out of the hole and over the edge of the tub. By raising the rod, the brewer allowed the wort to run into a bucket under the tub. Separately, they would boil some hops in water to make hop tea and blend that with the wort in the fermentor, where the wort would cool before yeast was added. Indeed, it was a raw ale—they didn't boil the wort.

Farmers maintained their own yeast and pitched it at body temperature, so it behaved similarly to Norwegian kveik—but nobody today knows exactly what kind of yeast it was. In later years, brewers have

made gammeltøl using both baker's yeast and modern ale yeast.

Distinctive Traits

Funen beer had a reputation for being heavily hopped, and the dose of hops in the gammeltøl would typically be double that of an ordinary beer, so the gammeltøl most likely was quite hoppy. That doesn't mean hoppy in the modern sense, with New World hops, but more like European Noble ones.

It was common to add a couple of things to the gammeltøl that were not added to the ordinary beer. Adding a bottle of aquavit or rum to the barrel to fortify the beer wasn't unusual. Also, quite a few people would drop in a few eggs; the belief was that the eggs made the beer keep better. All accounts agree that by the time autumn came round, no trace would remain of the eggshells or their contents, though nobody seems to know exactly why or how.

It's difficult to say how strong and hoppy gammeltøl was because it would have varied from farm to farm and over time. All sources agree it was stronger than the ordinary beer, with figures varying from 50 percent stronger to quadruple the

strength. They seem to have multiplied the hops at the same rate as the malt.

Commercial brewing of gammeltøl ended in 1962, but it continued on the farms long after—a YouTube video shows film of gammeltøl being brewed in 1975, for example. On Funen, farmhouse brewing is still just *barely* alive. It's entirely possible that there are still people brewing gammeltøl there.

Denmark's Own March Beer

The description of farmhouse ales brewed in spring for drinking in autumn is a familiar one. It's the same story often associated with Wallonian saison; while many have doubted that story, the evidence that saison was brewed in spring for drinking in autumn is quite persuasive. Nor is it the only example.

In England there was something called "March beer," also brewed in March and cellared for a long time. Gervase Markham described it in 1623, and it's described in English farmhouse brewing again in the 20th century, so clearly this went on for a long time. Another term for the same thing seems to have been "October beer," also brewed in spring for drinking in the

autumn—and, again, that appears to have been a farmhouse ale originally. (As you may recall, this eventually developed into IPA.)

A similar thing is known from Germany in several places. The German märzen also signifies March; likewise, it was originally stronger and hoppier, brewed in March for drinking in the autumn.

Many have wondered about the origin of the German altbier of Düsseldorf, which also means "old beer." German archive documents describe the brewing of farmhouse ale about 100 kilometers north of Düsseldorf, saying that this beer was brewed in March for consumption at the grain harvest in the fall. Several sources say it was similar to commercial altbier. Could these two kinds of "old beer" have a similar origin? Perhaps, but more evidence is needed to be certain.

Now, if you want to try a gammeltøl, what should you do? One approach might be to trawl the country lanes in the foggy, blustery countryside of Funen in October, knocking on the doors of likely farms in the hope of finding someone still brewing. The only approach likely to yield any actual beer, unfortunately, is brewing it yourself.



INX will help you bring your vision to life on metal.

Craft brewing is creative, and the cans are an expression of your vision. But for the look to reproduce flawlessly, you need a color standard designed for metal. Avoid production hiccups with the INX 2-Piece Metal Color Catalog and the free Adobe™ Digital Color Library. These tools are a true representation of color so you can select, communicate, and approve color efficiently, getting your labels to market quicker.

Learn more about INX's resources for beverage can design at INXColorPerfection.com



The Soul of Wit

STYLE SCHOOL

One of Belgium's most broadly appealing styles is a reincarnation and a reinvention, inspired by a tradition that disappeared more than 60 years ago. Today it's enjoyed around the world and ubiquitous in its home country—and in Maine. **By Jeff Alworth**

WITBIER WAS BORN on March 13, 1966—or, more accurately, reborn.

The style had been one among an impressive scattering of hyper-local wheat ales in a small area that ran from Brussels north to Antwerp and east about halfway to the current German border. Traditional ales took a beating in the 20th century thanks to wars, the arrival of lagers, and changing tastes, and the last of the old *Hoegaardse bieren* hadn't been brewed in almost a decade.

Yet the 1960s revival wasn't a 19th century throwback. Thanks to a twist or two, it was a new kind of Belgian ale that would remain popular well into the 21st century.

White Beers

Brewing with wheat is an ancient practice that stretched well beyond the Low Countries, out to Berlin, beyond to Grodzisk, and dipping down into Bavaria. For these beers, the barley typically was “wind-malted”—that is, germinated but unkilned—and the wheat, when used, was either malted in the same way or unmalted. Thus, these beers

often had a pale, milky color; drinkers of the time described them as white. (Notably, Belgian brewers had no fidelity to specific grains or malts; wheat found its way into many ostensibly barley-based beers, and some would also include spelt or oats.) In Belgium, white beer (*bière blanche* in French; *witbier* in Flemish) was more of a broad category than a cohesive style, though products from different localities probably resembled each other.

In the 19th century, some of the region's most prized ales were whites, especially those made in the famous brewing city of Leuven. While many countries made white beers, the heart of what we now call Belgium specialized in them. The most famous were probably the Leuven beers—Peeterman and blanche—though today the lambics of Brussels and Pajottenland carry the torch. Beyond those were Antwerp's seefbier, a beer from Diest that was similar to Peeterman, and, of course, the unusual specialty named for the hamlet of Hoegaarden.

Of these, Hoegaarden's local specialty may have been the most intriguing. In the typical Belgian manner, it involved an incredibly complex mashing system with multiple worts—some boiled with aged hops, others not. The beers described by two 19th-century writers, J.B. Vrancken and Georges Lacambre, didn't have a lot of wheat—two parts, versus five or six of barley—but they did have a fair proportion of oats—one to one-and-a-half parts.

All of that was common for the time, but here's where things get interesting: Like lambic, Hoegaarden's witbier was

PHOTOS: MATT GRAVES/WWW.MGRAVESPHOTO.COM



Like lambic, Hoegaarden's witbier was spontaneously fermented—but it was also served fresh. *Brettanomyces* played no role, but lactic acid bacteria did. The goal was to get tankards of witbier into people's hands before it got too tart.

spontaneously fermented—but it was also served fresh. *Brettanomyces* played no role, but lactic acid bacteria did. The goal was to get tankards of witbier into people's hands before it got too tart. Lacambre suggests the outer limit was a bit more than a week after knockout in the summertime, or a bit longer than two weeks in winter. Amazingly, it was served while still actively fermenting.

How did it taste? Lacambre, an opinionated brewer who didn't always align with popular views of the time, reported that it was extremely pale, highly effervescent, and less sweet than the Leuven wheat beers; however, he found that, like the Leuven beers, the Hoegaarden beer had a "raw taste, which has something wild about it." One thing he didn't mention were spices—no coriander, orange peel, or any others. The Hoegaarden described by Lacambre was under-fermented, and in his book *Brewing with Wheat*, Stan Hieronymus reports a gravity of just 8°P (1.032).

One by one, all the old wheat beers had disappeared by the 1960s—except for lambic, whose makers seemed too stubborn to let it go.

Pierre Celis's New Oud Hoegaards Bier

Hoegaarden was once a relatively famous brewing village, thriving in a seam between tax jurisdictions. Yet the 20th century and changing fashions took their toll, and the village's last witbier brewery, Tomsin, closed in 1957. In the mid-1960s, it would have been impossible for someone in Hoegaarden to imagine that their local beer would one day be sold worldwide.

The fate of the town's legacy rested in the hands of a milkman who once worked briefly at Tomsin. Pierre Celis had managed to collect some notes from one of the old brewers in town.

He cobbled together a small brewery in his cowshed, and there he tried to develop a commercially viable version of the beer he had loved when he was younger.

The beer he released in 1966 would form the template for modern witbier. He called it Oud Hoegaards Bier, but it was really a new thing. To begin with, Celis didn't spontaneously ferment his beer. Some accounts suggest he found an old yeast culture that might have had some lactic acid-producing bacteria, but others say he sourced a regular ale yeast from a nearby brewery. This was a big change, and not just because it would have seriously changed the flavor—it also meant he didn't need to serve it immediately and while still fermenting. He seems to have settled on the now-canonical coriander and orange peel spicing as a substitute—though possibly not right away. In his 2005 book *My Life*, Celis includes his first recipe, but it does not mention spices. Did he use them then and just not mention it—not unusual among Belgian brewers—or start using them later? We'll probably never know. One ingredient that seems to worm its way into many Belgian recipes is *mystery*, and Celis seems to have added a sprinkling of that.

Given the beer's weird provenance and its shoestring reinvention, it's amazing that it became a hit. Whether he included spices initially or added them over time, his new witbier—with a gently phenolic yeast, clouds of flavorful wheat, and a snappy citrusy finish boosted by spices—had propelled sales to about 65,000 barrels within 20 years. In 1985, a fire destroyed the brewery he called De Kluis (or the cloister), and he sold 60 percent of his stake to Artois, which rebuilt it. In 1990 he retired and sold the



rest of his stake. By that time, Artois—which would essentially become Interbrew and later AB InBev—was selling a quarter-million barrels of a beer now called Hoegaarden.

1995: A Big Year in American Wits

Two beers had relatively modest debuts in 1995, but both would go on to solidify witbier as the best-selling Belgian style in the United States.

In Denver, the head of new product development at Coors debuted a beer called Bellysride Wit at the Sandlot Brewery at Coors Field, where the Rockies play. The brewer was Keith Villa, who had earned a doctorate in brewing biochemistry at the Free University of Brussels a few years earlier. His witbier included oats and used Valencia and navel oranges rather than the Curaçao peels Celis popularized. That beer—light, sweetish, and later pitched to a mainstream audience—became Blue Moon Belgian White.

The other debut came from a new brewery in Portland, Maine. Rob Tod, who had been brewing at Otter Creek, launched Allagash with exactly one beer in the lineup—the witbier that to this day still comprises 80 percent of the brewery's production.

Celis, meanwhile, had relocated to Austin after his “retirement,” and he couldn't resist starting a new brewery there in 1992. (Today, his daughter Christine Celis runs Celis Brewery while granddaughter Daytona Camps is a brewer.) A bottle from there made it to Vermont, sparking the idea for Tod's new brewery. “I was inspired by Celis White, and the Belgian witbier style, in how it had such remarkable balance and depth of flavor,” he says.

Allagash White has become a counterpoint to the sweeter, simpler Blue Moon. So often, witbier can seem like a kiddie-pool version of Belgian ale, stripping away character for a pleasing yet overly tame beer. Allagash White is more complex and drier than the vast majority of other witbiers; it leaves the Belgium in the beer. Tod describes the balancing act of making a great one: “You have wheat, which imparts certain flavor components as well as certain challenges in the brewing process. You have spices, all of which have to be treated incredibly precisely, to make sure you get the spice component without the beer becoming overly ‘spicy’ or floral. There's also the yeast strain, which is critical to the beer's flavor.”

The recipe and formulation for White are fairly typical, though Allagash uses Curaçao orange peels—and, like Celis, tucks in a “secret” spice. A bit more than 40 percent of the grist is wheat, including both raw and malted, and about 5 percent is oats. It finishes at an austere 2.5°P (1.010). Jason Perkins, the brewery's longtime brewmaster, notes that spice selection is very important. Also important is the classic Belgian practice of secondary fermentation in the bottle. “We've run sensory tests of conditioned vs. non-conditioned beer,” Perkins says, “and there is absolutely a flavor difference that comes with it.”

One of the more remarkable facts about Allagash White is how broadly Maine has adopted it as its own. You find it on draft everywhere there, and it does especially well in restaurants, where it complements food—even at roadside lobster-roll shacks. Yet Mainers don't seem to regard it as a “fancy” beer—rather, it's the workhorse they reach for in any season or for any occasion.

Nationally, witbier is less common than many other styles, and certainly less common than it was 20 years ago. But so are Belgian-style beers in general. Of all the Belgian styles, witbier seems to be the most popular—which is a remarkable irony. The Belgian style that vanished 66 years ago is now the least likely to go extinct in the United States. 

MAKE IT

Allagash White

Originally inspired by the white beers of Pierre Celis, Allagash White has risen to become a widely recognized pillar of American craft as well as one of the most awarded beers in the genre—with a combined 13 Great American Beer Festival and World Beer Cup medals over the years.

Note that besides the coriander and orange peel listed here, Allagash has always added a pinch of another spice to the whirlpool—but that spice is a secret. Online speculation among brewers and fans over the years has included chamomile, pepper, cumin, and cardamom. Feel free to experiment or to leave it out altogether.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.049

FG: 1.009

IBU: 13

ABV: 5.2%

MALT/GRAIN BILL

4.8 lb (2.2 kg) two-row pale
1.9 lb (862 g) unmalted white wheat
1.9 lb (862 g) malted red wheat
7.5 oz (213 g) flaked oats
4.5 oz (128 g) dextrin malt

HOPS & ADDITIONS SCHEDULE

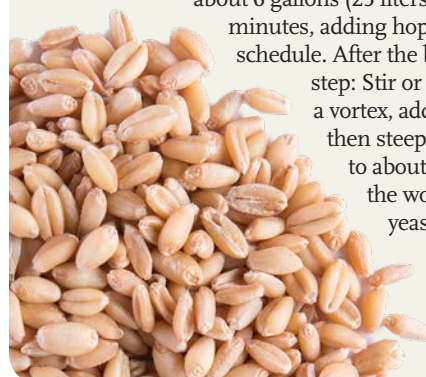
0.2 oz (6 g) Nugget at 60 minutes [9 IBUs]
0.85 oz (24 g) Crystal at 10 minutes [4 IBUs]
0.75 oz (21 g) Saaz at flameout/whirlpool
0.25 oz (7 g) bitter orange peel at flameout/whirlpool
0.5 oz (14 g) coriander at flameout/whirlpool

YEAST

Wyeast 3463 Forbidden Fruit, White Labs WLP400 Belgian Wit Ale, or Imperial B44 Whiteout

DIRECTIONS

Mill the grains, mix in the flaked oats, and mash at 152°F (67°C) for 60 minutes; raise to 168°F (76°C) for mash out. Recirculate until the runnings are clear of particles, then run off into the kettle. Sparge and top up as needed to get about 6 gallons (23 liters) of wort. Boil for 75 minutes, adding hops according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to create a vortex, add Saaz and spices, then steep 15 minutes. Chill to about 65°F (18°C), aerate the wort, and pitch the yeast. Ferment at about 70°F (21°C) until complete, then crash, package, and carbonate.



DIRECT FIRE! WEST COAST IPA

West Coast IPA Tips from Russian River, North Park, and Green Cheek

In January of this year, we released a podcast that would prove to be one of our most popular of all time—Episode 286: West Coast IPA Now! With North Park, Green Cheek, and Russian River. So, for our 300th episode, we followed it up with a sequel, Direct Fire—style. Here are some key excerpts, skipping the small talk and digging right into a few aspects of brewing great West Coast-style IPA.

Q: *Can you elaborate on getting a drier beer by adjusting the liquor-to-grist ratio?*

Vinnie Cilurzo of Russian River: Our experience at Russian River ... is that a slightly thinner mash will give us a slightly drier beer, and a thicker mash will give us a little more residual sugar. ... We've worked it on both sides with STS Pils. ... And so we took STS from 0.35 gallons per pound of grain to 0.37, to make it a drier beer. And then the flip side to that is when we start getting up into these high dry-hop loads [in IPAs] ... we're just getting too dry a beer because those enzymes in that much hop load [were] drying out the beer too much.

I don't know about the other guys, but when we use dextrin malt to try to gain body back, it just seems like it exacerbates hop creep, and the enzymes and the hops just keep going. I don't know why, scientifically, that is. Oddly, if you use too much dextrin malt, there's this kind of grainy mouthfeel that you get, and I never realized it until years ago. ... It took me a long time to figure out what that was, but I do know that, for whatever reason, dextrin malt is just the perfect feeder for the enzymes.

In some cases, we've hit the top limit of [fermentation] temperature for an IPA [where] we're [dry hopping] let's say, four pounds per barrel. So, we needed to pull some other lever. And that's where we go the opposite direction with liquid-to-grist ratio. I did also reach out to the great Joe

Hertrich [retired from Anheuser-Busch]. ... He's just a textbook on anything malt-related. ... But he basically just said, "The basic teaching when I was coming up was a thinner mash slightly favors diastatic action, and thicker mashes slightly favor more proteolytic action."

Joe also goes on to say—and this is the part that I really like and kind of how I've always explained it—that this is all about accessibility of the substrate. Just like grinding finer increases accessibility of the substrate, thinner mashes increase the accessibility of the substrate, meaning free movement of the enzymes to extract for increase of fermentability. ...

But [it's] a really interesting conversation and topic, and I just know what works for us at Russian River—how we thicken it and thin it just to make some really minor moves one way or the other.

Q: *In terms of recipe design, I find the more people I try to please, the fewer people I impress, and vice versa. Yet, you guys all make very impressive beers. How do you strike that balance? How do you make crowd-pleasers that continue to impress year after year? What key things do you think make your beer the way you make it?*

Kelsey McNair of North Park Beer: For me, it's just the endless quest for making our beers relevant. Recipe evolution is something that we're always doing, and

any time there's some new process that can keep our flagship beers relevant with anything that's new and current, [that's] the goal. I mentioned in a previous podcast that for me, it's not about making a consistent beer—it's about consistently making the beer better. And I think that's the approach, whether it's a technique, a process, getting more involved in hop selection, working on the grain bill, or tinkering with it over time into the place that it is today. ... Is it going to be the way that it is today in a year or two years? I don't know. Because we're going to continue to try new things and try new hop products, and [to] keep moving our standards into a place that hopefully keeps people really excited about [the beers].

These things never settle into the core [beers] right away. We're not necessarily making those experiments with Hop-Fu. But we will make a lot of different new beers all the time, and that's a huge part of our program. I mean, we have two beers that we brew consistently, and then everything else is either [a] new one-off [or] something that people really [loved and] we want to bring it back. And that constant ability to experiment—we are self-distributed, so that is a bit of a luxury for us to be able to make new things all the time. And when a new process works really well in one of these one-offs or a collab or something, or I get really inspired tasting someone else's beer—maybe I go up to Green Cheek, and I drink Evan's stuff, and I ask him what he did there—we'll experiment in something new. And if it works really well, then it makes its way back to the base. And if it kind of pumps up the base and keeps it relevant and keeps it exciting—really, that's the process.



FROM LEFT: Vinnie Cilurzo, Jamie Bogner, Kelsey McNair, and Evan Price

Q: How do you balance the approach to winning medals—which you all do—with consumer love for those beers?

Evan Price of Green Cheek: For our West Coast beers, it happens to be just a thing that I personally am in love with. And I'm not trying to do anything other than what I personally want to do with that specific beer style. And so that, I think, is one of the reasons why maybe I've held on so tightly to it, as well as that it's something that I am dearly in love with—it's something that I drink if I'm sitting down to have a beer. So, it has been incredibly rewarding to have this thing that is exactly the way that I want to make it hit a few times for medals and stuff like that. I think that that is pretty fun, instead of this other approach. ... So many different times where you're making a helles or you're making some of these other beer styles, and then you go to somebody else's and you're like, "Oh, that's the thing I'm missing." And instead, when I'm drinking my West Coast IPA, I think it's one of the best beers in the world. And I don't mean that as an ego-crazy man, but I mean it more just that the coolest part about this job is making it exactly the way that you want to make it.

Q: Kelsey, you mentioned [in the previous podcast] that you were using Chico with ALDC as your house yeast. [ALDC is alpha acetolactate decarboxylase, an exogenous enzyme that prevents diacetyl formation.] How has using this yeast, and knowing that you don't have to worry about diacetyl from hop creep, altered how and when you dry hop and sell your West Coast IPAs?

McNair: We've taken a more pragmatic approach to our dry hopping. And whether

we're making a West Coast or a hazy, they pretty much follow the same steps. Before we [began] using Chico with ALDC built into it, we were just adding ALDC and using other Chico yeast. We didn't really modulate the dry-hop procedure, but we always anticipated some hop creep. Even if you don't have diacetyl to be concerned about with ALDC in the yeast, you still can have some attenuation challenges.

I remember I was talking to Julian [Shrago] at Beachwood, and he mentioned that using some simple sugar in the kettle and preparing the yeast for a very simple sugar component of your fermentables would result in less hop creep. ... Beers that had dextrose added versus those that didn't seem to have less of a perpetual attenuation issue. So, I thought that was interesting, and I did look it up, and I found some white paper that had some of that information. So, pretty much anything that we do that gets dry hopped does get a small charge of dextrose in the kettle.

And then also, we dry hop pretty much every beer with a very small amount of hops when we're about 1° Plato from terminal gravity, and that's when we're at a stage where we can go ahead and pull yeast out. So we'll harvest, and then we'll hit it with—typically it's Cryo hops—but it'll be a pretty small charge, like 11 pounds in 15 [barrels]. And I feel like we're getting the enzyme in there through those hops at a place where the fermentation is winding down, just as a strategy when we're getting to the end of fermentation.

When we add our large hop charge, when we're fully attenuated—or at least where we expect to be at that point—we're not really seeing a whole lot more movement. If we're going in at 1°P before terminal with that first



LISTEN UP!

Want more technical tips for brewing better West Coast IPAs? These award-winning brewers cover much more about West Coast IPA in **Podcast Episodes 286 and 300.**

charge, and we're trying for West Coast's 2.5°P finish (1.010), we usually get pretty darn close to it, and we don't see continued attenuation at that point. As a strategy, it's been working very well, and it's kept our tank times very tight.

Q: What do you guys do to maximize hop aroma in your beers? Are there any particular high-performing hop varieties that you prefer or processes that you use to max that? Or protect aroma shelf life?

Price: I think the easiest answer here is dissolved-oxygen levels in finished beer. I think the secret component to this entire thing is minimizing DO as much as you can. So you work as hard as you can work to overthink every aspect of your process in order to get that number as low as possible. Throw out whatever industry-wide number is considered to be the standard—that's garbage. Just continue to get that number as low as humanly possible, and you will see the aromatics in your beer last.

One funny thing to note on this, as we've gone down this tunnel. There were aromatics that we *didn't* want to keep that were lasting, the better we got with this. So we had to get better at our fermentation profile as well. Because sulfur dioxide, as an example, is one of the first things to get thrown out of the beer whenever you have a little bit more oxygen in that beer. So, I think that is hands down the number one thing that I would throw out there.

And then from there, it's going to be variety-specific. We've all seen the survivables diagram from YCH. ... I think it's important to look at information out there.

Like for me, you see that Centennial is the largest on this chart, right? And I think that hop is garbage. I think that what is staying in your beer isn't something that I want in my beer. Wonderful that Centennial has more survivables—it has more survivables of shit. It's one of those hops I pick out in somebody's beer, and I'm like, "You put Centennial in this, didn't you?" And they're always very proud, like, "Yeah, I did!" And I'm like, "Okay." And I just keep my mouth shut because it's my dumb opinion. It doesn't matter that they like it and I don't like it. I'm not going to give unsolicited advice in that area. But yeah, that's my rant.

We edited this conversation for clarity and length.

Make Your Best...

Get to the heart of every beer style, as **Josh Weikert** shares both his own tips and perspectives from pros for brewing the very best.

American Porter

In the style of Edmund Fitzgerald Porter from Great Lakes Brewing in Cleveland

IF YOU'RE LOOKING FOR American porters to inspire your own brewing, there are some excellent examples out there—Deschutes Black Butte and Port City Porter are just a couple that spring to mind. However, one that will always be part of that conversation is the beguiling and immediately likable Edmund Fitzgerald from Great Lakes in Cleveland.

It's won five Great American Beer Festival medals since its release in 1991, and it remains one of the most enjoyable “gateway” beers you could hope to find. For any friends or family ready to get out of their

pale-and-easygoing comfort zone—i.e., they drink mostly light lager and the occasional Kölsch—Edmund Fitzgerald is a clever piece of bait to set in the trap, with its mellow roast profile fully backed by a lush malt body to push those comforting chocolate and coffee flavors.

Here, Great Lakes brewmaster Mark Hunger joins Michael Williams, the brewery's education coordinator, to give us the lowdown on their approach to brewing this pillar of American craft.

Notes from the Pros: Great Lakes started in 1988 as a Cleveland brewpub and Ohio's first craft brewery of the modern era. From the start, one of its year-round offerings was Edmund Fitzgerald Porter, whose name memorializes the famous 1975 sinking of a freighter in Lake Superior. In spirit and in profile, this porter is a throwback to the early days of American craft.

“As a 35-year-old brewery, our classic beers like Edmund Fitzgerald Porter exhibit the balance and drinkability one

expects in a recipe drawn up in the early '90s,” Hunger says.

It's true: The recipe is straightforward, by today's standards—or elegant, if you prefer—avoiding the kind of embellishment we often find in more recent recipes and approaches. Commenting on this simplicity, Williams says the recipe is “very much directly inspired by its British forebears but brewed with American craft-brewing ingredients. We strive to make these beers benchmarks of classic styles.” The brewery's cabinet full of medals is strong evidence that they have succeeded in that.

So, what makes Edmund Fitzgerald's recipe special?

“Our longtime beers all include some subtle twists one might not expect,” Williams says. “In Edmund Fitzgerald, we use a small percentage of roasted barley, an ingredient that at one point was much more well-known for being used in dry stout as opposed to porter.”



PHOTOS: MATT GRAVES/WWW.MGRAPESPHOTO.COM

While many brewers still recite the (not really a) rule that “what makes a stout a stout is roasted barley,” there’s no reason you can’t use both chocolate malt *and* roasted barley for added complexity—and that’s the case with Edmund Fitzgerald.

Asked if there are any pitfalls to avoid, Hunger identifies a key consideration: “It’s a robust porter, but that doesn’t mean in-your-face intensity,” he says. “No lactose, no high finishing gravity, no adjuncts. Just a nuanced grain bill, textbook hop additions, and old-school ale fermentation character, resulting in a flavorful but quaffable pint.”

Going deeper on the technical side of mashing this beer, the brewmaster has an important suggestion to preserve drinkability: “As with any dark-malt beer especially, be careful with your temperatures while sparging, to avoid over-extraction of tannins and astringent character from the darker grains. That roasted barley addition in particular can go from bittersweet dark chocolate to five-hour-old gas station coffee pot pretty quickly if you over-extract.”

That wonderfully vivid metaphor is exactly what happens to many porters and stouts that lean into roasted malts without careful mashing—especially once a touch of oxidation sets in.

Translation and Application: The Edmund Fitzgerald recipe isn’t a fussy one, and both the ingredients and process drive this beer to its “flavorful but quaffable” destination.

The contours are refreshingly simple: four grains, three conventionally timed hop additions, and a single-stage fermentation. The ingredients follow a British-American track that suits the style, getting a British ale yeast and distinctively American hops that have some English genetics. (Fuggles is a parent of both Cascade and Willamette, while Nugget is a daughter of Brewer’s Gold.)

Amid the elegance, there is a notable twist: a step mash. The first step (150°F/66°C) is at the upper edge of the beta-amylase range, the second (160°F/71°C) is in the upper alpha-amylase territory, while the third is a typical mash-out temperature of 170°F (77°C) to halt conversion. This should lead to a more fermentable wort to help balance the relatively high portion of dextrin-rich crystal malts. You could try a single-infusion mash if you prefer, but this may be one of those details that makes Edmund Fitzgerald what it is. Again, watch those sparge-water temperatures to avoid over-extraction of tannins; don’t go above that mash-out temperature if you can help it.

Fermentation begins on the lower end of the temperature range for London Ale, but it picks up a diacetyl rest that will further help attenuation, so expect a relatively dry finish. Great Lakes also give this beer a brisk level of carbonation, with Hunger recommending 2.65 volumes.

Finally, Hunger says they add a dash of calcium sulfate to their moderately hard local water; this will add to the crisp, flinty character that Wyeast 1028 tends to impart. Know your own water before making an adjustment, but this is a pretty safe addition to include. It isn’t uncommon in British-style ales—you’ll find similar use of gypsum in many classic recipes for English pale ales and bitters—and it can be a great way to balance a beer with a lot of caramel and chocolate malt.

Final Thoughts: You really can’t go wrong with American porter—it’s a style with room for interpretation and experimentation, and the Great Lakes team has long set the bar high with Edmund Fitzgerald. It’s hard to imagine a better starting point for finding your own take on a style that still has the power to open the eyes of unsuspecting drinkers. 

MAKE IT

Great Lakes Edmund Fitzgerald Porter

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.061

FG: 1.015

IBUs: 37

ABV: 6%

MALT/GRAIN BILL

9.1 lb (4.1 kg) pale two-row

2.1 lb (953 g) Crisp Crystal 77°L

12 oz (340 g) chocolate malt

4 oz (113 g) roasted barley

HOPS SCHEDULE

0.3 oz (9 g) Nugget at 60 minutes [13 IBUs]

1.4 oz (40 g) Willamette at 30 minutes [18 IBUs]

1.4 oz (40 g) Cascade at 5 minutes [6 IBUs]

YEAST

Wyeast 1028 London Ale

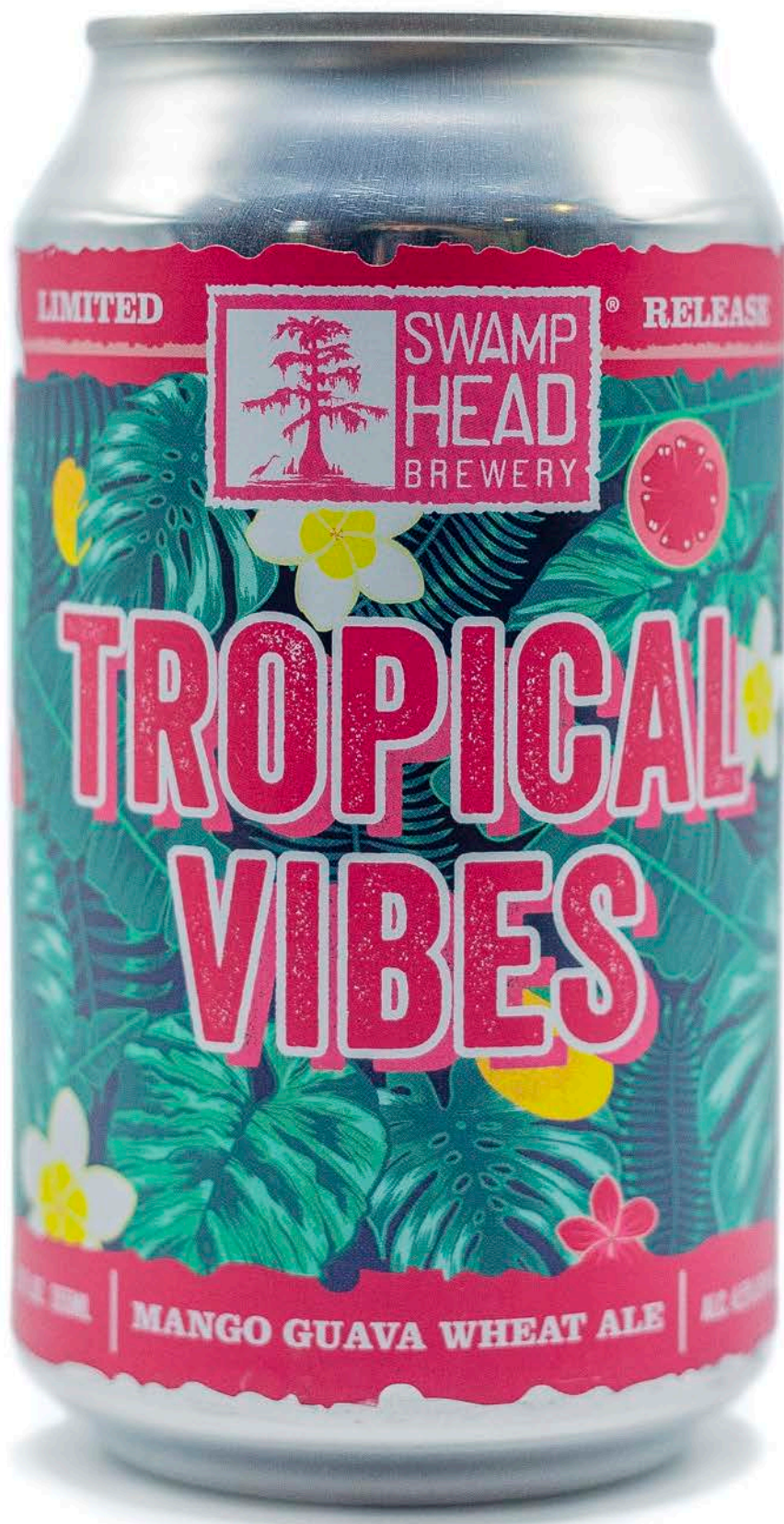
DIRECTIONS

Mill the grains and mash at 150°F (66°C) for 30 minutes, raise to 160°F (71°C) for 15 minutes, then raise to 170°F (77°C) for 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, depending on your evaporation rate. Boil for 60 minutes, adding hops according to the schedule. After the boil, chill the wort to about 63°F (17°C), aerate the wort, and pitch the yeast. Ferment at 65°F (18°C), then raise to 68°F (20°C) and hold a few days for a diacetyl rest. Crash and keep cold for 2 weeks. Package and carbonate to about 2.65 volumes of CO₂.

BREWER’S NOTES

Cleveland’s water is moderately hard. We add calcium sulfate to the mash water at a rate that would be about 0.22 oz (6 g) for a 5-gallon (19-liter) batch.





Fruited Wheat Beer

In the style of Swamp Head Brewery of Gainesville, Florida

ONCE UPON A TIME, the craziest thing you'd see on the microbrewing scene was a fruit beer—typically, back then, a fruited wheat beer. We've come a long way since then—we're in the smoothie-sour era now—and wheat beers with fruit now elicit little more than a casual shrug. In other words, they're underappreciated, and just because a style isn't on the cutting edge doesn't mean it isn't challenging and worthwhile to brew (not to mention fun to drink).

One brewery that definitely gets it right is Swamp Head with their mango-guava American wheat, Tropical Vibes. A summer seasonal for the brewery, it won a gold medal at the 2022 Great American Beer Festival. Here, Swamp Head director of operations Nick Dunn shares some insights into how to make a great one for today's drinkers.

Notes from the Pro: Dunn says the goal here is to brew a fruit *beer*—not just a delivery vehicle for monochromatic fruit flavor.

"We are going for a clean, balanced American wheat," he says. "We do add a late addition of Amarillo, as we think that pairs really well with mango and guava. However, we are mostly trying to not overpower the ingredients and let them do the talking—mild citrus from Amarillo, leading with mango and guava, but not so much that the base beer is undistinguishable."

This isn't meant to be an intense experience where you have a taste and move on to something else—they want you to drink more than one. It must be working because the beer has become a fan favorite in the Gainesville tasting room. "Balance is the key, which we think leads to drinkability," Dunn says. "Especially in today's craft world, we find ourselves saying, 'It's good, but I'd only want one.' The goal was to make something, on a hot day on the water, to be able to comfortably enjoy."

That doesn't mean it lacks complexity. "Hopefully, with each sip you can get something that you didn't in the previous one," he says. Part of the goal "is making sure no one tells me, 'I can't taste the [fruit].'"

Dunn says they aim to keep the fruit additions aseptic, and that they try to time them while the yeast are still active

in suspension, before the beer reaches terminal gravity, “so we don’t have to add another pitch, and to make sure it’s consistent from batch to batch. We do a lot of fruit beers, and timing the secondary appropriately always seems to produce better results than waiting and adding a second pitch.”

Another key to consistency is making sure that the fruit they source is reliable and high-quality. “With the fruit itself, there is a lot of variation, similar to hop lots,” Dunn says. “We try out a lot of suppliers to find one we like and make sure there isn’t a lot of variation in the product.”

Translation and Application: There’s often surprisingly little daylight between the practices of a commercial brewery and a home brewery—but those gaps widen when it comes to fruit. As Dunn says, “a homebrewer clearly wouldn’t be moving 2,000 pounds of fruit.” That puts complications around pumping and siphoning on another order of magnitude.

However, there are definitely areas where Swamp Head’s approach can inform anyone on a smaller scale. First, focus on “fruit processing and pitching method, making sure to be as clean as possible,” Dunn says. This is relatively easy if you’re using aseptic puree, but if you’re using fresh, chopped fruit you can steep it in 160°F (71°C) water for a minute or two to pasteurize it.

“We used to puree our fruit in-house,” Dunn says, “and I think that is the best result, using either a standard blender or immersion blender. If that is not an option, the finer chopped [fruit] also has decent results, but certainly has a different expression.” He adds that they never use fruit extracts or distillates, a policy I can endorse without reservation. (It’s not that I’ve *never* had a good beer with fruit extracts, but it takes a lot of nuance, work, and sometimes just *time* to pull it off.)

Six years ago, I planted some fruit trees in my own yard, and let me tell you: It might only be psychological, but the apples, peaches, and pears I get from those trees—after paying my dues to the neighborhood deer and crows—make some of the best products I’ve ever baked, cooked, or brewed.

Final Thoughts: There’s a reason why fruited American wheat beers were such a successful way to convert folks to craft beer in the early days: They’re easy to drink, flavorful, and the grist provides a fantastic backdrop for a host of hops and fruit flavors. In this case, mango and guava make a wonderful pairing with Amarillo. It’s easy to imagine a Tropical Vibes-inspired beer becoming a popular hit in your seasonal rotation. 

“We are going for a clean, balanced American wheat. We do add a late addition of Amarillo, as we think that pairs really well with mango and guava. However, we are mostly trying to not overpower the ingredients and let them do the talking—mild citrus from Amarillo, leading with mango and guava, but not so much that the base beer is undistinguishable.”

MAKE IT

Swamp Head Tropical Vibes

With its soft wheat canvas and punchy additions of mango and guava, this quencher became a seasonal taproom favorite in Gainesville, Florida—and won Swamp Head a gold medal at the 2022 Great American Beer Festival.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.045

FG: 1.006

IBUs: 20

ABV: 5.2%

MALT/GRAIN BILL

4 lb (1.8 kg) white wheat malt

3.9 lb (1.7 kg) pilsner malt

4.5 oz (128 g) Carapils/dextrin malt

8 oz (227 g) rice hulls

HOPS & ADDITIONS SCHEDULE

0.25 oz (7 g) Columbus at 60 minutes [13 IBUs]

0.6 oz (17 g) Amarillo at whirlpool [7 IBUs]

2.5 lb (1.1 kg) mango puree at primary (~1.014 SG)

2.5 lb (1.1 kg) guava puree at primary (~1.014 SG)

YEAST

White Labs WLP320 American Hefeweizen

DIRECTIONS

Mill the grains, mix in the rice hulls, and mash at 152°F (67°C) for 40 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, do a whirlpool step: Stir or recirculate to create a vortex, add the whirlpool hops, and steep 20 minutes. Chill the wort to about 66°F (19°C), aerate, and pitch the yeast. Ferment at 66°F (19°C) for 3 days, then raise to 75°F (24°C). When the beer is about 80 percent to terminal (at about 1.014), add the fruit and lower the temperature to 70°F (21°C). After 1 day, raise it back to 75°F (24°C) and continue to ferment until complete and gravity has stabilized. Then crash, rack off the fruit, package, and carbonate.

BREWER'S NOTES

Water: For this beer, we adjust the sulfate-chloride ratio to roughly 1:1 to add some mouthfeel. We end up at 75 ppm calcium, 19 ppm magnesium, 12 ppm sodium, 90 ppm sulfate, and 104 ppm chloride.



Dunkelweizen

I BREWED MY FIRST dunkelweizen in the middle of a heat wave. The malt profile made me think of autumn, and I thought it would be a great “back-to-school” beer—I do love some delayed gratification. Then I had a party, my guests drank the fridges dry, and all I had left was the dunkelweizen—and I was blown away by how well it went down on a warm summer night. My point: Don't be afraid to brew this and drink it now.

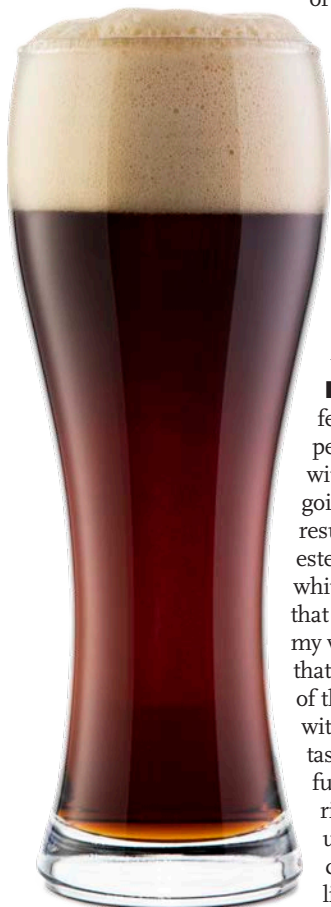
Style: Dunkelweizen (or dunkles weissbier) is simply a dark wheat beer in the German tradition. Practically speaking, it's a hefeweizen with a richer malt flavor. The characteristic flavors of banana and clove are present, as is the tendency to allow the yeast to remain in suspension. The brewing processes are largely indistinguishable, and both styles are very easy drinking, with soft mouthfeel and high carbonation. However, dunkelweizen adds richer bread and toast flavors—though they shouldn't make the beer seem heavy. There's a distinct “bakery” character to it, and I find that it holds up beautifully with food pairings. And while you could spend years tinkering this beer into excellence, it's not a difficult one for beginners to get right.

Ingredients: By tradition, German wheat beers should be at least 50 percent wheat malt, and this is no exception. But I'd caution against adding more than that—let's avoid stuck sparges if we can. The other half of your base should be Munich. For specialty malts, I used to rely on caramel malt with a dash of Carafo; since then, I've moved to a simpler addition of Briess Special Roast. It contributes some welcome toasted-sourdough malt depth as well as ample color. Hops are minimal—17 or so IBUs

of anything early or mid-boil works for me. If you want a touch of aroma hops later in the boil, keep it Noble and use a light hand.

Yeast selection is important here. You need that classic banana-clove fermentation profile or else it's not a dunkelweizen. Wyeast 3068 Weiherstephan Weizen or White Labs WLP300 Hefeweizen Ale are two that get the job done with good attenuation, low flocculation, and the right ester-phenol profile—so long as you treat them right.

Process: Some will tell you to ferment this beer warm. Ignore those people. If you push your temperatures with this yeast and this beer, you're going to overdo it. In my experience, it results in an overly sweet berry-banana ester profile, phenols that smell more like white pepper than clove, and hot alcohols that wreck the experience. I ferment both my weizens at 64°F (18°C). I've found that this guarantees detectable amounts of those desired esters and phenols, but with virtually no risk of something that tastes like bread dipped in cheap perfume. A typical ale fermentation—slow rise with a push at the end to clean up diacetyl—will do fine. Be sure to carbonate on the high side to get that lively mouthfeel and ample foam. 



MAKE IT

Hitzewelle Dunkelweizen

Don't go crazy with the fermentation temperature here. Trust your yeast to do their job, and they'll take care of you; abuse them, and you're rolling the dice, flavor-wise. This may seem relatively cool (64°F/18°C), but it's within the recommended range and limits risk.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.052

FG: 1.013

IBUs: 17

ABV: 5.3%

MALT/GRAIN BILL

5 lb (2.3 kg) wheat malt

5 lb (2.3 kg) Munich

8 oz (227 g) Briess Special Roast

8 oz (227 g) rice hulls

HOPS SCHEDULE

0.5 oz (14 g) Magnum at 30 minutes [17 IBUs]

YEAST

Wyeast 3068 Weiherstephan Weizen or White Labs WLP300 Hefeweizen Ale

DIRECTIONS

Mill the grains, mix with the rice hulls, and mash at 152°F (67°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 to about 64°F (18°C), aerate the wort, and pitch the yeast. Ferment at 64°F (18°C) for 7 days, then allow to rise to room temperature until fermentation is complete and gravity has stabilized. Package and carbonate to about 2.5 volumes of CO₂.



Session IPA

THIS TIME OF YEAR, I'm always looking for good beers to take to the beach, and I don't know that anything fits the bill better than a good session IPA. Light in body, bright in flavor, and highly approachable, it's an ideal warm-weather, happy-hour-through-dinnertime, easy-drinking beer. Brewing this to have on hand throughout the summer is wise, though it's a bit more complicated to make than you might assume. It's a question of generating a lot of hop flavor and finding light ways to balance that—otherwise, you're really just brewing an American pale ale.

Style: So, take an American pale ale, lower its ABV to about 4 percent, make it bitterer and hop-focused, and you have a session IPA. Easy, right? Well, yes and no. The target is surprisingly clear, but hitting it requires us to get creative with our grist. Hopping is the easy part, but if you try to go too simple with your grains you'll end up with a weak, naked-feeling flavor profile that's more like heavily hopped pale malt liquor than session-strength IPA.

Recipe: My first pass at this style was a disaster for me. I thought, "Okay, let's keep the grist nice and clean," and I used mostly American two-row and some Carapils and Victory. The bitterness was harsh, the grain flavors disappeared, and it was drinkable—but it was also really, really boring. Well, if clean isn't working, why not "dirty" it up some? That's how I ended up with this recipe, and I haven't looked back since.

We'll start with a base of Maris Otter and Vienna—about as far from "all two-row" as you can get—in a five-to-one ratio. To that, we'll add portions of Munich and crystal 20, bumping up the melanoidins and adding some light caramel sweetness as well as some dextrins for body and texture. Finally, a bit of flaked oats will soften the palate without adding so much protein that it veers into hazy territory. We're shooting for an OG around 1.044 and an ABV of 4–4.5 percent. For kettle hops, we'll go with about 35 IBUs of Simcoe at the top of the boil and more toward the end for flavor. Then we add a burst of Amarillo to the whirlpool,

and we're home free. You can dry hop this beer, but I don't—I just don't like how that resin feels and tastes in a low-strength IPA. Finally, for yeast, I like London Ale III (Wyeast 1318) for this beer. The berry esters are a nice complement to the stone-fruit flavors in the late hops, and we don't need high attenuation for a session beer.

Process: If you want to increase the body a bit—which won't do any harm to a beer this light—you can optionally mash a bit higher than usual. After the boil, if you can, wait to add the Amarillo until the whirlpool has dropped below 180°F (82°C), and let it steep for a solid 15 minutes to really boost the aroma. To avoid diacetyl, it doesn't hurt to ramp up the temperature by a degree or two toward the end. Be sure to give the yeast a few days after reaching terminal gravity to clean up. Drink it fresh, but there's no need to rush it. If you're storing it cold, it should have enough staying power in terms of flavors and aromas to be good for six to eight weeks—a good chunk of the summer. 



MAKE IT

Kleiner Hund Session IPA

You could sub in just about any fruit-forward, New World hops here, but there's just something about Simcoe and Amarillo in a session-strength beer that seems to work better. Ultimately, this is about creating a robust yet low-gravity grist to balance the hops. If you get that part right, the rest is a cakewalk.

ALL-GRAIN

Batch size: 5 gallons (19 liters)
Brewhouse efficiency: 72%
OG: 1.044
FG: 1.012
IBUs: 45
ABV: 4.3%

MALT/GRAIN BILL

5 lb (2.3 kg) Maris Otter
1 lb (454 g) crystal 20L
1 lb (454 g) Munich
1 lb (454 g) Vienna
8 oz (227 g) flaked oats

HOPS SCHEDULE

0.75 oz (21 g) Simcoe at 60 minutes [35 IBUs]
1 oz (28 g) Simcoe at 5 minutes [10 IBUs]
2 oz (57 g) Amarillo at flameout/whirlpool

YEAST

Wyeast 1318 London Ale III

DIRECTIONS

Mill the grains and mash at 154°F (68°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 gallons (23 liters) of wort, depending on your evaporation rate. Boil for 60 minutes, adding hops according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to create a vortex, cooling the wort to 180°F (82°C) if possible. Add the whirlpool hops and allow 15 minutes to steep. Chill to 68°F (20°C), aerate the wort, and pitch the yeast.

Ferment at 68°F (20°C) for 7 days, then allow to rise to room temperature for 2–3 days. Crash to 35°F (2°C) for 2 days, then package and carbonate to about 2.5 volumes of CO₂.

BREWER'S NOTES

If adding the Amarillo to the whirlpool at 180°F (82°C), this adds a calculated 9 IBUs—but I don't count them or adjust the kettle hops. In reality they add minimal bitterness but plenty of aroma and flavor.



COOKING WITH BEER

Hot Bites, Cold Beers

These three spicy recipes—each including a splash of lager—are perfect for warm, casual summer dinners on the patio. They are best paired with the same beers you cracked to make them. **Recipes and Photos by Christopher Cina**

Pan-Fried Catfish Sandwich with Kale Slaw and Hot Sauce Mayo

SERVES: 2

Pan-Fried Catfish Sandwich

2 pieces catfish, 5 oz (142 g) each
1 cup (237 ml) all-purpose flour
1 Tbs Old Bay Seasoning
1 tsp salt
2 eggs
½ cup (118 ml) pale lager
2 cup (473 ml) panko breadcrumbs
4 cup (946 ml) canola oil for frying
Two 4.5" (11 cm) brioche or burger buns

Set up a breading station for the catfish. In a mixing bowl, combine the flour, Old Bay Seasoning, and salt. Mix well and set aside. In another mixing bowl, combine the eggs and beer and whisk together. Set aside. Place the breadcrumbs in a third bowl.

Pat the catfish dry and dip into the bowl with the flour mixture, making sure to cover well. Knock off any excess flour and place the catfish in the egg mixture. Coat well. Allow any excess to drip off and place the catfish in the breadcrumbs, pressing the breadcrumbs into the fish. Once the catfish is breaded, you can refrigerate until you are ready to fry.

Pour the canola oil into a heavy-bottom pot or cast-iron skillet. Oil should be deeper than 1" (25 mm).

Using a thermometer, heat the oil to 325°F (163°C). Gently place the fish in the

oil and cook until golden brown, about 3 minutes. Carefully flip the fish in the oil and cook until an internal temperature of 165°F (74°C) is achieved, about 3 more minutes. Remove the fish from the oil and allow to drain on a paper towel.

Toast the brioche buns and spread 2 Tbs Hot Sauce Mayo (see below) on the bottom bun. Place the fish on the bun and top each piece of fish with ¾ cup (177 ml) Kale Slaw. Finish with top bun and serve.

Kale Slaw with Hot Sauce Mayo

Makes: 1 cup (237 ml)
¾ cup (177 ml) mayonnaise
3 Tbs Cholula hot sauce (Tabasco is fine, too)
1 Tbs lemon juice
½ tsp salt
¾ cup (177 ml) shredded green cabbage
¾ cup (177 ml) Tuscan kale, julienned

For the hot sauce mayo, combine the first 4 ingredients in a mixing bowl and mix well. Reserve covered in the refrigerator. Just before serving, in a small mixing bowl, combine the cabbage and kale with ¼ cup (59 ml) of the hot sauce mayo. Mix well.

Beer Tasting Notes: The lime-citrus character in some Noble hops and many contemporary American-grown hops complements the sweet crunch of the catfish breading. So, you can go two ways with this: either an expressive West Coast pils or a particularly lime-forward German pils or Czech pale lager. In a pinch, you can go over the top with a Mexican-style lager with lime, but avoid any with artificial flavoring.

Beer Suggestions: BKS Pivo Project Bohemian Style Pilsner (Kansas City, Missouri), 12 West Radial Spines (Mesa,

Arizona), Firestone Walker 805 Cerveza (Paso Robles, California).

Pulled Chicken Quesadilla with Salsa Adobo

SERVES: 2

Pulled Chicken Quesadilla

2 Tbs butter, melted
One 10–12" (25–30 cm) flour tortilla
1½ cup (355 ml) Monterey Jack cheese, shredded
1 jalapeño, cut crosswise into 6 thin coins
¼ cup (59 ml) red onion, julienned
¼ cup (59 ml) Roma tomato, diced
½ cup (118 ml) pulled roast-chicken meat
¼ cup (59 ml) corn kernels
1 Tbs cilantro, chopped + 2 sprigs
Salt
1 Tbs fresh lime juice

Heat a large sauté pan over medium heat with the melted butter. Place the tortilla in the pan and add the Monterey Jack cheese. Once the cheese begins to melt, add the jalapeño slices, red onion, diced tomato, pulled chicken, corn kernels, and chopped cilantro. Make sure to spread all the ingredients evenly and all the way to the edge. You don't want everything piled in the center. Season with a pinch of salt and drizzle the lime juice on the tortilla.

Using a spatula, gently fold the tortilla in half and brown to crispy on both sides. Remove from the heat, cut into 4 wedges, garnish with sprigs of cilantro, and serve with the Salsa Adobo (see page 48) for dipping.





Salsa Adobo

Makes: 2 cups (473 ml)
 ¾ cup (177 ml) canned chipotles in adobo
 ¾ cup (177 ml) tomato juice
 1 Tbs garlic, minced
 ½ cup (118 ml) sour cream
 ¼ cup (59 ml) lager
 2 Tbs lemon juice
 ¾ cup (177 ml) vegetable oil
 Salt to taste

In a blender, combine the chipotles, tomato juice, garlic, sour cream, beer, and lemon juice. Puree until smooth. With the blender on medium speed, slowly add the vegetable oil in a thin stream until fully incorporated. Remove the salsa adobo from the blender and season with salt. Refrigerate until needed.

Beer Tasting Notes: Mexican-style lager is the perfect complement to this dish, but don't be afraid to mix it up—you could go pale to let the spice and acidity shine, or you could try a darker lager to lean into those roastier chipotle notes.

Beer Suggestions: pFriem Mexican Lager (Hood River, Oregon), Sun King Pachanga (Indianapolis), Ska Mexican-Style Lager Dark (Durango, Colorado).

Seared Salmon with Sweet Potato–Edamame Succotash and Sweet Corn Puree

SERVES: 2

Seared Salmon with Sweet Potato–Edamame Succotash

2 oz (57 g) bacon, diced
 2 Tbs olive oil, divided
 ¼ cup (59 ml) corn kernels, fresh or frozen
 ½ cup (118 ml) green beans, blanched tender
 ¼ cup (59 ml) edamame, shelled
 ½ cup (118 ml) sweet potato, ½" (13 mm) dice, blanched tender
 1 clove garlic, sliced thin
 ¼ cup (59 ml) lager
 1 Tbs butter
 1 tsp kosher salt, divided
 Pinch black pepper
 2 salmon filets, 6 oz (170 g) each
 1 cup (237 ml) Sweet Corn Puree

For the succotash, in a medium sauté pan over medium-high heat, cook the bacon with 1 Tbs olive oil. Once the bacon has crisped up, drain the fat and add the corn, green beans, edamame, sweet potato, and garlic. Sauté until the vegetables are heated through. Add the lager and reduce until the mixture is almost dry. Add the butter and season with ½ tsp salt and a pinch of black pepper. Hold warm.

In a separate sauté pan, heat the remaining 1 Tbs olive oil over medium-high heat. Season the salmon filets with the remaining salt and place carefully in the sauté pan. Do not move or shake the pan. Allow the salmon to sear to a golden brown, which will release the salmon from the pan so it does not stick. Turn the salmon over and repeat. Cook to your desired temperature.

Place ½ cup (118 ml) of the warm Sweet Corn Puree (see below) in the middle of two plates. Place the succotash in the middle of the sweet corn puree. Top with the salmon and serve.

Sweet Corn Puree

Makes: 2 cups (473 ml)

4 ears yellow corn, shucked
 1 Tbs olive oil
 ¼ cup (59 ml) yellow onion, diced
 1 Tbs garlic, minced
 ¼ tsp ground cumin
 ½ cup (118 ml) lager
 1 cup (237 ml) half-and-half
 ¼ tsp ground black pepper
 1 tsp salt

This sauce can be made the day before and reheated gently when needed. Remove the kernels from the shucked corn cobs and discard the cobs. In a small saucepan, heat the olive oil over medium-high heat. Once you begin to see wisps of smoke, add the corn kernels and onion and cook until the onion becomes translucent. Add the garlic and cumin and cook for 30 seconds. Add the beer and half-and-half and reduce the heat to simmer for 10 minutes. Remove from the heat.

Carefully pour all the corn and liquid into a blender and puree until smooth. Add black pepper and season with salt.

Beer Tasting Notes: A fine, craft-brewed American light lager is the perfect fit for this dish, as the corn sweetness and low bitterness complement its subtle flavors and let the food take the lead.

Beer Suggestions: Brown Truck #10 American Light Lager (High Point, North Carolina), Roadmap Alright, Alright, Alright (San Antonio), Kros Strain Tippy Cup (La Vista, Nebraska), Jack's Abby Banner City (Framingham, Massachusetts). 🍷



GEARHEAD

Dead Heads, Shockwaves, and the Search for the Perfect Pump

The beating hearts of a brewery aren't glamorous and won't impress casual visitors, but they can do a great deal to improve how brewers do their jobs. They can also make a lot of noise. **By John M. Verive**

AN OPERATING BREWERY IS FILLED with the din of industrious creation: The thrum and slam of the centrifuge, the whirr of a bottling line, and the constant soundtrack of heavy metal or hip-hop spilling from speakers—all mingling to create the sonic landscape of the craft brewery. Yet one sound cuts through the noise, snapping workers into frenzied action and, some say, scarring their memories.

The scream of a pump that's run dry is the stuff of brewers' nightmares.

Pumps are intrinsic to a brewery. After all, there are all sorts of liquids that need

to get from one place to another, from water to wort, from yeast slurry to beer, plus all the chemicals and cleanup afterward. Unless you can get gravity or gas pressure to move the fluids, you need to apply some mechanical work, be it a bucket brigade or a progressing cavity pump. There is a whole arsenal of pumps at the brewer's disposal for whatever solution they require.

Because that's what pumps are: solutions to specific problems. In a brewery, most common of these problems are of the "liquid in vessel A needs to be in ves-

sel B" variety. (Like when the wort in the lauter tun needs to be in the boil kettle, or hot wort in the kettle needs to move to the fermentation vessel, or all the beer in the brite tank needs to be supplied to the bottling line at high pressure.)

The most common pump to handle the transferring tasks in the brewery—and the one infamous for its piercing death knell—is the **centrifugal impeller pump**.

Pump Primer

"They're the workhorse at most breweries," says Zeke Bogan, director of brewing operations at Los Angeles Ale Works in Hawthorne, California. Whether built into a brewhouse manifold or mounted on a cart to move around the brewery, centrifugal pumps are very effective at moving liquids.

Before Bogan manned the brew deck in Hawthorne, he spent 15 years in various roles at Bell's Brewery in Kalamazoo, Michigan. While the difference in scales between the two breweries was considerable, Bogan says both breweries relied on centrifugal pumps for much of their liquid-transfer needs.

"The motors were bigger, the carts were heavier, and you had to push them further," he says, "but [centrifugal pumps] are doing the same thing, just at different volumes."

Pumps in their many forms convert mechanical action to hydraulic energy, and in most cases, the necessary me-

Pumps are intrinsic to a brewery. After all, there are all sorts of liquids that need to get from one place to another, from water to wort, from yeast slurry to beer, plus all the chemicals and cleanup afterward. Unless you can get gravity or gas pressure to move the fluids, you need to apply some mechanical work.





chanical action is provided by an electric motor. In centrifugal pumps, the motor spins the pump's **impeller**—a disk ribbed with vanes that accelerates liquid from the inlet near the center of the impeller to the outside of the disk through centrifugal force. The faster the impeller spins, the more pressure it builds. These are relatively simple pump designs, yet there are countless variations in impeller design, housing, and motor size to provide the required head pressure, flow rate, and so on.

For all the centrifugal pump's simplicity and ubiquity, there are some downsides that require consideration when used in the brewery. The high shear-forces inside a centrifugal pump head can be hard on finished beer or on yeast slurries, causing foaming or oxygen pickup in beer or cell damage in yeast. However, a bigger concern in the brewery is keeping them in good working order.

Centrifugal pumps are designed to be cooled mostly by the liquid moving through the pump, so running them dry or with the outlet closed can cause them to overheat. The latter is called “dead heading” the pump; with nowhere to go, the liquid inside the pump just circulates internally, causing heat to build up. This

can damage both the liquid itself and the pump's own internal mechanisms. A pump can overheat in a matter of minutes, and this is one cause of the previously mentioned screeching and wailing.

Another noisy failure mode that can occur in a pump is called **cavitation**. Caused when water changes state from liquid to gas (or the reverse) as it experiences pressure and heat differentials, the rapid collapse of the bubbles creates tiny shock waves that can cause outsized damage to delicate machine parts. From accelerating wear to completely destroying an impeller or pump seal, cavitation results in countless bad days for brewers and maintenance techs every year.

The relative simplicity, low cost, and ease of operation have led to the centrifugal pump's dominance in small breweries; they're the Swiss army knives in a brewery's pumping toolbox. Sometimes, however, you need a scalpel.

Specialized Tools for Specific Tasks

As a brewery grows in volume and in the sophistication of its process, its focus on efficiency also grows. What may cost a small brewpub a few extra dollars a year in materials, utilities, or wear and tear can

cost a regional production brewery much, much more. Margins and competition are tight today, and the savvy brewer is always looking for added efficiency or a way to streamline a process.

This is where the number of more specialized pump designs come into the brewery equation. Many of these impeller alternatives are known as **positive displacement (PD) pumps**. Instead of using a spinning rotor to energize the liquid, they move a measured volume of liquid (or slurry) through the pump's mechanism. There are many different styles of PD pumps. Whether they're transporting delicate yeast slurries, moving tons of soggy spent grain, or supplying product to a high-pressure bottling line, there's a perfect pump for the job.

Compared to the high-speed operation of the centrifugal pumps, the more gentle mechanisms of the PD family of pumps make them ideal choices when finesse is more important than flat-out flow rate, or when the liquid is thick, sticky, or carrying solids that would impede centrifugal pumps.

True to their name, the mechanical action of **air-operated double-diaphragm (AODD)** pumps is generated with compressed air. Often found in wineries and barrel houses, AODD pumps are lightweight, compact, and efficient pumps well-suited to moving delicate liquids.

Peristaltic pumps use a flexible hose with cams positioned on the outside that compress the hose and push the fluid within down the line. Each rotation of the cam will move a specific quantity of liquid a specific distance. In addition to yeast handling, they can be used for dosing cleaning chemicals in CIP systems or for moving thick slurries around the brewery. “Peristaltic pumps are used for yeast dosing,” says Seán Diffley, engineering director at Maine's Allagash, “as they are gentle and precise, allowing for accurate dosing of small amounts of yeast.”

As Allagash has grown over the past decade, Diffley says they've added more esoteric pumps at specific nodes in their process. These range from a **liquid ring vacuum pump** to serve the vacuum bottle fillers to the Seepex **progressive cavity pump** that handles spent grain and spent yeast removal. (He cites the latter as crucial to the brewery's increased throughput.) The latter pump is like the modern version of one of humanity's first water-moving machines: the twisty Archimedes screw.

“Allagash's use of different pump types reflects our commitment to using the right tool for the job, ensuring that each step in the brewing process is optimized for efficiency and quality,” Diffley says.

Deep Well of Knowledge

With so many different types and styles of pump available to the brewer, identifying the best one to solve a problem isn't always simple. While brewer's schools such as the Master Brewers Association of the Americas and Siebel cover the theoretical side of pumps in coursework, most brewers learn the ins and outs of using them in the brewery while on the job.

"There's a lot of institutional knowledge passed from brewer to brewer," says Bogan at Los Angeles Ale Works. Yet taking courses and reading up on the technical side of breweries remains a good way to get a leg up in the industry. "I know more about pumps now than I ever thought I would," he says.

This brewer-to-brewer training can also lead to an unconscious resistance to new solutions.

"Brewers can get tunnel vision regarding the equipment they already know," says Michael Caviness, general manager of TCW Equipment & Systems in Santa Rosa, California. "There's a lot of jargon and a lot of misunderstandings about different pumps."

TCW supplies machinery and equipment to both wineries and breweries in California's Napa Valley. Caviness is happy to help brewers find the right pump to solve their process predicaments—so much so that he's authored a whole series of pump-focused blog posts for the TCW website. These posts demystify the options and clarify the jargon, and online

he's often looking for opportunities to share his pump knowledge with brewers.

Yet while sites such as Reddit may have answers to your pumping questions, and while coursework and technical articles can strengthen your theoretical foundation, there is no substitute for hands-on experience.

Curtis Holmes is plant manager at Alaskan Brewing in Juneau, and he's been with them since 1991. Besides the two-week short course at Siebel and some "various training opportunities" at the brewery over the past 30 years, he's learned it all by doing.

And the man can talk pumps.

We speak at length about all the pumps that Alaskan has added over the years. ("The older the brewery, the more pumps it has," he says.) Holmes details the pros and cons of each and discusses their various maintenance requirements—and he reminds us that the brewing industry is great at knowledge sharing. He recommends talking to other brewers at conferences or via online fora. He also suggests leaning on pump suppliers and their reps for detailed solutions for specific problems.

"Those guys know the products, and they know the math," he says.

Science Behind the Artistry

It's cliché to say brewing is a blend of artistry and of science, but that doesn't make

it any less true. It's an axiom that displays its depth each time I dive into the details of another tool or piece of equipment in the brewery. From the biochemistry of yeast propagation to the chemistry of malt kilning to the fluid dynamics of various pump architectures, brewing encompasses a wide swath of scientific disciplines. Brewing technology advances hand in hand with human civilization, either being driven by advancements in scientific understanding or, in many cases, driving those advancements.

What separates a journeyman brewer from a master isn't a job title or a brewing degree, but a deeply held understanding of, and respect for, the tiniest of details and variables in the brewing process. A master deftly balances technical capabilities with artistic vision, all under the constraints and demands of operating a business.

A fancy new pump is never going make a bad beer into a great one, but it can still do a lot for the brewery: It can smooth out rough edges in a brewery's production; it can add a specific new capability or new degree of precision to a certain process; it can increase throughput and capacity; it can reduce a labor pain point; and it can increase efficiency.

Pumps are a problem-solving force, and the right application of this force can help elevate a brewery above all the noise in today's marketplace.



Steve Crider of 2nd Shift in St. Louis repairs a pump in his Craft Beer & Brewing All-Access video class.

BEER INGREDIENTS

The American Grain: Elevating Heirloom Corn

Corn has long held an important place in brewing across the Americas, from chicha in the Andes to Mexican and American adjunct lagers. Today, craft maltsters and brewers are seeking more flavorful heirloom varieties to see how far they can push those flavors. **By David Nilsen**

WHEN IT COMES TO CORN in beer, we tend to think of it as little more than a highly fermentable adjunct—especially for lightening the body of an easy-drinking lager. However, after decades of being (unfairly) looked down upon, corn has lately been getting a fresh look from craft brewers.

For others, corn's reputation never needed saving in the first place.

Shyla Sheppard is founder of Bow & Arrow Brewing in Albuquerque, New Mexico. For her, a connection to corn goes deeper than brewing, to a relationship rooted in cultural and familial memory. Sheppard is Native American, and she recalls her grandmother in North Dakota making a traditional corn ball with kernels she had parched and ground herself. It's only natural that Sheppard would use this ingredient in her brewing.

"I like to tie back to what is locally available," she says, "as well as drawing those connections to foodways that have been a part of our culture since time immemorial."

Sheppard launched the Native Land Beer Project to bring awareness to the historical use of corn and its role in indigenous

culture and to support Native American organizations that were working to preserve traditional knowledge. Bow & Arrow developed a Mexican-style lager recipe and brewed it with blue corn grown and roasted by local, tribally owned Santa Ana Pueblo Blue Corn and Mill—a project that has since opened up to breweries across the country.

Bow & Arrow is at the forefront of a movement to not only reclaim corn as a respected brewing ingredient, but also to celebrate the flavor diversity of heirloom varieties and push the limits of what's possible with this ancient grain.

Corn in the Heartland

At Sugar Creek Malt in Lebanon, Indiana, Caleb Michalke is growing and malting several unique corn varieties. He grew up on a corn farm, so returning to this crop felt natural to him. "We grow 90 to 100 acres of heirloom varieties, and we also grow a lot of Yellow Dent corn for distillers," he says.

After starting out with the popular Bloody Butcher variety, Michalke has been tracking down harder-to-find corns, including Oaxacan Green, purple Peruvian Morado,

PHOTOS: MATT GRAVES/WWW.MGRAVESPHOTO.COM



and Boone County White, a local strain first bred in the 1870s. Some have proven difficult to find—for Oaxacan Green, Michalke ended up getting a bag of kernels that a gardener in Illinois was keeping in her freezer.

At Chicago's Cruz Blanca, a Mexican-influenced brewery and pub, Jacob Sembrano has been brewing with Michalke's corn and pushing it to levels rarely seen in modern beer. For example, he brews a Mexican-style lager, in which Bloody Butcher makes up a surprising 70 percent of the grist, as well as a grisette made from 100 percent Boone County White corn.

"The idea for the Mexican lager was to push forward the uniqueness of Bloody Butcher," Sembrano says. "It's kind of spicy and peppery. It ends up looking like an amber lager, despite no crystal malt being used."

Sembrano says the heirloom white corn lends a briny, corn chip–like flavor to their Corn Grisette, which is fermented with native yeasts and *Brettanomyces*. "At 100 percent, I knew it would be a really raw, unadulterated way to showcase the corn."

Meanwhile, in Milwaukee, Michalke's Oaxacan Green corn finds its way into the Masa Verde Mexican Lager at 1840 Brewing. Owner-brewer Kyle Vetter is using the corn in more moderate percentages than Sembrano at Cruz Blanca, but he says it lends a bright yet soft sweetness to the beer.

"I don't think the average person is going to be like, 'Oh, is this blue or green corn?'" he says. "But it does add a little more depth. I think it would be a lot of fun to play with different corns in our saisons, but the best way to test it is just to make a light beer with pilsner malt and let the adjunct shine."

Historical Precedent

For Dos Luces Brewery in Denver, working with corn is more historical imperative than modern experiment. Founder Judd Belstock brews variations of only two styles at Dos Luces—chicha and pulque—and markets them both as naturally gluten-free.

Chicha is an indigenous style from Peru, once brewed by the Incas and still widely produced and enjoyed there. Pulque was brewed by the Aztecs in Mexico, and it has been experiencing a resurgence in popularity around Mexico City. While chicha is brewed entirely with malted corn, pulque

is brewed with malted corn and sap from agave (also known as *maguey* in Mexico). For most beers, Belstock uses malted Colorado blue corn or malted yellow corn.

In these brews, corn's lower protein level leads to a lighter body than many beer drinkers expect. Also, with their partially acidic fermentations, Belstock's chichas and pulques can come across more cider-like than beer-like. His most ambitious project to date is a barleywine-strength chicha he refers to as a "cornwine."

Called Micaela, the cornwine is brewed with Peruvian purple corn. It's named for Micaela Bastidas Puyucagua, the wife of Túpac Amaru II. Together, the pair led an Andean rebellion against the Spanish in 18th century Peru.

Belstock says the purple corn used in Micaela tastes nothing like corn as we know it. "It's more fruit than grain in its flavor," he says. "It reminds me of wine grapes."

Technical Considerations

Brewing with corn is not without its challenges.

"Milling is the hardest part for a lot of brewers," says Michalke at Sugar Creek. "I have to pre-mill most of the corn because the kernels are so big, a lot of times they won't fit through their rollers." He recommends going with a fairly coarse grind—a recommendation echoed by several brewers.

Cruz Blanca's system isn't set up for cereal mashing, so they do a coarse crush to help with lautering. However, Sembrano says it still takes a long time. "It ends up being [coarser] than grits, and our extract is really low," he says. Other brewers report similar issues.

At Bow & Arrow, the use of roasted corn raised some tricky questions. "With using roasted corn, we weren't sure to what extent that process had gelatinized the starches," Sheppard says. "When we grain out, we can still see it's pretty intact. Fortunately, we're not really relying on it as a sugar source, but for flavor."

Under those circumstances, brewers should expect lower efficiency than for an all-malt beer. "If you get 65 percent efficiency in the brewhouse out of these [grains], that's pretty good," Michalke says. "But you're not really looking for ex-

tract so much, especially if you're adding malted barley."

Using rice hulls in the mash is strongly recommended to help with lautering. "When you think you're using enough rice hulls, you aren't," says Belstock at Dos Luces. "I use about 20 percent rice hulls on a weight basis."

Because corn doesn't have as many enzymes as barley, some brewers opt for adding exogenous enzymes to the mash to aid in conversion (and, therefore, fermentation). Belstock says he uses high-temperature alpha-amylase during a 180°F (82°C) rest, then beta-amylase or glucoamylase during a 155°F (68°C) rest—he calls this a reverse step mash. If he goes any lower than that, he says, he's in trouble.

"If you let the corn gelatinize, you're going to be stuck with a layer of mud at the bottom of your kettle," he says. "At that point, there's nothing to do but throw out the whole batch."

His process efficiencies have improved to the point he now uses about one-third of the enzymes he once did—he gets about 80 percent efficiency from his all-corn mash. "The enzyme producers are thinking I'm doing a cereal mash," Belstock says. "But you're not only going to get great efficiency out of that; you're going to kill all the flavor. Start with less enzyme and build up to what you think you need. Otherwise, you're just getting corn sugar out of it."

Sembrano takes a different approach, opting to let nature run its course with his all-corn grisette. "Part of the spirit of that beer is minimal intervention, so not having elaborate mash programs or using any sort of enzyme to promote conversion," he says. "We mash at 148 to 150°F [64 to 66°C] to ferment it dry."

Belstock strongly recommends adding yeast nutrients, especially if you aren't using malted corn. "The yeast nutrients are a requirement because it doesn't have the nutrient value of a barley-based beer," he says. "You almost treat it as a seltzer as far as fermentation goes. But anything that uses malted corn has no problem with that."



"If you let the corn gelatinize, you're going to be stuck with a layer of mud at the bottom of your kettle," he says. "At that point, there's nothing to do but throw out the whole batch."

A Kaleidoscope of Options

Back at Bow & Arrow, Sheppard has been pleased with the response to Native Land so far. More than 30 breweries have participated in the collaboration, and she is encouraging each to use local heirloom corn varieties from their region, just as she's used the roasted blue corn in her lager and other beers such as Denim Tux and Brunch Special. She's excited to use other corn varieties, too.

"There are so many of these old varieties that have this really cool, unique story behind them," Michalke says. "I haven't even touched the surface of the [number] of varieties that are out there. It's just such a cool grain."

MAKE IT

Cruz Blanca Fade Away Red Corn Lager

Jacob Sembrano, head brewer at Chicago's Cruz Blanca brewpub, shares this recipe for their American lager—a showcase of Bloody Butcher red corn, grown and malted at Sugar Creek Malt in Lebanon, Indiana.

"The pigment of the beer will change from a deep ruby to a blush-peach color after fermentation," Sembrano says. "This is why we call it Fade Away. ... The flavor of red corn is unlike any malt I have ever tasted. It is spicy and has a black-pepper finish to it, and an aroma of stone-ground grits. It provides a rich, full body to this lager."

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.057

FG: 1.012

IBUs: 20

ABV: 5.9%

MALT/GRAIN BILL

9.1 lb (4.1 kg) Sugar Creek Bloody Butcher Malted Red Corn

2.3 lb (1 kg) Sugar Creek Pilsner

1.5 lb (680 g) Sugar Creek Rye Malt

1 lb (454 g) rice hulls

HOPS & ADDITIONS SCHEDULE

Beta-glucanase at mash (see Brewer's Notes)
0.75 oz (21 g) Hallertauer Hersbrucker at 60 minutes [10 IBUs]

1.3 oz (37 g) Hallertauer Hersbrucker at 10 minutes [6 IBUs]

1 tablet Whirlfloc at 10 minutes

1 tsp (5 ml) yeast nutrient at 10 minutes

1.5 oz (43 g) Hallertauer Hersbrucker at whirlpool [4 IBUs]

Keg finings (see Directions)

YEAST

Omega OYL-113 Mexican Lager

DIRECTIONS

Mill the grains—for the pilsner and rye, use your usual gap setting, but for the red corn go for a very coarse grind (see below)—and mix in the rice hulls. Mash in at 152°F (67°C) and add beta-glucanase, stirring to get an even distribution of all ingredients. Mash at 152°F (67°C) for 1 hour. 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), depending on your evaporation rate. Boil for 60 minutes, adding hops, finings, and yeast nutrient according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to

create a vortex, cooling to 180°F (82°C) if possible; add whirlpool hops and steep 20 minutes. Chill to about 52°F (11°C), aerate well, and pitch plenty of healthy yeast. Ferment at 54°F (12°C). When the gravity has dropped to about 1.020 (5°P), raise the temperature to 58°F (14°C) for a diacetyl rest and hold for 4 days or until fermentation is complete. Lager for 2 weeks at 34°F (1°C) and add Biofine or other keg finings on the lower end of recommended usage rate. Lager for 1 more week. Package and carbonate to about 2.6 volumes of CO₂.

BREWER'S NOTES

Red corn: Sugar Creek is one of the few maltsters to offer *malted* red corn. If the corn is unmalted, you'll want to do a cereal mash (see "Cereal Mashup," beerandbrewing.com)—though the beer will be completely different. The Bloody Butcher malt is available on Sugar Creek's website, sugarcreekmalt.com.

Milling: This is a challenging beer to mash. Based on experience, I've calculated that the extract of the red corn is about 60 percent when using our mill's largest gap setting, cracking the kernel into several small pieces, exposing the inside while not creating too much flour—hence the rather large amount of malt for a 5-gallon (19-liter) batch. Vorlauf and run off slowly.

Gravity: Don't be discouraged if you don't hit the OG target—using this much corn can lead to lower-than-anticipated gravities. If you get the beer between 5–6% ABV, that's an accomplishment. Just be sure to adjust hopping rates for your OG, as needed.

Water profile: We use a Munich helles water profile.

Beta-glucanase: We add this enzyme to the mash to help with lautering all that corn; we use a product called Bioglucanase, but there are others available. Be sure to follow the manufacturer instructions on how much to use.



CRACKING THE FRESHNESS CODE

The processes that change beer's flavor over time are complex, but by understanding them, we can better brew beers built to last—and we can better appreciate them when fresh. **By Randy Mosher**



AS BREWERS AND BEER ENTHUSIASTS,

we fuss over every little thing, whether it's the best ingredients or processes, classic or inventive recipes, or ratings, reviews, and the latest hop-du-jour. But how much attention do we pay to how fresh our beer is? Do we recognize the complex, telltale signs when a beer is past its prime?

Beer is a fragile product that's in absolutely pristine condition for only a brief window of time. Maybe you've heard a friend come back from Europe and say (or maybe you've come back from Europe and said), "It's so different over there; it's not even the same beer." It's true. Any beer, no matter how well brewed, that's made a weeks-long trip by ocean freighter, truck, and other means, is absolutely different from the one that left the brewery, both in terms of its flavor and its chemistry. Time, temperature, and vibration all take their toll. This is an inviolable law.

Stale beer is a big issue for the industry and for discerning drinkers. Over the decades, more research money has been poured into staling than probably any other problem in brewing. It remains the most intractable one. The issue is that beer is not, as chemists say, "in equilibrium." If it were, its chemicals would be at their lowest energy state, with no potential for further reactions—a perfectly stable product.

In reality, however, beer abounds in highly active molecules that just love to interact with one another. Beer's relatively low pH further facilitates reactions, while its ethanol flings itself into the chemical melee. Even after fermentation and filtration, yeast's enzymes continue to trans-

form the beer. Chemical changes continue through conditioning, packaging, and even pasteurization. It's relentless.

Freshness Is Ethereal, Staling Is Not

Broadly, two things are happening. First, the beer is losing its bright, fresh character. This is a little difficult to put your finger on; you almost have to compare a brewery-fresh beer to the same one a few weeks old, in which hoppy and fruity notes will be just a less little bright and fresh. Where does the freshness go? Pleasant fruity fermentation characters such as the banana-candy note of isoamyl acetate are vulnerable to being broken apart by acid hydrolysis. Because these esters also mask stale notes, their loss is a double whammy. Fresh hop aromas are terpene hydrocarbons or their alcohols; both groups are highly volatile and reactive. Some simply evaporate, while others may chemically change.

Meanwhile as the positive aromas fade, a rogues' gallery of new flavors is forming. The most notorious is an aldehyde called (E)-2-nonenal (brewers usually call it trans-2-nonenal, or simply abbreviate as T2N). Created from the fatty acids in malt, its highly potent "cardboard" or "paper" odor is a classic sign of staling in pale lagers, with an aroma threshold in beer of just 0.035 parts per billion (ppb). It is sometimes more evident on the palate than in the nose. While T2N is taught at brewing schools as *the* stale chemical, one study found it unimportant in top-fermented ales, especially darker ones. T2N also does

an excellent job of masking fresh, fruity esters, giving it an extra level of awfulness.

T2N is just one among many staling aldehydes. The same Maillard process responsible for kilned flavors in malt can also occur in the cool, wet environment of a beer, although at a much slower rate. The first compounds formed during kilning are Strecker aldehydes, and they're players here. In stale beer, chemicals such as 2- and 3-methylbutanal can give a sweet-malt "worty" odor, while methional smells of mashed potatoes. Neither is particularly pleasant. Phenylacetaldehyde brings floral and honey notes. The shape-shifting aroma of acetaldehyde (wet grass, ripe apple, flower shop, raw pumpkin) adds to the dullness.

The Workings of Oxidation

Much beer staling is driven by oxidation—an extraordinarily complex process. Oxygen-containing free radicals do the most damage, but some nitrogen compounds can have similar effects. From the mash through every step all the way to packaging, there are endless opportunities for oxygen to enter the brewing process. Combining with malt compounds and others, it creates what are termed "reactive oxygen species" that do the damage. Brewers need to be vigilant at every step, minimizing splashing, agitation, and heat input. It's always a goal in packaging to keep oxygen levels as low as physically possible. Oxidation also can be potently catalyzed by metals, especially iron, so keeping this out of the beer is a high priority.

Mid-colored caramel and crystal malts (40–60°L) seem prone to creating leathery/oxidized notes. Similarly, related sherry- or port-like staling odors are common in stronger beers such as barleywines, adding vinous notes in this context, although it's not clear which chemicals are responsible for these. The current best guess is a group of chemicals interacting to create unique percepts not attributable to any single molecule.

The oxidation of bitter hop iso-alpha acids is not only responsible for diminished bitterness, but also for qualitative changes. Rather than the balancing crispness of fresh bitterness, in stale beer it becomes clinging and astringent. Beer has fewer

PLEASANT FRUITY FERMENTATION CHARACTERS SUCH AS THE BANANA-CANDY NOTE OF ISOAMYL ACETATE ARE VULNERABLE TO BEING BROKEN APART BY ACID HYDROLYSIS. BECAUSE THESE ESTERS ALSO MASK STALE NOTES, THEIR LOSS IS A DOUBLE WHAMMY. FRESH HOP AROMAS ARE TERPENE HYDROCARBONS OR THEIR ALCOHOLS; BOTH GROUPS ARE HIGHLY VOLATILE AND REACTIVE. SOME SIMPLY EVAPORATE, WHILE OTHERS MAY CHEMICALLY CHANGE.



polyphenols than red wine, but what's there are contributed by hops and barley. Oxidation makes these harsher and more astringent over time.

More Processes that Impact Flavor over Time

Staling is not just about oxidation. Other chemical changes also contribute. One that's particularly evident in hoppy beer is beta-damascenone, which is released from its bound glycoside form—where it's stuck onto a heavy sugar molecule—by beer's acidity. Usually described as cooked apple and dried fruit, maybe with some black currant, it's a specific stale note in IPAs, although 50 percent of the population is more or less blind to it.

Sulfur can rear its stinky head, too, released from sulfur-containing amino acids in yeast. Dimethyl trisulfide brings cooked onion and savory/meaty notes. Ethyl mercaptan is typically a sign of yeast breakdown (autolysis) during aging. Its garbage-truck taint is common in lagers, although it's difficult to pick up without some experience. But remember: Many of these staling chemicals have a meaningful effect on the beer even when we can't identify them individually.

Ester formation doesn't stop when fermentation is over. Ethyl esters form when a fatty

acid combines with ethanol. Based on acids from hops and yeast, a range of esters gradually arise, including ethyl phenylacetate (honey, balsamic, floral), ethyl cinnamate (sweet, spicy, fruity/plum), 2-methylbutyrate (sweet, waxy, apple), and others. Note the general trend to sweet, honey/floral aromas—another hallmark of stale beer.

Beers can even get so old that they look different, but by this point their aroma and taste are pretty much shot. One common symptom is the "snow globe" effect you see in a dusty bottle of European lager, literally the beer's protein structure falling apart before your eyes. Because these proteins form the basis for beer's head and body, those are lost, but they started diminishing long before the snowflakes appeared. Although it's subtle, beer will darken slightly over time because of Maillard reactions.

When Does Aging Start?

Lauren Woods Limbach of New Belgium once told me she had her panels trained to recognize the difference between Fat Tire packaged that day and week-old Fat Tire. That was obviously after a lot of intensive training, but it shows just how quickly changes can occur, even in a sizable brewery with state-of-the-art production. For

most of us, such changes aren't noticed until much later. According to studies, many drinkers are oblivious.

It does matter what sort of beer it is. Hop-forward beers age fastest. As mentioned, old-school APAs and IPAs with lots of caramel malt are especially vulnerable. Darker beers tend to age more gracefully than pale ones. Lagers, because of their delicate nature, typically show their age more rapidly than ales. Stronger beers hold up better than everyday ones.

Of course, how the beer is brewed makes a difference. The advantage generally goes to larger and more sophisticated operations for obvious reasons. Pasteurization trades one negative consequence for a worse one: To kill any microbes present, the beer is briefly heated, accelerating its aging just a little, and slightly reducing its bright, fresh flavors.

So, What's a Consumer to Do?

First of all, try not to buy stale beer. With packaged beer, this puts all but the fastest-moving Euro beers off the table. Most bigger brands have cryptic date codes, so they're not much help. Seasonals such as Oktoberfest and maibock are good bets if you buy them in season. Most U.S. craft brands have readable date codes, so take advantage of them. Buying packaged beer to-go at a brewery is usually a solid bet. Since draft beer in the United States is usually kept chilled, it's a better choice in bars.

It's become fashionable to insist on extremely recent code dates on hazy IPAs. While generally a good thing, this style is actually quite tasty well beyond a week or two. At Forbidden Root in Chicago, we actually prefer them when the "hop burn" fades away after a couple of weeks. For most beers, six months is too old while six weeks is plenty fresh—but that varies widely, so learn to trust your palate, brewery, style, and retailer.

Once you've bought the beer, keep it cold. Beer stored at 32–39°F (0–4°C) keeps four times longer than at room temperature. Besides, there's no reason not to keep them ready to pour in an emergency. Once you crack the code on freshness, it may quickly become one of your favorite qualities. It sure is one of mine. 

"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 FEWER THAN 40 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 WINTER 2023 ACCELERATOR AT [BREWERYWORKSHOP.COM](https://breweryworkshop.com)

SPONSORED BY



FULL REFUNDS AVAILABLE (FOR ANY REASON) UP TO 90 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.

Lager Lucidity

Brewed with patience and precision for the pursuit of pleasure, great lagers are those glimmering jewels that we just can't seem to stop drinking. Here, we shine a light on the fine art of how to make us sad when the glass is empty.



LAGER TRADITIONS

Czech Lager:

The Art of the Addictive

Whether you want to brew a more convincing Czech-style lager or you simply want to borrow a few tricks to shape the kind of beer that seems impossible to stop drinking, here are some elements to consider. **By Joe Stange**

AS SMALLER BREWERIES across North America show greater interest in a variety of lagers, we often look to the Czechs for inspiration. Yet Czech lager is an infinitely rich subject, and zooming in on any facet only reveals finer details and lessons yet to be learned.

So, let's begin by saying there is more to Czech lager than throwing in some Saaz and pitching a yeast strain labeled as "Bohemian." And, after further study, if Czech lager begins to look like an annoyingly intricate puzzle—or a house of cards where all the pieces need to fit together just so—there's a reason why: That's how it evolved, as brewers there continue striving to outdo each other in making the kinds of beers that the locals want to drink in serious quantity.

While American craft brewers keep trying to pack more and more character into their beers, the Czechs never stopped trying to brew something that people just want to drink *more*.

If your quest is to brew a distinctive lager, you can pick and choose the pieces that serve you best. However, if a more authentic Czech character is the goal, it's difficult to leave out any of these pieces without ending up in another place.

Decoction: You Can and You Should

It's naive to think that Czech brewers adhere to decoction like religion because they're just stuck in their ways. Many also experiment from time to time with infusion mashing—but they stick with decoction for what it adds to the beer. You can make great lager with an infusion mash—that should be obvious by

PHOTOS: JAMIE BOGNER

Ondrej Rozsypal, 2022
Pilsner Urquell Master Bar-
tender winner, demonstrates
a proper pour in the Lékárna
tankpub in Pilsen.





now—but decoction is a critical piece of what makes Czech lager what it is.

“If I could take only one thing that makes a lager a lager,” says Adam Brož, brewmaster at Budvar, “it’s decoction.”

He views the character that you get from decoction mashing as inseparable from how lager is supposed to taste. “The beer is richer in flavor and color,” he says. “You tune up automatically, by nature, the combination of fermentable and unfermentable compounds. ... You really tune up the flavor in a natural way.”

To get an idea of how a typical Czech lager decoction might go, here’s a simplified version of the program at Budvar: Mash in low, at 100°F (38°C), then raise it to 122°F (50°C). Separate about a third of the mash and take it through 20-minute rests at 149°F (65°C) and 167°F (75°C) before bringing it to boil for 20 minutes. Then reunite the decoction with the rest of the mash, mix thoroughly—and do it all over again. Brož says the whole mash process at Budvar takes about four hours.

Many brewers have a simple view of decoction mashing—either it makes no dif-

ference, it’s unnecessary, or maybe it only adds some malty flavors. However, when Czech and German brewers talk about decoction, they talk about more than a richer malt flavor—they also talk about better foam stability, higher mash efficiency, more body, and higher attenuation.

Those last two may seem counterintuitive—higher attenuation, yet more body?—but for the Czechs, that’s an important combination. The beer should be satisfying yet digestible—when your mug is empty, it’s a moment of great sadness and longing. And then there’s only one thing left to do.

“The drinkability with decoction is much higher than with infusion,” says Lukáš Tomsa at Dva Kohouti, a popular brewery and taproom in Prague’s Karlín neighborhood. “We focus here on drinkability. A beer needs to be drinkable,” so that the drinker wants only “more and more.”

At highly respected Únětický Pivovar, north of Prague, their classic double decoction is part of their over-arching focus on attenuation for a finish that leaves you wanting more. “All of our beers are dry beers—very dry beers,” says Štěpán

Clockwise from far left » Germinating malt in the Pilsner Urquell malthouse; Únětický Pivovar malt from Malt-house Kounice; pallets of Sladovny Soufflet malt at the Brevnov Monastery Brewery.

Tkadlec, the brewery’s co-owner and director. “It’s important to us.”

While most Czech pale lagers get two decoctions, the famous Pilsner Urquell sticks with its unusual triple decoction. Retired brewmaster Václav Berka—who now revels in the role as an ambassador for the brand—says that among other benefits, this process provides additional body and residual sweetness for a beer that’s only 4.4 percent ABV. Their direct-heated copper kettles also ensure caramelization for added flavor. “It’s the highest drinkability, ever,” Berka says. “It’s our responsibility to continue this drinkability of pilsner beer.”

Yet another reason for decoction: consistency. Brewers love to talk about how pale lager is a “naked” beer that reveals its foibles. When you’re using relatively subtle hops and only lightly kilned pilsner malt, natural changes in the crop can change your beer—and decoction goes a long way toward ironing out that variation.

“The decoction could smooth the differences of the different crops,” says Brož at Budvar. “It’s amazing that it still works this way today. ... The process can buffer the variances [that] are coming from nature.”

Budvar no longer malts its own barley, but Pilsner Urquell does. Variations in the crop may lead to slight tweaks in malting or in mash rests, but decoction is a powerful equalizer. “The biggest role of brewers,” Berka says, “is to produce the beer so that the consumer can’t recognize which crop is used in the beer.”

Finally, when it comes to decoction, many Czech brewers want you to know this: *You can do it.*

Granted, some brewhouse setups make it virtually impossible to do a proper decoction mash the Czech way. However, you don’t need a brewhouse designed for decoction to give it a try—and some Czech brewers are managing just fine with modified two-vessel systems. Some investment in modifications may be wise—such as low-shear pumps for moving hot mash around. But there are also shortcuts, such as the Schmitz method or pseudo-decoctions, that can give you an idea of whether you’ll like the results. (For much more on this topic, see “Why Decoction Matters” and “Decoction Shortcuts,” beerandbrewing.com.)

Perhaps the worst reason to avoid decoction is that it sounds like a lot of work.

“Don’t be lazy!” Berka says. “You can try to make a [decoction] mash. ... I trust you will be absolutely successful.”

“If I could take only one thing that makes a lager a lager,” says Adam Brož, brewmaster at Budvar, “it’s decoction.”

"I know it's not the technically easiest way," says Brož. "Sometimes it's not possible with the equipment. But if you're trying to brew a lager, try to brew a decoction. Don't give up!"

Czech Malt Matters

When decoction skeptics say "you don't need to" because malt today is highly modified, they're not wrong—most modern malt, especially outside continental Europe, is less than ideal for decoction mashing. You *can* decoct it, just as you can do an infusion mash with floor-malted pilsner—and you can make good beer with those worts. But we'd be talking about different worts and therefore different beers.

Proper Czech lager comes from decoction, from malt that's made for it, and from barley that's grown to be that malt.

In the large, modern malthouse on its sprawling grounds in Plzeň, Pilsner Urquell malts its own barley to an intentionally low degree of modification, carefully watching the specs. "Why do we do it? Simple answer," Berka says. "Because we have a very intensive process with the three decoctions in the brewhouse."

When brewers elsewhere think of Czech malt, they often think of old-fashioned floor maltings—and long may they survive. Yet they survive as a niche; only about 4 percent of Czech malt today is still floor-malted, according to a maltster at Pivovar Ferdinand. There are still about 14 floor maltings in Czechia, but they're all small. Many, like Ferdinand's, are attached to breweries. (Notably, about one-third of the floor malt that Ferdinand produces goes to Bamberg to be sold as Weyermann Floor-Malted Bohemian Pilsner.)

At Únětický, they get the malt for their celebrated pale lagers from a traditional malt-house in Kounice. "From our point of view, it's the best malt you can get in the Czech Republic," says Jan Fišera, the brewery's sales manager. "It's not cheap, but it's very good."

In Prague, the Břevnov Monastery Brewery gets its malt from the Sladovny Soufflet maltings in nearby Nymburk, but it's not floor-malted. Břevnov brewmaster Aleš Potěšil says the brewery used to get floor-malted barley, but they found it too inconsistent. Meanwhile, next door to the large Soufflet facility is the Nymburk Brewery, which produces the Postržižské beers. Like Ferdinand, this brewery has its own floor maltings—but even its own lager's grist is half floor-malted, half Soufflet.

One takeaway: As cool as floor malting is, you don't need it to brew a great Czech lager. Even the large-scale Czech producers make malt suitable for decoction—because that's what Czech brewers are going to do with it anyway. Czech malt and decoction are inextricably linked.



Presentation Particulars

One of the most compelling things about Czech beer culture is the focus on pouring beautiful glasses of beer. A phrase often repeated there is, "The brewer brews the beer, but the tapster makes it." You can't separate this part of the experience from the satisfaction of drinking it.

Beyond funny photos of glasses full of nothing but foam, there are some important mechanics at work in the way Czechs pour. The first principle is that the more carbonation the tapster leaves in the beer, the greater the expression of bitterness. Break that CO₂ out of solution in the form of foam, and the experience will be softer and sweeter. The second principle is that beer is best poured *under* foam **1** and not on top of or through it. Tapsters will tell you this protects the beer from oxygen, but this process of submerging the tap and pouring from inside tends to create a more persistent foam that's a bit less volatile. A flow-control valve on the side of the faucet and a microscreen inside allow controlled foam creation inside the tap, rather than when beer falls through the air and hits the glass.

That said, there's more than one way to properly pour Czech lager, and some current messaging about Czech pouring can be difficult to separate from the branding of the breweries behind said pours. Let's start with the *hladinka* **2**, the classic Czech pour and the way that most beers in the Czechia are poured. First things first: Pilsner Urquell and Budvar (Czechvar in the United States) use slightly different pouring processes, with Budvar's more akin to the Guinness two-stage pour; the beer sits for 30 seconds before the fill is completed. Pilsner Urquell's pour is in a single motion, with the tap about one-third open to build foam before it's fully opened to fill the rest of the glass. The result of both methods is a beer that looks like 40 percent foam—but if you were to allow all the foam to become liquid, that liquid would hit the 500 ml line on the mug. (We tested this, just to make sure.)

The *šnyt* pour **3** can also be found in neighboring Germany (as *schnitt*); it generally equates to a half-glass (and is typically priced accordingly). This pour will soften up a bitter beer, but it's often a drinker's last one of the night. If you can't stay for a full beer, order a *šnyt*.

The *mlíko* or "milk" pour **4** may draw the most ire from American and British drinkers, but it's a novelty—only a tiny fraction of Czech beers are poured this way. If you want to down a beer fast, this is the way. Not pictured: the *čochtan*, a minimal-foam pour that amplifies bitterness via the zip of more carbonation.

We heard it said that "foam is a sign the tapster loves you," and we couldn't agree more. There's nothing in the world better than thoughtfully brewed beer served by a tapster who takes the utmost care to serve it. —J.B.

Another tidbit: It's common (but not universal) for Czech brewers to include a small portion of pale caramel malt in their grist—perhaps 5 percent—just to give a slight nudge to that body and residual sweetness without losing the dry finish.

Ultimately, it shouldn't be shocking that Czech malt is important to authentic Czech lager. At Dva Kohouti, Tomsa faces a mirror image of the challenge faced by American brewers: "When I make a West Coast IPA from pale Czech malt, it never achieves such a dryness as with American malts," he says. "So, it works the other way around as well."

Saaz Reigns Supreme—But There Is More to Czech Hops than Saaz

There are 25 hop varieties that Czech growers can plant, but 80 percent of what they grow is Saaz. Despite a disastrous harvest in 2022 and concerns about its long-term sustainability, Saaz remains the country's signature hop.

"Saaz aroma, that's the standard of hop aroma," says Zdeněk Rosa, chairman of Bohemia Hop, a trading company owned by a cooperative that includes most Czech hop growers. "There's always this close connection between the Saaz variety and pilsner."

Pilsner Urquell relies solely on Saaz hops—and plenty of them—for its 40 IBUs. "To get proper bitterness, it's necessary to use a lot," Berka says. "And it's not cheap. But quality is not cheap." That bitterness also contributes to a dry finish when you drink the beer, Berka says, "and because your brain is clever, it begins solving this problem."

Budvar also uses exclusively Saaz—and only whole cones, pressed into large "pucks" but not pelletized. "I'm sure in the future I will insist on it," Brož says, "because it really is a pillar of the brewery." They've tested pellets, but "the

whole cones are always richer in taste in the final beer."

When hops are pelletized, some plant material that's rich in polyphenols is ejected as waste—yet those compounds are useful to pale lagers, and they have a role in flavor and stability. "If you want to deliver the whole dose of the very useful compounds in hops, cones are the only way to deliver that," Brož says.

Three hop additions are typical, but it's also common for Czech brewers to add first-wort hops and/or an aroma burst at whirlpool—as Břevnov does with its flagship Benedict 12° pale lager.

When it comes to relying only on Saaz, Budvar and Pilsner Urquell are two (large) exceptions. Anecdotally, most Czech brewers use higher-alpha Czech varieties earlier in the boil before a late Saaz addition for aroma. At Únětický, for example, they use Agnus then Sládek before finishing with plenty of Saaz. That's a popular combination: Agnus, Sládek, then Saaz. At Ferdinand, however, they prefer Vital, Premiant, then Saaz.

When Czech brewers use Agnus, they almost exclusively use it for bittering—but Lenka Straková, brewmaster at Pilsner Urquell's experimental brewery,

Pivovar Proud, says she also enjoys using it for aroma. For what it's worth: When we rubbed some cones at Bohemia Hop, we found Agnus to be a real treat—not only spicy and herbal but also punchy and citrus-forward, splitting the difference between Žatec and the Pacific Northwest.

Agnus also is the secret weapon in the new Budvar 33, as in 33 IBUs, a bitterer version of the classic Budvar (22 IBUs). "We needed some hops that bring the bitterness but [don't] break the drinkability," Brož says. That beer also is lagered a mere 50 days, rather than Budvar's usual 90, so those hops don't lose their zip.

Diacetyl Is an Integral Element of Czech Lager ... Except When It Isn't.

As a learned brewer who's learned about brewing in whatever way you've learned about it, you're fully entitled to a strong opinion about diacetyl.

Here's the thing: You might as well rage against the háček as rage against diacetyl in Czech lager. It's just part of the deal—and most Czech brewers will tell you it's supposed to be there and that their lagers wouldn't be the same without it.

"We leave in our beer a little bit of diacetyl," says Berka at Pilsner Urquell, "because we think it influences the drinkability."

As an organic compound that occurs naturally in beer, diacetyl isn't an ingredient and can't be easily adjusted. At low levels, it can add to a sense of richness and body. At higher levels, we're talking butter bombs. Complicating the issue is that drinkers' thresholds for detecting it are all over the spectrum. Most Czech drinkers, plainly, either can't detect it or simply don't mind.

Given enough time—or a bit of warmth to speed things along—yeast will clean up diacetyl. However, Czech brewers like their fermentations cold, and diacetyl rests are not part of the program.

At Pilsner Urquell, Berka says, the famous sandstone cellars are 41–43°F (5–6°C), so that's where fermentation starts upstairs too, in the big, non-pressurized (i.e., "open") cylindroconicals, before it's allowed to rise somewhat.

(Incidentally, spunding toward the end of fermentation to get some natural carbonation is just a given. While some Czech brewers still do traditional open fermentation in wide, shallow vats, many others have moved to stainless—but even those are left "open" and unpressurized.)

At Břevnov, they ferment at 46°F (8°C) for about 10 days before capping the tank for natural carbonation, then crashing to 36°F (2°C). In their Benedict, the diacetyl is there if you look for it, but it doesn't overwhelm the profile. "A lower percentage of diacetyl isn't a big problem," says Potěšil at Břevnov. It adds to the sense of body, he says, and "we don't like beer without body."

In Budvar, meanwhile—a beer whose profile lands somewhere between a typical Czech pale lager and a clean Bavarian helles—there is no detectable diacetyl. Brož says they pitch yeast at 45°F (7°C), and the fermentation goes no higher than

Beyond Saaz

There are several varieties of Czech hops that might be of interest to brewers who want to develop lagers with more distinctive profiles. Many are also viewed as more sustainable or climate-hardy alternatives to lower-yielding landrace varieties. Leaving out some of the more established (if under-appreciated) varieties such as Agnus, Kazbek, Premiant, Sládek, and Vital, here are a handful of lesser-knowns:

- » **Boomerang** (alpha 10–14%, beta 5–10%), a spicy bittering variety.
- » **Gaia** (alpha 12–15%, beta 5–10%), a bittering variety with fruity leanings.
- » **Mimosa** (alpha 1.3–2%, beta 6–8%), a new low-trellis variety, lemony, herbal, and floral.
- » **Saaz Comfort** (alpha 4–7%, beta 3.5–5.5%), distinctively spicy, herbal, and floral, with higher alpha than classic Saaz.
- » **Saaz Late** (alpha 3.5–6%, beta 4–6.5%), not a late-harvest Saaz but a newer variety, similar to classic Saaz but more citrus and herbal than floral.
- » **Saaz Shine** (alpha 2–5%, beta 2–4%), pronounced sweet herbal notes, soft lemon, and yields 50 percent higher than classic Saaz.
- » **Saaz Special** (alpha 4.5–8%, beta 5–11%), an amplified Saaz aroma profile and higher alpha and beta acids.
- » **Saturn** (alpha 6–8.5%, beta 3.5–4.5%), sweet, fruity, and floral.

Clockwise from top left » Wooden aging tanks in the Pilsner Urquell cellar still ferment beer served on the brewery tour; open fermentors at Únětický Pivovar; the manhole covers in Žatec proclaim it "city of hops"; the coolship at U Fleků is just for cooling, not spontaneous inoculation.





52°F (11°C) over 11 or 12 days. Yet the luxurious 90-day lagering offers plenty of time for the yeast to finish cleaning up. “In the case of Budvar, there really is no diacetyl,” Brož says, “because you have enough time to get rid of the diacetyl in a natural way.”

Dialing in your fermentation to produce a Czech-like touch of diacetyl without going overboard would not be easy. The simpler approach is to do the diacetyl rest and get rid of it.

At Pivovar Proud, Straková is working for Pilsner Urquell, whose famous flagship has a touch of diacetyl that is an important part of its profile. However, she prefers to avoid it altogether in Proud’s own lagers. “A really light amount of diacetyl in the beer can work for you,” she says. “But it’s really hard to make that work for you. ... So, for me, it’s safer to have no diacetyl and just balance the beer without it.”

One Czech brewery comfortable with diacetyl is Únětický. It can be relatively pronounced in the filtered (Filtrované) version of its 10° pale lager. However, its core 10° and 12° lagers are unfiltered; in those, the diacetyl is more restrained even as the hop flavors are more pronounced. They’re fantastic beers, the kind you could travel a long way to drink—but that wisp of diacetyl is still there.

“If there’s no diacetyl in a Czech lager,” Fišera says, “then something is wrong.”

Yeast Selection: Maybe Not as Important as You Think

In trying everything to capture that Czech flavor, it’s understandable if you’re going for yeast sold as “Czech”—and you could do worse than starting with something like White Labs WLP802 Czech Budejovice (i.e., Budvar) or Wyeast 2001-PC (i.e., Pilsner Urquell).

However, there are plenty of Czech brewers making great lagers who don’t put that much thought into their yeast. Many are using house yeasts that originated with other Czech breweries, such as the Gambrinus strain. Others are using various commercially available lager strains, “Czech” or otherwise.

The thing is, yeast don’t have nationalities. If they could laugh, they’d (ahem) split their sides at how we put them into little geographic boxes. Remember, Joseph Groll took Bavarian lager yeast with him when he went to Plzeň. Fermentis Saflager S-23, for what it’s worth, is similar in genetics and flavor profile to Wyeast’s Urquell strain, even if it’s marketed as “originating in Berlin.”

Some of the best lager in Prague right now is coming out of Dva Kohouti. Their flagship Místní Pivo is made of Czech-grown pilsner and Munich malts, a double decoction, Saaz and Saaz Special, nonpresurized fermentation before spunding, a

Left » Even the ales at Prague’s Dva Kohouti are decocted, to promote foam stability in that gorgeous head.

few weeks of lagering—and then it’s poured with practiced skill into chilled, dimpled, half-liter mugs via Lukr side-pull taps.

Místní Pivo is delicious, and it’s Czech as hell. But the yeast? It’s that global workhorse, 34/70.

Assembling the Pieces

Czech malt, Czech hops, decoction mashing, cold fermentation, perhaps a kiss of diacetyl, and—why not?—Czech yeast. Do you need *all* these elements to brew a convincing Czech-style lager? No. You need only *most* of them—and then you need to fulfill that promise with careful attention to pouring, foam, and presentation.

But if you need to distill this down to just a couple of elements, go with the ingredients and the decoction.

“Decoction is the centerpiece, I think,” says Tomsa at Dva Kohouti. “If you do that, you can use even standard Fermentis [Saflager] W-34/70 to a good result, I would argue.

“Overall, I would stress that all those things together make it a true Czech-style lager. You can substitute one, maybe, and it might still work. But you can’t take your standard lager, add Czech yeast, and think that it will make it Czech lager.”

Given the complexity of brewing chemistry, every detail matters. There are no true shortcuts because they’ll only take you to a different place—and that place might be another great lager, but it won’t necessarily taste Czech.

“Brewing is balancing on the edge,” says Berka, the brewmaster emeritus. “If you want something improved, there is something on the other side you are losing.”

It might be that you’re losing some of that convincing Czech flavor. Or it might be that you’re losing some of that elusive quality that Czech lager brewers have spent more than 180 years perfecting.

Damn it. Why is my mug empty again? 🍺

About this Reporting

The Czech Ministry of Agriculture supported our travel to the Czech Republic for this reporting, including a series of deep-dive podcasts available at beerandbrewing.com/podcasts. While there, we also joined a trade mission of American and Canadian brewers invited to learn more about Czech brewing and ingredients; during that mission, the Ministry covered our travel expenses. We remain, however, editorially independent—none of the content from that trip was directed, reviewed, vetted, or restricted by the Czech Ministry. —J.S. & J.B.

MAKE IT

Bus Beer Světlý Ležák 12°

Brewed at Green Bench in St. Petersburg, Florida, this reverently Czech-style pale lager was a six-way collaboration that included Atlanta's Monday Night and Halfway Crooks, Denver's Cohesion, Schilling Beer of New Hampshire, and Threes of Brooklyn, New York. Its namesake is the tour bus that drove these brewers around Czechia in 2022 as part of a trade mission supported by the Czech Ministry of Agriculture.

Světlý Ležák 12° is triple-decocted and brewed with imported Moravian malt and whole-leaf Bohemian Saaz. Green Bench cofounder and head brewer Khrist Johnson says the beer "was inspired by a life-changing week spent in the Czech Republic with an incredible group of people. *Na zdraví!*"

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.048

FG: 1.015

IBUs: 42

ABV: 4.4%

MALT/GRAIN BILL

8.7 lb (3.9 kg) Raven Floor-Malted Pilsen

9 oz (255 g) Raven Caramel Pale

HOPS & ADDITIONS SCHEDULE

1 oz (28 g) Saaz pellets at 60 minutes [14 IBUs]

1.3 oz (37 g) Saaz pellets at 20 minutes [14 IBUs]

1 tsp (5 ml) yeast nutrient at 10 minutes

2.6 oz (74 g) whole-leaf Saaz at whirlpool [14 IBUs]

YEAST

We used Inland Island INIS-760 Czech Lager. We also recommend BSI-802 Czech Lager 2, Wyeast 2000-PC, or White Labs WLP802 Czech Budejovice.

DIRECTIONS

Mill the grains, mash in at 131°F (55°C), and rest 20 minutes. Pull about 25–30 percent of the mash for a decoction. Raise the decoction to 145°F (63°C), rest 30 minutes; raise to 158°F (70°C), rest 10 minutes; then raise to a boil and boil for 15 minutes. Reunite the mash and mix, which should bring the temperature

to about 145°F (63°C); rest 30 minutes. Again, pull about 30 percent for a decoction and again boil for 15 minutes. Reunite and mix, which should bring the temperature to about 158°F (70°C); rest 10 minutes. For a third time, pull about 30 percent for a decoction and boil for 15 minutes. Reunite the mash and rest at 169°F (76°C) for 20 minutes for 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, depending on your evaporation rate. Boil for 90 minutes, adding hops and yeast nutrient according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to create a vortex, add the whirlpool hops, and steep 25 minutes. Then chill to about 45°F (7°C), aerate the wort, and pitch the yeast.

Ferment at 48°F (9°C) for 12–14 days; do not perform a diacetyl rest. If possible, attach a spunding valve for natural carbonation once the gravity has dropped to about 1.020. When fermentation is complete and gravity has stabilized, cold crash and drop yeast or rack to secondary/maturation tank. Lager for 6–8 weeks. Package and, if not already carbonated via spunding, carbonate to about 2.6 volumes of CO₂.

BREWER'S NOTES

Malt: We used Raven malt from Záhlinice in Moravia. If you don't have access to it, we suggest Sekado Czech Bohemian Pilsner Malt or Weyermann Bohemian Floor-Malted Pilsner. Likewise, if you can't get Raven Caramel Pale, you can substitute any 40°L caramel malt.

Decoction: We recommend a thinner mash for the decoction, up to 2 qt/lb (4 l/kg) if your system can handle it. This will help buffer the mash during the boils and get more even temperatures. If you can do only one decoction, boil that decoction for at least 20 minutes. If you can't decoct at all, do a step mash that matches those temperatures and times, and consider increasing the percentage of caramel malt to compensate.

Water and pH: Go for a very soft profile, no higher than 10 ppm for any mineral; if you're concerned about fermentation, calcium can be up to 20–25 ppm without much of a noticeable change. Don't worry

much about high bicarbonates; alkalinity can vary and be adjusted with acids. We targeted 5.4 pH in the mash and adjusted to 5.1 pH after the whirlpool.

Hops: Czech Saaz are ideal, but you can also try other Czech hops; Kazbek and Sládek hops are among the varieties commonly used by Czech brewers.

Fermentation: You'll likely see a long lag phase at the beginning of fermentation. Don't worry—it's not uncommon at a temperature this low.

Diacetyl: Now we come to it. Diacetyl is just a part of most Czech beers we've tried. We didn't attempt to force it into this beer, nor did we attempt to prevent it. If it is present, it will likely be at low levels; it's a special and natural piece of the puzzle.

Service: Last but not least! This beer is ideally poured via a proper Czech side-pull faucet into a dimpled Tübingen mug, with three fingers of dense foam to protect the beer beneath. *Na zdraví!*



LAGER STYLES

Writing the Rules of West Coast Pilsner

(So They Can Be Broken)

Hoppy lagers are nothing new, but in recent years a thread is emerging that more intentionally marries the great drinkability of a pilsner with the expressive hopping of a West Coast IPA. Could it be the best of both worlds? **By Kate Bernot**

THE ORIGIN STORY of the West Coast pilsner shares a common outcome with the Arnold Palmer: Two liquids, delicious on their own, create something equally dazzling in tandem.

The year is 2016, the city is Los Angeles, and Highland Park brewers Bob Kunz and Tim McDonnell need to fill a specialty cask of beer. They survey their available tanks: In one, a West Coast IPA; in the other, the brewery's house beer, Refresh Pilsner. The pair decide to combine the two at a 50/50 ratio. The result: a beer with the hop character of a West Coast IPA and the easy drinkability of a pilsner. It electrifies them both.

"The cask was ripping," Kunz says. "We were like: We need to turn this into a beer."

And they did. That beer became Timbo Pils, and it touched off a wave of brewer interest that's continued to build ever since. Today, the combination of straight-forward drinkability and aggressive, New World dry hopping is still the North Star for West Coast pilsners—it's just every other detail that's open to interpretation.

Half IPA, Half Pilsner, All Lager

The term "West Coast pilsner" is seven years old, but the beer has been enjoying a brighter spotlight the past two years thanks to the rise in popularity of related styles—namely, Italian-style pilsner and cold IPA. As the lines between hoppy ales and lagers become less rigid, brewer interest in that overlap has tilled the soil where West Coast pilsner can bloom. New brewing techniques, hop products, and philosophical approaches are all in play.

"Theoretically, a super-clean lager base of pilsner malt is the perfect base for hop character, so we've all been trying to figure out what that means in practice," says Vince Tursi, cofounder and head brewer at DSSOLVR in Asheville, North Carolina. Besides brewing an Italian-style pilsner that has almost become a core beer for the brewery, Tursi also has brewed a few West Coast-style pilsners that helped him to think through and demonstrate the distinctions between the two.

Like other emerging or hybridized beer styles, West Coast pilsner is best explained in relation to what it's *not*. It's not as bitter or strong in alcohol as an IPA. It's not a Noble-hop showcase, like German or Italian pilsner. Meanwhile, it has more intense hop aroma, flavor, and bitterness than a traditional American lager, and it has a distinctly contemporary dry-hopped attitude that separates it from the catch-all hoppy lagers of yore.

"It's the crispier, more refined, and lager-ish version of where we've taken the West Coast IPA style but put it into a package that's really for anybody," says Kelsey McNair, head brewer at San Diego's North Park. "It's all the IPA without all the alcohol, and it's all the lager at the same time."

Definition Under Construction

Even more than its storied cousins in its pilsner family tree, West Coast pilsner is a brewer-led phenomenon. Without a long historical tradition, brewers are writing the beer's parameters today, in real time. No major competition style guidelines include it by name, but categories in recent years have expanded to make room for this fresh take on pilsners characterized by New World (usually American) hops.

"It's the crispier, more refined, and lager-ish version of where we've taken the West Coast IPA style but put it into a package that's really for anybody. It's all the IPA without all the alcohol, and it's all the lager at the same time."



The 2023 World Beer Cup guidelines included the almost brand-new “Contemporary American-Style Pilsener” subcategory. (The Brewers Association first introduced it in 2020, but COVID cancellations limited its deployment.) The subcategory is nested under American-Style Pilsener, but it diverges from beers made in the pre-Prohibition vein because it allows a broader spectrum of hop aroma and flavor. The parameters don’t enumerate those flavors outright, but they note that “contemporary versions will exhibit attributes typical of a wide range of hop varieties.”

“The creation of the Contemporary American-Style Pilsner entry was very much in reaction to brewers wanting to enter these beers and not really having a good place for them,” says Jen Blair, an Advanced Cicerone who was a judge at the 2023 World Beer Cup. “The guidelines are more of a reflection of what brewers are doing rather than dictating what the style parameters should be. It’s more, ‘Here’s what we’re seeing brewers do.’”

It’s worth noting that the latest Beer Judge Certification Program (BJCP) guidelines, released in 2021, don’t yet have an analogous category.

Blair says that most of the beers she tasted from that category fit the parameters well; she also happens to personally enjoy them. “If I can have something lighter, crisper, less bitter but with some of the same hop profiles I like, that’s the best of both worlds,” she says.

Outlines and Outliers

As a style that’s being defined and evangelized mostly by brewers, the technical details of West Coast pilsner are where its magic and mayhem lie. For every two brewers who cite certain criteria as must-haves of the style, you’ll find another who disagrees. There are generally accepted approaches, and there are numerous outliers. This produces a spectrum of West Coast pilsners—on one end, they have more in common with German pilsners; on the other, some feel more akin to cold IPA.

Take malt flavor: Tursi says that any pilsner, West Coast or otherwise, should have “profound grain character that is balanced but not overwhelming.” McNair falls on the other end of the spectrum: “Similar to West Coast IPA, my approach is to get the malt out of the way. It’s not there for malty flavor; it’s a body thing.”

Malt bills reflect divergent approaches:

- Temescal Brewing in Oakland, California, uses 100 percent pilsner malt.
- Fracture Brewing in Portland, Oregon—which won a silver medal in the Hoppy Lager category at this year’s Oregon Beer Awards for its West Coast Pilsner—uses a 50/50 blend of pilsner and two-row.
- Highland Park’s Timbo is 40 percent pilsner, 40 percent two-row, 10 percent Vienna, and 10 percent Carafoam.
- North Park incorporates 20 to 30 percent adjuncts—sometimes flaked rice, sometimes puffed jasmine rice, sometimes oats—into its grist of primarily pilsner malt.

Or, consider their alcoholic strengths:

- North Park’s West Coast pilsners range from 4.5 to 5.5 percent ABV, with two recent ones clocking in at 4.7 percent.
- Temescal’s 49 Mile sits at 5.6 percent.
- Timbo is 5.8 percent ABV, already getting strong for a pilsner.
- DSSOLVR’s Lord of the Fuzz is 6 percent ABV—creeping into cold IPA territory.

The finer points of such varied takes on the style—alongside debates about how different a West Coast pilsner is from a cold IPA *really*—can draw brewers into the weeds quickly. At the end of the day, though, the style’s creator believes the best way for the public to understand these beers is simply to drink them.

“My wish is just that we didn’t have to explain [this beer] by some style, and that people would have the opportunity to make decisions about it based on drinking it,” Kunz says. “Because I think West Coast pilsner has a great experiential potential—it’s lower ABV, it’s so drinkable.”

Kunz would be happy to hear that the sales pitch for West Coast pilsner at Grnd Sqr, a beer bar in 29 Palms, California, is exactly that.

“I certainly don’t have as strong of feelings as some nerdy brewers do on the minutiae of styles,” says Grnd Sqr owner Mike Usher. Instead, he suggests West Coast pilsner to customers looking for a hoppy, easy-drinking beer to beat the desert’s summer heat. “I tell people: It’s cold and crispy like a regular pilsner, but it’s gonna have a little more of a citrusy hop profile than you’re used to.”

With that simple hook, pilsner has become the bar’s best-selling style behind hazy IPA.

Drilling Down

With drinkers’ expectations and brewers’ parameters (mostly) established for West Coast pilsner, the energy in the brew-house is focused on fine tuning. With adjustments to recipes and techniques, brewers are in pursuit of the perfect balance of hop expression, bitterness, and drinkability, all with the soul of a lager.

Exploring hop layering and timing is among the foremost considerations. Typically, brewers are using Noble (or Noble-esque) hops on the hot side to achieve perceptible bitterness, then dry hopping with bright, citrus-forward, and tropical hops from the Pacific Northwest, New Zealand, Australia, and South Africa. Dry-hopping rates seem to vary from about 1.5 to 3 pounds per barrel (or roughly 0.6 to 1.2 kilos per hectoliter).

Innovative hop products such as Cryo, Incognito, and CGX pellets have been critical to the style’s evolution, allowing brewers to maximize punchy West Coast flavor and aroma while reducing some of the less desirable aspects that can come from traditional T-90 pellets. The double dry-hopped version of Timbo Pils, for example, uses Cryo hops and Incognito, while the standard Timbo does not.

“The more hops you add, these beers can get out-of-whack quickly if you don’t have the right structure,” Kunz says. “I really feel like we’re at this perfect point in time, at least for us and our sensibility around making these double dry-hopped West Coast beers because we have these hop products that are reducing the vegetal load and increasing the flavor impact.”

Spunding is another area receiving considerable attention from brewers, both for West Coast pilsners and Italian-style pils (see “Gearhead: The Force Behind the Fizz,” beerandbrewing.com). Fracture’s Steve Beaudoin, Temescal’s head brewer Ryan Hammond, and Tursi are all proponents of spunding and/or dry hopping under pressure. Beaudoin uses a hop doser for this purpose.

“We spund and dry hop on two separate days—doing that under pressure is the best process change I’ve seen in all my

“We’re at this perfect point in time, at least for us and our sensibility, because we have these hop products that are reducing the vegetal load and increasing the flavor impact.”



beers across the board,” Beaudoin says. “It’s green as green is. It’s under pressure and it’s carbed, so it starts breaking up and rousing inside the tank. It’s a volcano essentially, which is great.” At Temescal, Hammond typically caps lagers toward the end of fermentation to recapture carbon dioxide; without a hop doser, however, he’s not able to dry hop under pressure. “We cap the tank for ... non-dry-hopped lagers, but can’t for West Coast pilsner because the dissolved CO₂ from that would cause a hop geyser at dry hop,” Hammond says. “I think it does lead to a more estery beer, but with the amount of hops, that’s not necessarily a bad thing in West Coast pils.”

Spunding, meanwhile, can result in the retention of more sulfur compounds, which require extra consideration in beers that already derive sulfur from hops and lager yeast. (Many brewers cite floor-malted Bohemian pilsner as a rich contributor of thiol precursors; thiols also are a sulfurous compound.)

“Early batches, they had lager fermentation sulfur,” Hammond says. “They had hop sulfur and pilsner-malt sulfur, and it was just gross.”

Proper lagering time will help some less desirable sulfur blow off, as will increasing fermentation temperature to the mid-60s °F (17–19°C) after an initially colder pitch at roughly 48–53°F (9–12°C). At North Park, McNair says he has occasionally had to use a very small dose of copper sulfite to reduce sulfur, a trick he borrowed from the winemaking world.

“Copper does scrub sulfur pretty rapidly,” he says. “That’s something we certainly have done when we’ve needed to. That conversion is almost instantaneous. The beer was stinky in the wrong way, and boom, now we got rid of all of that.”

Expressive Hops in Highly Drinkable Form

The pursuit of perfection in West Coast pilsners is incremental and evolving, but it’s clearly a labor of love. And what could be more worthy of pursuit than achieving an idealized union of hop character and sessionability?

For decades, American craft brewers have borrowed from other brewing traditions to inform their lagers—Bavarian helles, Czech dark lagers, Italian pilsners, and more. Perhaps West Coast pilsner’s most intriguing contribution—and what would seem to give it true staying power—is that it’s a boldly American entry in the lager canon, and one that U.S. brewers can truly claim as their own.

While not as ubiquitous as the West Coast IPAs from which they draw inspiration, West Coast pilsners are steadily winning fans with their simple sales pitch: Love hops? Love lager? Have the best of both worlds.

“I’m happy our audience has bought into Timbo,” Kunz says, noting it’s his taproom’s best-selling beer. “I don’t have it on my to-do list to convert the world to hoppy lagers. I hope it happens naturally.” 

MAKE IT

Finback Crispy Town

From cofounder and head brewer Kevin Stafford and the team at Finback in Queens, New York, comes their take on the contemporary hoppy pilsner—“a nice balance of new and old school.” (It was also a hit with our blind-review panel, tops in its class at 98/100—see page 100.)

ALL-GRAIN

Batch size: 5 gallons

Brewhouse efficiency: 76%

OG: 1.051

FG: 1.011

IBUs: 20

ABV: 5.2%

MALT/GRAIN BILL

8.9 lb (4 kg) pilsner malt

7 oz (198 g) chit malt

HOPS & ADDITIONS SCHEDULE

0.5 oz (14 g) Hallertauer Blanc at 60 minutes [15 IBUs]

1 tsp (5 ml) yeast nutrient at 15 minutes

1 tsp (5 ml) Irish moss (or other kettle finings) at 15 minutes

1 oz (28 g) Hallertauer Blanc at whirlpool [5 IBUs]

0.5 oz (14 g) each Saaz and Tettnanger at dry hop

2 oz (57 g) Motueka at dry hop

YEAST

Fermentis SafLager W-34/70, Omega OYL-106 German Lager I, Wyeast WY2124 Bohemian Lager, White Labs WLP830 German Lager, or similar

DIRECTIONS

Mill the grains and mash at 156°F (69°C) for 45 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 90 minutes, adding hops, yeast nutrient, and finings according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to create a vortex, add the whirlpool hops, and steep 10 minutes. Chill to about 50°F (10°C), aerate the wort, and pitch the yeast. Ferment at 50°F (10°C). When the gravity has dropped below 1.020, raise the temperature to 60°F (16°C). When fermentation is complete and gravity has stabilized, do a forced diacetyl test (see “Hunting for Diacetyl,” beerandbrewing.com). Once it passes (usually around Day 14), drop the temperature by 4°F (~2°C) per day—adding dry hops at 40°F (4°C)—until the beer reaches 32°F (0°C). Drop hops or rack, lager for 2 weeks, then package and carbonate to about 2.7 volumes of CO₂.

BREWER’S NOTES

Chit malt will ensure you have great head retention—it’s worth it. We use New York City water, which is very soft—like in Plzeň!—and modify it lightly with gypsum and calcium chloride. Feel free to swap out the dry hops to your liking; we prefer a mix of New and Old World hops. In fact, we have other “Crispy” iterations with different dry hops; one called Crispy Morning will be the lineup’s core going forward.

LAGER TECHNIQUE

Seeking the Cold Truth on Lagering Times

The lager-brewing tradition is full of received wisdom and rules of thumb about how long it's supposed to take to condition a beer. In reality, however, there's no magic formula. **By Michael Stein**

“A LIE CAN TRAVEL halfway around the world before the truth puts on its shoes” is wisdom as applicable to brewing as it is to any other 13,000-year-old pursuit. There is nobody quite like experienced brewers, however, to help you sort the scientific fact from myths and apocryphal history.

You may have heard this one: Lagers need one week of lagering time per degree Plato. So, a 10°P lager would need 10 weeks, an 18°P bock would need 18 weeks, and so on.

Says who?

“I’m sure it was accurate in the 1800s before modern refrigeration,” says Chris Lohring, founder of Notch Brewing in Boston and Salem, Massachusetts. “But currently that’s just not a good rule of thumb. I don’t know why you would

follow that. It doesn’t make a lot of sense because [there are] a lot more analytical tools we have to determine if the lagering phase is complete, based upon goals.”

Those goals may include passing a polymerase chain reaction (PCR) test, testing negative for diacetyl precursors, or satisfactory sensory testing for sulfur compounds, acetaldehyde, or other thresholds.

Producing a clean and tasty lager is the end, while cold and time are the means—and there’s no perfect formula for how long that takes.

Selling the Long Lagering

Consider this 1904 Hamm’s advertisement, which offers a window into the conditioning process. The copy reads, “Beer aged under

three months is what is known as ‘green’ beer—that is to say, the yeast has not had sufficient time to properly work on the other elements.” The ad continues, “Hamm’s Beer is aged from four to six months.”

If 120 to 180 days seem like a *lot* of time in the cellar for maturation, that’s indicative of a paradigm shift that’s occurred over the past century of American lager brewing.

The rationale offered by the Hamm’s ad is true enough, Lohring says. In green beer, “there could be sulfur compounds, there could be acetaldehyde, there could be a number of things going on with the beer that would benefit from aging and lagering. And the reduction of these [things] that are classified as off-flavors could be reduced, and [you] would have a more pleasant beer on the back end.”

Okay. But eight months? “Unless you understand everything that happened upstream, the question is irrelevant,” Lohring says. “And unless you understand what the intent of the brewer is, it’s irrelevant.”

Practical concerns may affect how long you’re cold-conditioning or how much time you have for maturation. Maybe the canning date is etched in stone, or maybe the sales team needs that packaged beer by Opening Day—there are valid real-world issues that often dictate how long we can afford to lager a beer. Despite what some breweries might have told

“It seems really backwards to me to talk about how long you lager, when what you really should be looking at is how long your fermentation is. [The more] time you take in fermentation to complete the beer, the less lagering time you need.





their customers more than a century ago, there is no hard-and-fast rule for how long a beer must be aged.

While four to six months was proudly advertised as a great deal of time in 1904, two to three months seems like a long time today. It might even feel like forever.

“Lagered Forever”

In recent years, as more small breweries have dabbled in lager, many have been mentioning the lagering times on their packaging or social media. After all, if it's expensive to keep beer in tanks for that long, you might as well get some marketing benefit out of it.

The team at Notch began noticing those labels—and then they put “Lagered Forever” on their own. “I have to give full credit to Brienne Allan for that phrase,” Lohring says. (Allan, who previously brewed at Notch, is now cofounder and head brewer at Sacred Profane in Biddeford, Maine.) “We’re kind of poking other brewers,” Lohring says. “‘Lagered forever’ is not really a statement of Notch pounding their chest like, ‘We lagered the beer for three months!’ It was just a fun thing to say.”

If it's a cold-conditioning arms race that you're after, you'll need about a year. Consider Schloss Eggenberg's Samichlaus, a strong dark lager at 14 percent ABV. It mellowes for 10 cool months in their Austrian cellars.

Back in 1907, Christian Heurich Brewing in Washington, D.C., was advertising two beers, Maerzen and Senate, as being six to 10 months old. Heurich, however, was a large brewery with a massive footprint, able to produce 200,000 barrels a year.

Local brewery Right Proper revived the

Senate Beer brand in 2019—but their lager is certainly younger than Heurich's. Right Proper cofounder Thor Cheston says their target is 35 days.

“The time from brew day to package for Senate Beer is especially important for us, given the limited amount of physical space we have,” Cheston says. Given Senate's current production time and sales velocity, Right Proper can currently produce about 6,500 barrels per year. “However, if we were to increase the lagering time by even a week, we would shave more than 600 barrels of production off of our annual capacity.”

In case you need further proof that your beer doesn't need 10 months in the tanks, consider Chicago's Dovetail—one of the country's most stubbornly traditional breweries.

“Our shortest lagering time of three weeks belongs to our Hefeweizen, Grodziskie, and Hopfenweisse,” says Brittny Gedwill, Dovetail's production manager. She says that the “longest lagering time for any of our beers is 13 to 15 weeks, which is a profile shared [among] our Maibock, Festbier, Holiday Bock, and Rauchdoppelbock.”

The idea that your beer may need only 21 days—or it may need up to 105 days—is exactly why the production team should be as intentional as possible about why they keep beer in the tank for the time they do. “Figuring out what works just right to result in the best beer you can make takes time and, unfortunately, some trial and error,” Gedwill says.

The question of how long to lager hinges on what works best for you and your brewery.

“It's the time that's the big question mark for everyone,” Lohring says. “The Czechs are like the British, and they love to say, ‘We've always done it this way.’ Or, you could be more analytical like the Germans, and say, ‘We're going to measure for these components, and upon the reduction of these components, lagering is complete.’ I'm not saying either direction is the proper one.

“At Notch, we have taken both German fermentation and Czech fermentation processes and melded them together to suit what I want to produce—not what I think the Germans or the Czechs want to produce.”

Times and Temperatures

Let's say your lager is fermented and ready for cold conditioning. Should you do so right away? Should you do some cooling but then raise the temperature before dropping it even lower? There are many regimes out there—infinite permutations of time and temperature. Tweaking your own process through trial and error is a given, but where to start?

Dovetail's Gedwill recommends giving yourself plenty of time in the tank and letting the beer tell you when it's ready.

“Obviously, reaching final fermentation is a main goal, but I've found some beers still need some warm time after that to clean up any off-flavors still lingering,” she says, citing diacetyl and acetaldehyde as examples. “Beyond that, it is then giving the beer enough cold time in the tank for clarity purposes and an added depth and melding of flavors which usually comes along with it.”

Practices also differ on whether to raise the temperature for a diacetyl rest—much more common in North America than it is in Europe. “I never had diacetyl issues because I felt like I was pitching appropriately, so I never did the raise in temperature,” says Daniel Terrones, most recently head brewer at Other Half's production facility in D.C. “We start dropping temperature based on fermentation profile, fermentation curve. Even if you're not quite cleaned up on diacetyl, you'll still get the cleanup [during conditioning].”

At Other Half, he says, they mainly use two lager yeast strains from BSI—one German (34/70), the other meant for Mexican-style lagers (BSI-940). Typically, they knock out at 46°F (8°C) and ferment at 48°F (9°C) for the German strain, while with the Mexican strain they knock out at 48°F (9°C) and ferment at 50°F (10°C). “We like to be cold and keep it there,” he says. “And we never raise temperature—we really just drop after that.”

The Mexican strain is what they use for Poetry Snaps, a rice lager hopped with Saaz and Saphir. “The Mexican strain is a more robust strain that just rips,” Terrones says, adding that they brew more Poetry Snaps than any other lager. “Sometimes it has to fit in these manipulated windows of four [or] five weeks—or whenever I can eke it out, I'll get six weeks out of it—and that strain just plays ball. We know it has repeatability. It's just a workhorse.”

At Notch, they start with “open” fermentation in unsealed, non-pressurized vessels before transferring to a closed tank and then to lagering tanks when they still have one or two degrees Plato left to ferment. That process aids clarity while allowing natural carbonation via spunding. Also, once in the tanks, they maintain fermentation temperatures until terminal gravity—their way of doing a diacetyl rest—and then gradually drop to 32°F (0°C) for lagering. “That process has worked really well for us from a practical standpoint and in terms of flavor stability,” Lohring says.

He views the open fermentation—in a vessel as wide as it is tall, and thus with less hydrostatic pressure on the beer—as beneficial to the flavor and aroma, encouraging more expression from the yeast. Meanwhile, he says, the spunding helps to provide smoother carbonation and better

head formation and retention.

Brewers also need to consider the vessels that they have available. “That’s going to impact your lagering regime, and they’ll yield different results based upon your goals.” A horizontal tank for lagering, for example, allows yeast and protein to drop out sooner, while the yeast get more exposure to the beer than in a tall cylindroconical. Even if you’re lagering at 32°F (0°C), those yeast are still active in reducing off-flavors.

Patience, in Moderation

Realistically, there’s not necessarily a clear dividing line between fermentation and lagering. Where does one end and the other begin?

“Different brewers will have different answers for that,” Lohring says. At Notch, after terminal, they typically hold the beer between fermentation and lagering temperatures—say, 41°F (5°C)—for a week. “Is that lagering?” he asks.

When lagering actually starts may seem philosophical, but it’s relevant to the question of how long you lager. The fact that there’s no clear answer is just more evidence that there’s no one-size-fits-all formula.

It would be great if it were as simple as saying, “My favorite Bohemian lager takes 12 days to ferment and three months of maturation, so that’s how I’ll make the best Czech-style lager I’ve ever made.” But it’s likely not that simple, and you might be surprised to find your best-ever lager needs 10 days of fermentation and just 21 days of maturation.

So, if you have the time, take it—but remember, you may not need it to make your best lager. And you may well find that attention given to fermentation is much more important than that given to cold time in the tank.

“It seems really backwards to me to talk about how long you lager, when what you really should be looking at is how long your fermentation is,” Lohring says. “In our process, what we found is the more relaxed [we are] and [the more] time we take in fermentation to complete the beer, the less lagering time you need. But there’s a qualitative step there, too—if you rush that fermentation, it’s quick, you’re never going to get that [quality] on the back end. Lagering is not going to help that.”

For all the things in life that feel rushed, lager need not be one of them. Yet if we have an intentional approach to brewing great beer, there’s no need to put stock in old rules of thumb or crazy-long conditioning times. You might well find that the missing ingredient is patience—or, it might be a more outcome-driven approach. Test the beer, taste the beer, and figure out a lagering process that works for your system—and for you.



FIVE ON FIVE

Lagers

Brewers have warm hearts for cold-fermented beers, and we asked these five brewers to share the objects of their greatest affection.



Tegernseer Spezial

Josh Brengle, production manager, Compañía Cervecería Hércules, Querétaro, Mexico

“I’m not sure that there is a more refreshing beer on a hot day in Bavaria than this one. Their Hell grabs a lot of attention, but this one (an export helles) is all that plus a little more. Spicy, flowery hops dominate the aroma and flavor, while doughy and honey-like malt flavors bring you to a dry, very slightly tart finish. Best enjoyed at the Bräustüberl right on the shores of Lake Tegernsee.”



Rothaus Tannenzapfle

Matt Smith, founder/brewer, Wandering Soul in Beverly, Massachusetts

“This was the first lager that truly blew my brewer mind, simply because of how clean it is. There’s a transparency to not only the color but also the flavor. The grain bill allows the hops to come through with a direct hit to your taste buds. The finish is very dry, which I love, and they boast about using the ‘purest spring water from the Black Forest.’ I believe them, and it’s a great example of how a beer can only be as good as the water you’re using.”



ABGB Industry Pils

Sarah Nadeem, co-owner/brewer, Misfit Outpost in Cypress, Texas

“My favorite is from the Austin Beer Garden Brewery. A crisp German Pils with a slightly dry finish—I can drink it all day. Every time I drive to Austin, I make sure I bring a few four-packs back to Houston. A lot of great memories tied to that beer and brewery for me.”



Lua Gil's Pils

Joe Wells, head brewer, Fair State Brewing Coop in Minneapolis and St. Paul, Minnesota

“A crisp, fairly hoppy pilsner with a decocted Barke pils base, packaged at high carb levels in 500-milliliter glass bottles? Count me in. This gem of a Midwestern lager is unassuming and expertly crafted, from its rocky white meringue to its pale golden body. It tastes like somebody cares about every minute detail.”



Störtebeker Keller-Bier 1402

Connor MacLeod, head brewer, Burnside Brewing in Dartmouth, Nova Scotia

“It’s all about *feinherb*—a northern German lager just hits the spot. Störtebeker seems happy to play with both traditional German styles and some obvious craft influence. Moderate bitterness, slight orange aromatics—refreshment in the form of a half-liter bottle.”

BREWER'S PERSPECTIVE

Gold Medal Schwarz

When the team at **Incendiary** in Winston-Salem, North Carolina, gave brewer and QC manager **Adam Goetz** the chance to design a recipe, he knew what he wanted to make: a proper schwarzbier. It went on to win gold at this year's World Beer Cup and now to score a stellar 99/100 with our blind-review panel (see page 108). So, we asked Adam what makes it tick. **As told to Joe Stange**

I HAVE A DEEP appreciation for traditional German beer styles, and it's always exciting to me when I get the chance to brew (or drink) some high-quality German lager. To me, it's a way for me to connect with my German heritage.

I mentioned when I interviewed at Incendiary that schwarzbier was one of my favorite styles, so when I had the opportunity to write a recipe for a new beer, I jumped at the opportunity to write a schwarzbier recipe. The batch we brewed to submit to the World Beer Cup was the second iteration. I took some inspiration from a recent trip to Germany to tweak that recipe and emulate some of the delicious schwarzbiers I enjoyed on that trip.

To me, a great schwarzbier is all about subtlety. All of my favorite schwarzbiers have been just as crushable as a classic pils or a helles lager, but with a delicate addition of roasted malt character that adds just a little bit of extra complexity. To translate that into this particular recipe, we kept the use of roasted malts fairly restrained while still allowing for enough to contribute more than just color to the beer.

“While not necessarily traditional, the whirlpool hop addition is for sure a defining feature of this recipe. It’s definitely not a large addition, but that extra hint of Hallertauer aroma complements the roasted malts very nicely.”

PHOTO: JAMIE BOGNER

Ingredient-wise, I'd say that using high-quality ingredients in general, is most important. Healthy yeast as well as good quality malts and hops are all you need to make this beer shine. Process-wise, just make sure to dot your I's and cross your T's. Be intentional with your yeast pitch and lagering time, and make sure you give plenty of time for the diacetyl rest. Minimizing any off-flavors is crucial across all beer recipes, but especially with styles such as this one that don't give you any opportunities to mask unsavory sensory characteristics.

While not necessarily traditional, the whirlpool hop addition is for sure a defining feature of this recipe. It's not a large addition, but that extra hint of Hallertauer aroma complements the roasted malts very nicely.

The pinch of roasted barley is essentially an extra boost to the color, with the Carafa Special II and III pulling the weight as far as the roasted-malt aromas go. The Munich and Caramunich contribute a bit more depth, adding an extra layer of base malt flavor to back up the roasted malts. Striking that balance is tricky. One of the main adjustments for this batch was to trim down that "middle" part of the grain bill to have that extra depth while still keeping the "base" of the beer light. That gives that restrained roast malt addition a better chance to shine.

Water profiles are pretty important to all beers, but especially when it comes to lagers. The right water profile can make the difference between a good beer and a great beer. This is another thing that got tweaked a little bit between iterations. The initial recipe had a sulfate-chloride balance that really leaned into the malty flavors of the beer—which was good, but to my taste made the final product a bit too "heavy." Bringing that balance down by reducing our chloride addition helped to keep this beer nice and crushable while still giving it a good mineral backbone.

Augustiner is the yeast we use for our German lagers, and we're really happy with how it performs. It ferments as advertised and has a generally low level of sulfur and diacetyl production, which is ideal for this style. If it ain't broke, don't fix it—however, if I were going to play around with some other strains for this beer, I'd try and track down a more regionally specific yeast from eastern Germany.

Don't be afraid to experiment and find a method and recipe that work best for you and your system. Tweaking recipes and allowing for creativity is one of the most fun parts of brewing, and schwarzbiers aren't any different.



MAKE IT

Incendiary Schwarzbier

This dark German-style lager took home gold from the 2023 World Beer Cup in Nashville, Tennessee, and then went on to deeply impress our blind-review panel. Smooth and easy-drinking, it offers subtly complex roasted malt character and a dry finish.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.047

FG: 1.008

IBUs: 24

ABV: 5.1%

MALT/GRAIN BILL

6 lb (2.7 kg) Weyermann Pilsner

1.3 lb (590 g) Weyermann Munich I

14 oz (397 g) Weyermann Caramunich II

5 oz (142 g) Weyermann Carafa Special II

5 oz (142 g) Weyermann Carafa Special III

1 oz (28 g) roasted barley

HOPS SCHEDULE

0.9 oz (26 g) Tettnanger at first wort [16 IBUs]

0.33 oz (9 g) Tettnanger at 15 minutes [3 IBUs]

1 oz (28 g) Hallertauer Mittelfrüh at whirlpool [5 IBUs]

YEAST

BSI Augustiner, White Labs WLP860 Munich Helles Lager, Wyeast 2352 Munich Lager II, Imperial L17 Harvest, or Omega OYL-114 Bayern Lager

DIRECTIONS

Mill the grains and mash at 150°F (66°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 gallons (23 liters) of wort, depending on your evaporation rate. Boil for 90 minutes, adding hops according to the schedule. After the boil, do a whirlpool step: Stir or recirculate to create a vortex, add the whirlpool hops, and allow 30 minutes to steep. Chill to about 48°F (9°C), aerate the wort, and pitch the yeast. Ferment at 54°F (12°C) until your gravity has dropped to about 1.020, then raise to 59°F (15°C) for a diacetyl rest. When fermentation is complete and the gravity has stabilized, crash to 32°F (0°C) and lager 3–4 weeks. Package and carbonate to about 2.6 volumes of CO₂.

BREWER'S NOTES

Water: We adjusted our local water with gypsum and chalk in the mash and calcium chloride in the mash and boil. Our target water profile: calcium 52.3 ppm, magnesium 1.5 ppm, sodium 10.9 ppm, sulfate 45.6 ppm, chloride 56.3 ppm, bicarbonate 57.8 ppm.

Mash: On our 15-barrel system, mash-in takes 10–15 minutes, and we rest for 10 minutes before we begin recirculation (vorlauf) for 30 minutes. If brewing at home, just test for conversion (see "On the Road to Conversion," beerandbrewing.com) or give it plenty of time.



LAGER SERVICE

Making the Case for Cask Lager

Bottom-fermented beer, served in the British ale tradition? There's precedent for it—and the rise in lager interest may be just what's needed to stoke drinkers' curiosity. **By Kevin Kain**

“I’LL HAVE THE CASK LAGER.”

That was not something I expected to say upon my first visit to Bulls Head Public House in Lititz, Pennsylvania. Honestly, until then, I didn't even know it was something I wanted.

Bulls Head is one of the few places in the United States to properly and consistently serve traditional British-style cask ale. And I love it: Bitter, mild, porter, and even modern pale ale—those are the styles I crave when a bartender is pulling pints from a cask engine.

But a pale lager from Scotland? Not so much.

Disappointed by the absence of my go-to traditional ale styles, I reluctantly ordered a Harviestoun Schiehallion Lager. One sip, however, and it clicked. “This works,” I thought. “This totally makes sense.”

This wouldn't be news back in Britain, where the beer was named Champion Cask Beer at the Society of Independent Brewers Awards (SIBA) in 2022. Cask lagers have come and gone over the years, but Schiehallion—first brewed for cask service in 1994—has proven enduring, relevant, and praiseworthy.

Why Cask Lager?

In hindsight, my appreciation for this beer shouldn't be a surprise. I love Franconian lager, which shares some attributes with real ale. Among traditional kellerbier and zwickelbier, natural carbonation in the serving vessel is similar to that of British cask ale.

John McIntosh is one who appreciates that kind of carbonation. He's the owner and brewer at Acopon Brewing in Dripping Springs, Texas, just west of Austin, and his brewery specializes in British-style ales—many served on cask. However, lagers also regularly appear on the cask menu. “The natural carbonation gives a finer bubble size and softer mouthfeel,” McIntosh says, “and we think that really allows the malt sweetness to be accentuated, as well as showcasing the hop aromatics because they aren't driven off during the pour process by excessive carbonation.”

At Harviestoun in Scotland, master brewer Amy Cockburn describes that sensation in the context of Schiehallion: “The presence of the yeast creates a softer carbonation and allows for more intense characters to come through from the hops and the yeast itself,” she says. “The grapefruit character created by our yeast is present in the keg and bottle but is more prominent in the cask.”

True to the cask-ale tradition, cask lager isn't pasteurized and continues to evolve after leaving the brewery. All that is meant by “real ale”—as defined by Britain's Campaign for Real Ale (CAMRA)—also applies to “real lager.” Sure, all beers evolve, but it happens much more quickly for cask ale and lager, and that evolution is part of the plan. It should be incredibly fresh when tapped. From there, it only has a few days before quality begins to sharply degrade—but in that brief window, there is nothing in the beer world quite like it.

Instead of worrying about that inevitable evolution, it's something that many brewers embrace. “The beauty of the cask conditioning and service is that it's alive and unwieldy at times,” says Sam Masotto, cofounder and brewer at Bethlehem, Pennsylvania's, Bonn Place, another specialist in British-style ales.

As with any beer that goes into a cask, the format offers a unique opportunity for experimentation. However, restraint goes a long way—and some limited dry hopping is in keeping with tradition.

At Good Word in Duluth, Georgia, they have some casks that they tend to use for British-style ales and some German-style *stichfässer* (spigoted barrels) that they tend to use for lagers. However, they will periodically try something different by putting lager into a cask. It offers the opportunity to experiment with “limited risk,” as founder Todd DiMatteo says. They often do this when they experiment with a modern hop variety that they wouldn't normally use in a traditional lager.

PHOTOS: MATT GRAVES/WWW.MATTGRAVESPHOTO.COM; STITCHFÄSS COURTESY OF ZWEI BREWING



Cask Versus Stichfass

With the rise in lager's popularity at small breweries, a few have been making use of the traditional German-style kegs known as *stichfass*, *holzfass*, and/or party fass. (Fass is the German word for barrel.) These use gravity to dispense beer directly from the vessel via spigot. They often have a stainless-steel interior or with a faux-wooden exterior. A *stichfass* stands upright at the bar for service.

Unlike the British cask tradition, German brewers will typically fill a *stichfass* with finished, carbonated beer. Cask ale, on the other hand, undergoes secondary fermentation, conditioning, and carbonation in the serving vessel. One is essentially ready to pour as soon as it's filled, while the other needs to be properly managed before serving.

In Britain, the casks are typically in the cellar and connected to beer engines that pump the ale up to the bar; bar-top gravity dispense is relatively rare there. When it is served from a bar top, the cask rests on its side in what's called a stillage or stillage rack.

For those interested in serving lager from a barrel, the decision about format may ultimately come down to which tradition you favor. It may also come down to resources: British-style casks and accessories are much easier to procure in North America than German-style *stichfass*, so far.

Conditioning Cask Lager

As with cask ale, the initial brewing process is no different for cask than it is for kegged lager. Fermentation is where things begin to diverge.

One way or another, fermentation should continue (or otherwise resume) in the cask. Various additions of fermentables and/or yeast can do the job, including *kräusen*, sugar, or a bit of yeast. How you go about fermenting and conditioning the lager up to that point is up to you. For example, you can lager it in tanks before racking to cask—or you can simply lager it in the casks.

At Bonn Place, for example, their preference is to add some unfermented wort to the cask to kick off the secondary fermentation. They then lager the beer in the casks for another three to six weeks.

At von Trapp Brewery in Stowe, Vermont, they'll lager the beer for at least six weeks, says quality manager Jack Van Paepeghem. "We will then *kräusen* the cask with a small amount of actively fermenting wort and seal the vessel," he says. "We let the cask stay at room temp for refermentation and diacetyl reab-

sorption, and then chill it in our keg cooler until it is ready for shipment [and] service."

To fill casks at von Trapp, they pull the beer from a larger batch—not as easy as it sounds, especially at their scale. "We naturally carbonate all of our lagers [via spunding], so during fermentation, we capture up to 95 percent of our final target CO₂, meaning that the beer is very carbonated before we even start lagering." Filling an empty five-gallon pin cask with fully carbonated beer from a 6,000-gallon tank presents an interesting technical challenge, with few tools to assist in terms of restriction and counter pressure.

Racking from an open or unsealed (*ungespundet*) tank is easier, though few brewers in the United States are doing it. At von Trapp, however, the natural carbonation is important to them, as is capturing as much CO₂ as they can. "Which means we can't necessarily afford to have flat beer sitting around for these purposes," Van Paepeghem says.

Once the casked lager is ready for service, dispense options include a simple gravity cask setup or a beer

MAKE IT

Good Word Only Memories Remain

From Good Word Brewing & Public House in Duluth, Georgia, owner and brewer Todd DiMatteo shares the recipe for their subtly roasty, highly drinkable lager that can be served from cask or stichfass (or keg, can, bucket, whatever you have handy). This was a collaboration with Bluejacket in Washington, D.C. They named the beer for an especially mellow tune by My Morning Jacket.

As time and space do what they will / The spirit, so vogue, can never be killed

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.044

FG: 1.011

IBUs: 22

ABV: 4.4%

MALT/GRAIN BILL

4.35 lb (2 kg) Weyermann Floor-Malted Bohemian Pilsner

3.1 lb (1.4 kg) Weyermann Floor-Malted Bohemian Dark

13 oz (369 g) Weyermann Carabohemian

5 oz (142 g) Weyermann Carafa Special III

HOPS SCHEDULE

0.3 oz (9 g) Saaz at ¾ kettle-full [5 IBUs]

0.5 oz (14 g) Saaz at 60 minutes [7 IBUs]

0.75 oz (21 g) Saaz at 15 minutes [5 IBUs]

0.75 oz (21 g) Saaz at flameout/whirlpool [5 IBUs]

YEAST

Any 34/70 strain, wet or dry

DIRECTIONS

Mill the grains and mash in at 131°F (55°C) for 10 minutes. Raise to 146°F (63°C) and rest 30 minutes, then to 152°F (67°C) and rest 30 minutes. The do one decoction: Pull about one-third of the mash, bring it to a boil for 20 minutes (while stirring constantly), then reunite the mash and rest 15 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 90 minutes, adding hops according to the schedule. After the boil, do a whirlpool step: Add the flameout hops, stir or recirculate to create a vortex for 5 minutes, then allow 15 minutes to steep. Chill to 46°F (8°C), aerate the wort, and pitch a healthy yeast starter. Ferment at 48°F (9°C). If possible, attach a spunding valve when the gravity is ~1.020 for natural carbonation. When fermentation is complete and gravity has been stable for 3 days, do a forced diacetyl test (see “Hunting for Diacetyl,” beerandbrewing.com). If clear, gradually lower the temperature over 4–5 days to 40°F (4°C), then rack to secondary or keg for lagering. Lager at 32°F (0°C) for at least 4 weeks. Package and carbonate to 2.5–2.6 volumes of CO₂.

BREWERS' NOTES

We love this beer and have been making it for several years. If you can do both decoction and spunding, you will get a really nice beer—but of course, you can also brew a good lager with single infusion (in that case, try 152°F/67°C for 75 minutes). If you have the equipment and the time, make a yeast starter of 1.5–2 liters. If you pitch enough healthy yeast, there's no need for a diacetyl rest.



engine. While a beer engine is nice, that requires more than just purchasing a cask, faucet, and stillage for the bar top (see “Gearhead: American Real Ale,” beerandbrewing.com). The setup is not as expensive as you might think, but it does consume space on your bar for something you may not use all that often.

Even if you have a beer engine, it might not make sense for cask lager, depending on the temperature at which you intend to serve your beer.

At Acopon, for example, they have beer engines, but they prefer to use the bar-top gravity kegs for lager. Their engines are set up for ales, which they serve at a slightly higher temperature than what they want for their cask lagers. So, they simply pull a refrigerated cask from the cooler and set it up on the bar. This has the bonus of creating a little “O’zapft is!” moment when the keg is tapped. Cooling jackets also can be applied as necessary.

When served on the cooler side, cask lager may have a greater chance of attracting newcomers to a format that has historically (and erroneously) been associated with warm beer. Generally, cask lager is best served somewhere between standard keg temperature (~38°F/3°C) and cask ale temperature (~52°F/11°C).

What Styles?

You can serve any style of lager in the cask format, though brewers who do it tend to avoid styles often associated with high carbonation, such as pilsner and schwarzbier. Instead, they look to Czech-style lagers (whether pale, amber, or dark), various bocks, or helles, dunkel, or märzen made in the Franconian kellerbier style.

An additional word of caution comes from Bill Arnott, founder of the cask-centric Machine House Brewery in Seattle: “Crap lager would probably taste *extra* crap on cask.”

Arnott has been successfully collaborating with his neighbors at Lowercase to brew and serve cask lager—it’s an ideal situation where one brewer excels in cask and the other in lager. They’ve been collaborating on cask lager for five years, including the London Lager that Jeff Alworth (a regular contributor to *Craft Beer & Brewing Magazine*®) on his Beervana blog named one of his best beers in 2022.

It’s no secret that cask beer has flourished in the United States, and it has its own struggles in its homeland as well. However, with craft lager enjoying a moment these past few years, perhaps there is avenue here to draw interest in both cask service and lager.

At Lowercase in Seattle, owner John Marti notes that introducing customers to cask lager can be challenging, especially considering the generally lukewarm reception to cask ale.

However, “once they understand what we’re doing, they have an even deeper appreciation for the idea of cask lagers,” he says. “We’ve always seen cask lager as a way to help people understand just how gorgeous cask beer can be.”



HOMEBREWING LAGER

Your Lager Can Take the Pressure

Fermenting under pressure to make beer faster is an old industrial trick—and it works just as well on a small scale. Here's what to know about a method that can help you brew more lagers in less time, honing your technique along the way. **By Josh Weikert**

BREWERS, I'VE FOUND, ARE stubborn people. Tell one they *can't* do something, and, as Marcus Aurelius said, “the obstacle becomes the way.”

Many moons ago, a fellow brewer told me I could ferment lagers warmer if I put them under pressure—but they also said, “It's like microwaving a steak—it will cook, but it won't taste right.”

That sounded familiar. I'd heard that very analogy used to describe direct additions of lactic acid to Berliner weisse—exactly what I'd done to mine, and it won Best of Show. So, I decided to add “pressurized fermentation” to my list of brewing dogmas to test.

Guess what? It turned out *great*. Pressurized fermentation is not only a viable way to produce high-quality beers—especially lagers—more quickly, but it has a host of benefits that make it worth the slight cost and effort.

Here, we'll dig into the myriad benefits of pressurized fermentation, some of the science behind why it works, what to watch out for, what equipment you'll need to do it, and, of course, how.

Why Pressure Ferment?

The most common reason given to ferment beers under pressure? *Speed*.

“We do all of our lagers in this manner,” says John Stemler, head of brewing operations at Chatty Monks in West Reading, Pennsylvania. “It allows us to produce lagers at light speed.”

Yet speed is only one of the many reasons you should consider this method. It's also cleaner, gets you more beer for your effort, reduces the risk of oxidation and some off-flavors, and gives you more control over your finished beer.

But first things first: It really is very fast.

I tend to brew small, both in strength and in volume—my typical batch is about 5.2 percent ABV and 3.5

gallons (or about 13 liters). This allows me to get more variety, develop recipes quickly, and test more new ideas because, quite simply, I'm brewing faster and more often. Pressurized fermentation feeds directly into this mentality because it's quicker and because it allows for warmer fermentation at lower risk.

Technically, you could achieve the same outcome—that is, brewing lots of lagers—by having more kegs and lots of cold storage space. But that's costly in money as well as time. Pressure fermentation, meanwhile, also gives us a head start on carbonation—even more time saved.

Time isn't the only benefit, though. Pressurized fermentation is also cleaner—figuratively, if not literally (more about hop explosions later). Under pressure, yeast produce less of the things we don't want in most lagers and many ales, such as esters, diacetyl, and fusel alcohols. The method can also mean fewer vessel transfers and lower risk of oxidation, thus improving flavor stability and helping us avoid dulling and off-flavors. Some argue it also leads to better retention of volatile hop aromas (though I haven't noted that, personally). In any case, a cleaner beer is more likely to showcase that hop character. Potentially, you'll also get more beer: Pressurized fermentations produce less krausen, so you can fill your vessels up higher without worrying about fouling your valves.

Here's the real attraction for me, though: It's one more thing that increases *control*. Beer can be flakey, as we all know from experience, and yeast especially so. Anything that increases my level of control over their environment—and does so in a way that lets me dial in what I get out of them—is a winner in my book.

The Science of Pressurized Fermentation

Why does pressurized fermentation work like it does? The short version: Pressure and carbon dioxide change how yeast behave.

Yeast produce different flavor compounds under different conditions, and the pressure in a pressurized



PHOTOS: GERMANY/SHUTTERSTOCK

fermentation can influence the types and amounts of flavor compounds produced. The most significant difference is the production of esters. We've already noted that temperature equals speed in fermentation:

Warmer yeast are more active, and they metabolize the sugars in their environment more quickly. However, warmer temperatures also encourage yeast to kick off more esters, especially as the amount of ethanol in the beer inevitably increases. So, how does pressure come into the picture?

First: Pressure, as a physical force, reduces yeast metabolism in ways that inhibit the metabolic processes that produce ester compounds. Pressure makes it harder for yeast to absorb and express certain nutrients, but it does *not* prevent their conversion of sugars to ethanol and CO₂. Essentially, we get the benefits of limited esterification without sacrificing yeast's primary conversion function—though we do give up some viability and growth, as we'll discuss later.

The reduced availability of oxygen also limits ester production. In a nonpressurized fermentor, the yeast have more access to atmospheric oxygen. But in our pressurized fermentor—which has higher concentrations of CO₂ in both the headspace and dissolved into the beer itself—there is less oxygen available to the yeast. That leads to lower levels of ester production. Notably, CO₂ also increases the acidity of the environment, and the lower pH level also inhibits ester production.

Esters aren't the only thing inhibited—it's also possible that diacetyl is impeded. Pressurized fermentation at warmer temperatures can result in a faster, more complete fermentation process, allowing the yeast to consume more of the diacetyl produced during fermentation—after all, we're moving quickly into "diacetyl rest" temperatures. In addition, the pressure can help to suppress the formation of diacetyl in the first place by promoting a more efficient conversion of diacetyl precursors into other flavor compounds. I'll note, however, that scientific studies are not unanimous on the relationship between pressure and diacetyl. My read on these results is that they are variable by yeast strain, so your mileage may vary.

This leads me to an important caveat: The impact of pressure on ester production, diacetyl, attenuation, and more can vary depending on the specific yeast strain being used and the fermentation condi-



tions employed. Some yeast strains may still produce notable levels of esters in a pressurized environment while others may produce almost none. We can and should tinker with various parameters such as pressure, temperature, pitch rate, batch size, and more to get the flavor profiles we want. The good news: With faster turnaround on your batches, you can dial in these variables more quickly.

Equipment and Process

Converting to a pressure fermentation system requires surprisingly little equipment—and you probably already have a lot of it. It also won't change your process all that much.

All we need is a vessel that can *hold pressure*—no glass carboys!—a valve to regulate said pressure (which you can easily build yourself), and some pressure and temperature management (which isn't much different from what you're probably already doing).

First, the vessels. For homebrewers, the simplest answer here is a standard five-gallon (19 l) corny keg. This has the benefit of being widely available and more than capable of handling the pressure. In fermentation, we'll rarely venture above 20 psi, max, so keep that figure in mind when shopping around. There are specialized, purpose-built fermentors that can do the job here, too. But if you already have a spare corny or two, you're good to go.

Next, you'll need an adjustable pressure-relief valve (or APRV) to regulate the pressure in the vessel and "hold" it where you want it. If you bought a pressure-capable fermentation vessel, this may have been included—but if you go the corny-keg route, you can use a spunding valve that attaches to your gas post. These valves are reasonably priced, but this also represents a very approachable and cost-effective DIY project; you already have lots of the component parts in your keg/draft equipment junk drawer (we all have those, right?). If you *really* want to have some fun with corny-based fermentation, you can also investigate floating dip tubes so you can ferment, condition, and serve all in the same vessel. (For more about that, see "No (Car)boys Allowed," beerandbrewing.com.)

The process is straightforward. Just transfer your wort into a pressure-capable vessel and pitch your yeast when you're at a proper temperature—i.e., anywhere in their usual preferred fermentation range. Next, set your APRV or spunding valve to your target pres-

sure. As a rule of thumb, start most strains at 10 to 12 psi; I end up at 14 psi for most beers. You can dial that up or down based on your results, but you'll probably never go much higher than 17 to 20 psi.

Matt Winans, research and development scientist at Imperial Yeast, says they've had successful lager fermentations at or below 1 bar (14.5 psi). He recommends the popular 34/70 lager yeast—Imperial's strain of it is L13 Global—because "it keeps good vitality and viability under pressure, and [it] maintains the great fermentation profile it's known for."

There's some debate about whether to put your wort under pressure right from the start by hooking it up to forced CO₂. I've reached a healthy compromise: For an ale, I let pressure build up naturally, which allows *some* ester production. For lagers, however, I give the pressure the head start.

Temperature can start relatively high. I start my pressurized lagers at 58°F (14°C), then leave them at room temperature after 48 hours. The ales are at room temperature the whole time; in summer I might hold them under temperature control at a balmy 68–69°F (20–21°C), but the whole point is to drive the fermentation forward—so, don't be afraid unless you're going well above 70°F (21°C).

Just bear in mind that you may need more pressure to get your "clean" beer as temperatures increase. Fermentation will likely be done in a week or two—even for lagers—and then you can ease off the pressure and reduce the temperature. Or, you can jump straight into conditioning and preserve all that nice, free CO₂ already in solution.

Best Practices

Pressure fermenting reduces some concerns, but that doesn't mean we have nothing to worry about. There are unique considerations that come to bear, including yeast selection, attenuation, clarity, and (this is fun) dry hopping.

YEAST

First, not all yeast strains will be a perfect fit for this method, though *most* will work well.

"Any yeast will have suppressed ester formation if you put it at 1 bar," or about 15 psi, says John Stermer at Chatty Monks. "This was confirmed by a contact I have at a large brewing-yeast laboratory. Pressure fermentation—specific lager strains are only sold because it makes some people more comfortable."

That's not to say that all strains are equally productive under pressure, but don't feel that you *must* use a "pressure-specific" variety. As I often say: Try, then trust. As a jumping-off point, varieties of the 34/70

lager strain work beautifully here. I've also been told—and, anecdotally, it's been true for me—that dried yeasts work particularly well in pressure ferments compared to liquid yeasts.

ATTENUATION

Pressure inhibits yeast-cell growth and viability, so attenuation is a concern. We can address this by producing a more fermentable wort. Mashing at optimum alpha-amylase temperatures (150–152°F/66–67°C) and for longer (75 to 90 minutes) can help.

Stemler also says that some strains might benefit from a mid-ferment nutrient addition, but also that it's not usually necessary for him. At Imperial Yeast, meanwhile, Winans recommends a few practices meant to make life easier on the yeast.

"First and foremost, keep a good pitch rate," he says. "Pressure suppresses cell growth and acts as a stressor to yeast cells, so try to keep the other yeast stressors to a minimum, especially your OG—keep your gravities to a moderate level. I like to start at around 1.050, 1.060, or so."

CLARITY

Using pressure to brew lager more quickly means that you don't get a key benefit of patience: a clearer beer.

"One downside is you have to be more aggressive with your clarification techniques since you don't have all that lager time to drop bright," Stemler says.

Although your beer *will* drop clear eventually, to really take advantage of the time savings, you'll want to leverage some of the more effective finings and/or choose a higher-flocculating yeast. (I've found that two rounds of gelatin do the job just fine.)

DRY HOPS

Maybe my favorite concern (for sheer entertainment value) is dry hopping during a pressurized fermentation. While amusing on video, however, a hop volcano is not something any brewer really wants to see (or clean) in person.

Thanks to the many nucleation points on hops, dumping them in can cause a lot of CO₂ to release—and if you don't get your lid back on pronto, you could end up covered in sludgy green foam that only briefly smells wonderful. You could also end up with a big mess on your hands (and face, and floor, and clothes, and ...).

You have two choices here: Ease off the pressure and temperature over a few days, then add; or act quickly and roll the dice. At home, I've found that I can slam in hops and get the corny lid resealed in time—but if you're working with a screw-on pressure lid and a plastic vessel, you may be in for a wild ride.

To keep safe, consider a few tips from the pros:

- De-pressurize the vessel before dry hopping.
- Don't stand directly over the opening (or port) when adding hops.
- Add hops slowly instead of all at once.

Pressure Is a Privilege

Fermenting under pressure isn't something you should necessarily do as a beginner, but you could. It's an industrial practice that can be miniaturized—and if it works for commercial breweries trying to free up tanks more quickly, then why not for a homebrewer trying to save time or squeeze in more brews?

Anything that gets us brewing more, and more often, is a win, and pressurized fermentation is a fantastic way to get more out of your system without sacrificing quality. After all, more pressure doesn't have to mean more stress. 

MAKE IT

Vier Sterne Unter Druck Pilsner

This is a variation on my Vier Sterne pilsner recipe—for comparison, also available at beerandbrewing.com—but with some adjustments made with pressure fermentation in mind.

You could take the recommendations for pressure and temperature and apply them to your own favorite lager recipe—they're only guidelines. You may need to tinker, but as a rule: If you're going to ferment warmer, you should ferment at a higher pressure to avoid esters, and vice versa. Once you get the hang of it, you may find that you prefer doing all your lagers this way.

ALL-GRAIN

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.051

FG: 1.013

IBUs: 38

ABV: 5.1%

MALT/GRAIN BILL

9.3 lb (4.2 kg) German pilsner

4 oz (113 g) Victory

HOPS & ADDITIONS SCHEDULE

0.5 oz (14 g) Summit at 60 minutes [32 IBUs]

0.5 oz (14 g) Hallertauer Mittelfrüh at 10 minutes [4 IBUs]

0.5 oz (14 g) Hallertauer Mittelfrüh at whirlpool [2 IBUs]

Gelatin or other finings at secondary

YEAST

Wyeast WY2124 Bohemian Lager

DIRECTIONS

Mill the grains and mash at 152°F (67°C) for 90 minutes. Recirculate until the runnings are clear, then run off into the kettle. Sparge and top up as needed 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, stir or recirculate to create a vortex, add whirlpool hops, and allow 15 minutes to steep. Chill the wort to about 60°F (16°C) and transfer to a corny keg or other pressure-safe vessel. Aerate the wort, pitch the yeast, and close and secure the lid or cap. Set adjustable pressure-relief valve (APRV) or spunding valve pressure to 14 psi, connect the CO₂, bring the keg up to the target pressure, then disconnect.

Ferment at 60°F (16°C) for 7 days, then allow the temperature to rise to 68°F (20°C) and rest 7 more days. When fermentation is complete, crash to 35°F (2°C) and add gelatin finings. (For best results, wait 24 hours and add a second round of gelatin.) After fining, carbonate to about 2.5 volumes of CO₂. If racking, transfer under pressure using a counterpressure filler. If serving from the fermentation keg, connect a floating dip tube.



NO RESTS FOR THE WICKED

Malt Liquor

American Nostalgia, Extracted

Since adjunct lagers are cool again, it may be time to give American malt liquor a fresh look. Lean and strong, this adjunct-laden product of the post-Prohibition era has the power to evoke simpler times. **By Annie Johnson**

I LIKE ALL BEER STYLES, but there are some for which I have a particular fondness—the ones that evoke fun and flavorful memories from my past travels, my college days, or good times with friends.

For me, one of those favorites is a good old-fashioned malt liquor.

When I was a kid, it was the favored type of beer of Mr. Patterson, my friend's dad. Mr. Patterson was a kind man, tall and gentle in his pale U.S. Air Force jumpsuit. I had no idea what he did in the military—I was only 10—but he did teach his son and me how to fish. Many weekends we would ramble up to the local lake and fish for rainbow trout. Mr. Patterson always brought his little cooler packed full of sandwiches, soda pop ... and one tall, shiny can with a charging blue bull on the label.

I remember being out on the edge of the hot lake when Mr. Pat would pop the top,

take a few big gulps, and tell us kids that there were few things in this world better than fishing and cold beer.

Years later, away at college and out on a beer run, I happened upon one of those tall, shiny silver cans with that familiar blue bull on the label. I picked up a sixer, but the beer was not what I expected—it wasn't light but rather a rich, golden color, crisp, and it packed a punch. And I liked it.

Fast-forward 15 years: Amid my homebrewing experiments, I decided to re-create this brew for which I have such fond memories. My usual reference, the BJCP style guidelines, had no information about malt liquor besides a brief reference under Specialty Beer. So, I continued my research, including many taste tests. After sampling multiple brands, I realized that not all malt liquors are created equal—some are overly alcoholic, green apple-flavored headache bombs.

However, do not despair: There are good ones out there. Even better, you can brew one yourself, producing a fantastic (and sneaky-strong) beer that suits your own taste.

About Malt Liquor

From the start, modern malt liquor was an industrial product aimed at the mass



market. While the phrase “malt liquor” was occasionally used in previous centuries to describe beer, it didn’t appear as we know it today—strong, and laden with body-lightening adjuncts—until after Prohibition in the United States. A few Midwestern breweries, including Grand Valley in Michigan, Gluek in Minnesota, and Goetz in Missouri, were among the first to develop and market these strong beers.

A 1948 U.S. patent granted to Alvin Gluek describes his goal: “a very thin malt liquor of relatively high alcoholic content, brewed and fermented wholly from cereal products and having a very pleasing, dry distinctive taste not akin to beer, ale, malt, porter, stout, or other fermented beverages commonly brewed from cereal products.” The patent goes on to lay out what is basically a recipe for a 7 percent ABV beer, including 2,600 pounds (1,180 kg) of corn grits and/or rice to only 1,200 pounds (544 kg) of malt.

The idea was to use various tricks to increase attenuation for a beer with less malt, lighter body, and more of an alcoholic kick—light, dry, and sparkling, with a Champagne-like familiarity. One of the early brands was Country Club, originally brewed by Goetz in St. Joseph, Missouri. Pabst owns the brand now, but you can still find Country Club on the back shelves of coolers in cheap liquor marts around the country.

Given the rising interest in American adjunct lagers, it only makes sense that malt liquor should get a fresh look from small-scale brewers.

Brewing Your Own Malt Liquor

When the goal is high attenuation and higher alcohol, we have various tricks to get there. These include lower mash temperatures, body-lightening adjuncts such as rice, and the use of enzymes. Since we’re aiming for a dry beer, there are some similarities here with brut IPA, which typically gets an enzyme called glucoamylase (aka amyloglucosidase) to break down the complex sugars derived from malt. Adding some to the mash will make more of those sugars available to the yeast, leading to a drier finish, lighter body, and higher ABV.

Hop flavor is virtually nonexistent. A pro brewer friend once told me that the hop addition for malt liquor consists of waving a single hop cone over the kettle. (I’ve interpreted that to be somewhere in the 8–12 IBU range.) The flavor is mostly cereal-like from the copious adjuncts, yet relatively mild for its strength. The mouthfeel is also light, and the head

retention of commercial examples tends to be fleeting—though we can hope for better. The color is usually a pale straw.

Especially given that not much is sacred when it comes to malt liquor—it’s a 40-ounce bottle of industrial tricks—I’d argue that the style lends itself well to extract brewing. Malt will be less than half of our fermentables anyway, as we can lean into some easy-to-use adjuncts—and we’ll need plenty of them.

Let’s start with rice syrup and extra-light malt extract; I prefer liquid malt extract, so I can add everything to the kettle at once. Steeping some flaked corn is also a nice touch for a little complexity—and I do mean a little. The cereal taste is part of the profile, but for a classic malt liquor, we’re not looking for especially strong flavors in any direction.

The same goes for hops—we use a light hand here. They can be anything you’d find in a typical lager, but for authenticity Cluster is a nice choice here. It has a clean bittering profile that will help to balance some of the alcohol.

About the enzyme: Glucoamylase is often available at homebrew shops and from brewery suppliers. You might see it under the trade name Ultra-Ferm, sold by White Labs in packages as small as 10 milliliters (or as much as 10 liters for commercial breweries). I add this at the start of fermentation when I pitch the yeast. You yeast bandits who like to harvest and re-pitch might want to skip it this time; the enzymes can carry over to the next batch. In this case I like to pitch dry yeast because it’s inexpensive and makes it easy to get the cell count I want.

You can ferment in the high 50s to low 60s Fahrenheit (14–17°C), and that should also ensure diacetyl cleanup. This isn’t a refined Czech or German lager; a long lagering phase isn’t necessary. After fermentation and some short lagering for clarity, it’s best to carbonate this beer on the higher side—about 2.8 volumes of CO₂. What you want is something like a Belgian ale, with a bite and crisp carbonic punch. Serve it very cold.

While not necessary to serve this beer bottled in a rolled-up brown paper bag, there is some perverse fun to it. At a recent get-together, I served this beer to a few of my old college friends—no 40-ounce screw-top bottles, but bombers worked just fine (especially given the high ABV).

My Olde Patterson 0600—that was the hour at which we would hear a distant reveille and load up to go fishing—was a hit, and it made me wonder what Mr. Patterson would’ve thought of it. Would this beer be good enough for an early Saturday fishing expedition? I’d like to think so. 

MAKE IT

Annie’s Olde Patterson 0600 Malt Liquor

PARTIAL-MASH

Batch size: 5 gallons (19 liters)

Brewhouse efficiency: 72%

OG: 1.063

FG: 1.003

IBUs: 12

ABV: 7.9%

MALT/GRAIN BILL

4.2 lb (1.9 kg) extra-light liquid malt extract (LME)

3.1 lb (1.4 kg) clarified brown rice syrup

2.1 lb (953 g) flaked corn

HOPS & ADDITIONS SCHEDULE

0.65 oz (18 g) Cluster at 40 minutes
[12 IBUs]

1 tablet Whirlfloc at 10 minutes

10 ml glucoamylase at primary

Gelatin at secondary

YEAST

Fermentis SafLager W-34/70

DIRECTIONS

Heat 6 gallons (23 liters) of water to 150°F (66°C); in a mesh bag, steep flaked corn for 45 minutes. Rinse the steeping bag, add the extracts, and stir to dissolve completely. Boil for 40 minutes, adding the hops and finings according to the schedule. After the boil, chill to about 52°F (11°C), aerate the wort, and pitch the yeast and enzyme. Ferment at about 58°F (14°C) until complete, 10–14 days. Crash to about 35°F (2°C), add the gelatin or other finings, and lager about 1 week. Package and carbonate to 2.8 volume of CO₂. Serve ice-cold and enjoy.





Tasted

Our blind review panel embraces this yearly focus on all things cold-fermented. Here, they tackle everything from **Mexican- and American-Style Lager**, to **Czech-, German-, Italian and French**, and **West Coast and New Zealand-Style Pilsner, Helles, Amber Lager, Czech- and German-Style Dark Lager**, and **Strong Dark Lager**...

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: GERMAN-STYLE PILS



Templin Family Granary KellerBier

99

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

What the brewer says: "Unfiltered German-style pilsner."

What our reviewers thought: "Aromas of bread dough rising in a warm square of sun; graham cracker intermingles with white-pepper spicy hops. Lots of crackery malt throughout, with just a slight bitterness peeping out at the end. Hops are quite mild at first, building over time. The texture is very light and crisp, like a delicate water cracker. Highly attenuated, balancing the malt and Noble hops almost perfectly. Bitterness is a bit coating at the end. A perfect beer to enjoy this summer after mowing the lawn or simply relaxing. The clean finish makes you come back for more."

What our editors thought: "Incredibly elegant Noble-floral notes in the aroma, with notes of fresh-baked bread and a generally bright demeanor that suggests it's all smiles in the most genuine of ways. Energetic body is light and nimble with a tight, herbal-bitter throughline and hints of bright citrus and bread malt above and below. Finishes crisply and quickly."

ABV: 4.7% **IBUs:** 33
Loc: Salt Lake City

Fracture Brewing Pilsner

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Crisp pilsner hopped with German Tradition, Tettnang, and Saphir."

What our reviewers thought: "Smells like walking through a succulent, dripping wildflower field—honeydew, honeysuckle, subtle fruity sweetness, caramel-esque. Floral qualities become more pungent in the flavor, but not overpowering. Grainy sweetness doesn't find its characteristic spicy or floral hop balance."

What our editors thought: "Savory herbal nose with a bit of thyme. Carries through in the sip, with a slight malt sweetness that softens it, finishing with a light herbal snap."

ABV: 5.2% **IBUs:** N/A
Loc: Portland, OR



Good Word Brewing Coastline Pils

88

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Dry-hopped pilsner."

What our reviewers thought: "Sulfury aroma, with dank hops more characteristic of New World varieties. The hop flavor is spicier. Some punchy huskiness contributes to a bold overall flavor and tannic bitterness. The finish isn't as crisp or clean as it could be, and there's a lingering thick mouthfeel. A surprising twist. This is a loud and unrestrained pils released from its cage."

What our editors thought: "Spicy-floral with very light ginger in the nose, crisp and fresh. Spice is prominent in the sip, for a more brash than refined experience."

ABV: 5.2% **IBUs:** 30
Loc: Duluth, GA



Goldfinger Brewing Pils

93

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

What the brewer says: "For those who prefer a little more hop presence."

What our reviewers thought: "Great clarity, fluffy white head. A touch of bread yeast on the nose; fresh hops, floral and herbal, a bit of sulfur. Firm, pleasantly bitter backbone, moderately grainy with an herbal, slightly spicy hop profile. Mild carbonation, light malt body. Well balanced. The dry, bitter, refreshing finish lingers."

What our editors thought: "Hearty and Noble in the nose, with a light, grassy, herbal hop note. Heftier but cool-toned in the sip, herbal and smooth, with a substantial body that makes it cozy."

ABV: 4.9% **IBUs:** 30
Loc: Downers Grove, IL



Great Notion Brewing Ledge Bier

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "German pilsner brewed with Hallertau Mittelfrüh and Saaz hops."

What our reviewers thought: "Subtle, spicy hop overlay on grainy pils-malt sweetness; biscuit, toasted bread. Flavor balances hops and malt, allowing both to shine. Dry grassiness, some hay. Finishes super-dry, astringent—a sun-dehydrated, moisture-sucking bomb—but clean finish, clean all around. Crisply refreshing."

What our editors thought: "Simple but welcoming floral nose with just a bit of dynamic herbal verve. Consistent floral bitterness is smooth and refined in the flavor."

ABV: 5.5% **IBUs:** N/A
Loc: Portland, OR



Green Bench Greetings from Florida

89

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Brewed with German pilsner malt and Hallertauer Tradition, Tettnanger, Hallertauer Hersbrucker, and Saphir hops."

What our reviewers thought:

"Aroma of light pils malt has an overlay of spicy white-pepper hops; a whiff of diacetyl disappears quickly. Mostly clean and crisp flavor, finishing just dry. Very quaffable, and overall solid, but a slight vegetal quality; some overripe fruit lurks in the retronasal."

What our editors thought:

"Herbal nose with a bitter herb structure, and very light anise notes. Full, yet cut, in the sip—muscular yet approachable."

ABV: 4.9% IBUs: 33

Loc: St. Petersburg, FL



KC Bier Light German-Style Pilsner

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "In Bavaria, this style would have been called a schankbier."

What our reviewers thought:

"Sweet nose of corn, herbal hops; bready, even a little doughy. Bright, clean maltness with corn-sweet notes but without residual sugar. Nicely balanced by faintly herbal hops, floral sweetness. A bit of hop bitterness pulls it together with a playful herbal hint."

What our editors thought:

"Doughy, almost sugar-cookie, malt aroma. Crisp and minimal in the sip; the hops character hangs in tight balance. Very light, a bit dry, but compelling in its simplicity."

ABV: 3.5% IBUs: 18

Loc: Kansas City, MO



Meanwhile Brewing Pilsner

92

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Award-winning German-style pilsner."

What our reviewers thought:

"Light-grain aroma, lacking the distinctive hop punch. Hop flavor evokes the New World, but it finishes balanced and slightly dry, upping its refreshing qualities. Elegant in its overall cleanliness. A neat freak of a German pils."

What our editors thought:

"Fragrant Noble-floral notes in the aroma, calla-lily freshness with a bit of leafy earthiness. Slightly lower carbonation lets a bit of malt sweetness come through in cool tones, balanced by an equally cool, subdued bitterness."

ABV: 4.9% IBUs: 26

Loc: Austin



Riverlands Brewing Kayak Pils

94

AROMA: 10
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Our flagship German-style pils hopped with Hallertau Mittelfruh, Tettnang, and Saphir."

What our reviewers thought:

"Brilliantly clear. Smells like toasted white bread, approaching caramel, with subdued hops; slight peanut-butter notes. Grainy and bold flavor with a definite sweetness; showcases a bouquet of spicy and floral hops with notes of white pepper. Assertive bitter finish."

What our editors thought:

"Toasty malt aroma with a faint floral, almost dank overtone. Sip balances those floral notes with a touch of lime brightness and just enough malt."

ABV: 4.8% IBUs: 35

Loc: Saint Charles, IL



Halfway Crooks Beer Hopfenblume

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Collaboration with the Hop Growers Cooperative of Hallertau (HVG) featuring Callista and Amira hops."

What our reviewers thought:

"Slight lemon essence. Amazing, thick head of white foam. Sweet grain lingers until drying hop bitterness counteracts in the end. Tiny bit of hotness, but overall smooth, yummy, bready flavor. Creamy, pillowy body, meringue-like, smooth. Subtle hop aroma and flavor that leaves you craving them. Clean finish. Highly drinkable."

What our editors thought:

"A touch sweet and full, but the subtle herbal hop character provides compelling balance."

ABV: 5.3% IBUs: N/A

Loc: Atlanta



Kings County Brewers Infinite Machine

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Brewed with German pils malt and hopped with Saaz, Celeia, and Saphir."

What our reviewers thought:

"Clean, crisp aroma highlighting light graham-cracker malt. Grainy sweetness up front; as you sip, floral hops come through to balance the flavor. Bready malt irons out a bit of bitterness. Some fruity esters keep the beer from finishing dry, making the aftertaste slightly sweet. Super clean, quenching."

What our editors thought:

"Classic German herbal nose with just the right amount of earth. Sip plays a sweet malt-herbal hops tug of war. Very drinkable. Compelling yet energetic."

ABV: 4.8% IBUs: 40

Loc: Brooklyn, NY



Perch Gastropub Simple Village

89

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"House lager for Perch Gastropub. Clean, balanced, crisp."

What our reviewers thought:

"A bold graininess up front; robust malt flavor adds depth and character to a clean, clear lager. Spicy, earthy hops cut through the malt. Slightly astringent huskiness. Some phenolic notes waft around in the background. Finishes delicately dry and crisp."

What our editors thought:

"Light and sweet floral aroma, simple and understated. Malt in the sip drops with a toasty edge, leaving a toothy, herbal finish."

ABV: 4.9% IBUs: N/A

Loc: Greenville, SC



Rosenstadt Brewery Pilsner

93

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

What the brewer says: "Crisp and assertive, with a bone-dry finish."

What our reviewers thought:

"Great clarity and wonderfully thick head. Clean, crisp aroma reminiscent of graham cracker, with a quintessential array of Noble hop spiciness and touch of flowers. Slow out the gate, but with a mild bitterness, grainy undertone, slight floral qualities, and a husky, plodding finish."

What our editors thought:

"Malt-forward, borderline Franconian, with a light sweetness and some gentle fruit overtones. Light herbal bitterness in the sip balances."

ABV: 4.9% IBUs: 38

Loc: Portland, OR



Smith & Lentz German Pils

89

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Snappy."

What our reviewers

thought: "Wildflowers accentuate the high floral-hop flavor profile. Although lacking a perfectly clean finish, with its drying quality, the beer keeps you coming back for more refreshment. Husky and assertively grainy. Bitterness lays down gently on the tongue like a lace blanket of spicy earthiness."

What our editors thought:

"Warm floral aroma with a cozy malt note. Chewy malt in the sip with touches of floral and lime. Friendly without fawning."

ABV: 4.8% **IBUs:** N/A
Loc: Nashville, TN



Uinta Brewing 801

94

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Crisp, bright, clean pilsner with dialed-in hop profile."

What our reviewers

thought: "High floral quality in aroma and flavor; lilac on the nose. Spicy Noble hops take a backseat to the strong bouquet. Clean, with tiny wildflower accents. A steadfast bitterness builds into a smooth crescendo. Light cracker background yields to splashes of floral-hop purples and pinks. Clean, crisp finish."

What our editors thought:

"Fresh German-style floral nose with tight refinement. Slightly chewy in the sip, with a resounding but honed malt note that provides a beautiful counterpoint to the hops."

ABV: 5% **IBUs:** 37
Loc: Salt Lake City



Around The Horn Brewing Reverse Altitude

99

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

What the brewer says:

"Smoked helles lager using a base malt blend accompanied by beech-smoked barley malt."

What our reviewers thought:

"Aroma is camp smoke and Texas barbecue, fresh, deep post oak, absolutely lovely. Flavor is slightly sweet, toasty smoke with a soft, breadly malt flavor that takes center stage. A balancing bitterness keeps everything in check, and the smoke really adds wonderful depth. Absolutely fabulous beer."

What our editors thought:

"Smoked malt notes on the nose exude lightness and refinement, with a subtle sweet-malt edge and light citrus highlights. Malt sweetness pushes forward in the sip, buffering the initial smoke flavor while making room for a pleasant herbal bitterness that plays well against it. Complex and dynamically changing over the course of the glass, it's an engaging beer at every moment."

ABV: 5% **IBUs:** N/A
Loc: Groveland, CA



Kings County Brewers Welcome to the Underworld

99

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

What the brewer says:

"Brewed with German pilsner malt and Noble hops. Clean, crisp, and refreshing."

What our reviewers

thought: "Big white head with tight bubbles and a brilliantly clear, yellow color. Bright floral notes in the aroma. Touch of sulfur really adds structure. The first sip delivers crisp malt, a soft and slight sweetness, and a very clean, crisp, dry finish. These components expertly dance around each other creating a pleasant impression. A well-crafted beer."

What our editors thought:

"Gorgeous light malt nose with a significant fresh pils malt note—vibrant yet subtle, slightly nutty—and rounded lemony hops. That simplicity and lightness carry through to the flavor, as those malt notes somehow feel both full and weightless, and those hop notes build simple structure without significant bitterness. Substantial yet nimble, flavorful yet drinkable by the liter."

ABV: 4.7% **IBUs:** 25
Loc: Brooklyn, NY

St. Elmo Brewing Vaughn

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Texas-style German pilsner—that means it's extra good for the hotness."

What our reviewers thought:

"Crackery aroma—a mellow, slightly fruity, intoxicating pillow of smell; hops take a backseat to light, grainy sweetness. Some citrus esters play nicely with Noble hops. Some grainy spice, as an assertive huskiness contributes to the bitterness in an enticing way. Complex melding of malt and hops."

What our editors thought:

"Bready malt and bright floral hops with a tropical-blossom hue. Lower carbonation pushes the bold herbal flavor forward, but the smooth refinement makes it a welcome intensity."

ABV: 4.8% **IBUs:** 40
Loc: Austin



Urbanrest Brewing Wörk

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Pilsner brewed with German pils and Czech Saaz."

What our reviewers thought:

"Spritz, bright. A spearhead of bitterness smooths out for a clean, dry finish. Slight corn flavor detracts from the light grainy sweetness, lending an American feel. Carries an aura of hop bitterness throughout. Finishes balanced with a lingering dryness. Could use more oomph in Noble hop flavor."

What our editors thought:

"Cloudy, a touch 'keller' in execution. Gentle floral aroma with crisp water-cracker malt. Lemon and lime flavor notes give it zip while a spicy herbal bitterness sneaks in behind."

ABV: 5% **IBUs:** N/A
Loc: Ferndale, MI



American Solera Tulsa Time

86

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Helles lager."

What our reviewers

thought: "Clear, dark golden in color with a fluffy white head. Hint of sweet malt greets the nose intermingled with some soft green fruit that shows up late. Clean fermentation character with moderate malt character. Firm bitterness, perfume-like hop flavors dominate and linger. Dry finish."

What our editors thought:

"Sweet doughy malt in the aroma with faint hints of stone fruit. Bitterness jumps out in the flavor, as the leaner malt body allows the earthy and herbal hops to strike a bold line. Finishes clean."

ABV: 4.8% **IBUs:** N/A
Loc: Tulsa, OK



Green Bench Brewing Travel Set

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Traditional Munich-style helles."

What our reviewers

thought: "Mellow herbal aroma. Light earthy, Mexican oregano-like herbal hops, Hawaiian bread rolls, and a clean off-dry finish. Slightly sweet, tempered by a light bitterness. An overall softer profile. A good softer, malt-forward approach."

What our editors thought:

"Spicy herbal notes with a touch of lime zest and light woodiness in the aroma. Bready and warming in the sip with a very light hop bitterness softly working in the background while very light bready malt and a touch of lime zest stay foreground."

ABV: 4.7% **IBUs:** 17
Loc: St. Petersburg, FL



Hopewell Brewing Lil Buddy

96

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "A delightful little lager, a snack, a proverbial plus-one."

What our reviewers

thought: "Crackery sweet aroma. Wisp of sulfur. Floral and herbal on the tongue. A light white-bread note with a hint of graininess. Clean, light hop bitterness. Crisp finish."

What our editors thought:

"If we could give points for packaging, this beer would win it all. Mild country bread notes in the aroma with an endearing fresh-baked quality. Simple yet full in the flavor, with a clean big and bready malt that's satisfying yet resolves quickly with a light floral hop finish."

ABV: 4.2% **IBUs:** N/A

Loc: Chicago



Protagonist Beer Oskar

92

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Bright malt-forward aromas of cracker and fresh bread supported by subtle floral Noble-hop flavors."

What our reviewers

thought: "Slightly sweet grainy aroma with some floral hop notes. Sweet doughy bread malt intermingled with fruity esters and a spicy, floral, potpourri-type hop flavor that stays until the finish. Slight balancing hop bitterness up front. Finish is crisp and clean. A slightly sweeter, more flavorful offering, but it keeps things interesting."

What our editors

thought: "Lavender floral notes in the aroma with just a touch of malt. Hefty body, chewy with very soft bitterness."

ABV: 4.6% **IBUs:** N/A
Loc: Charlotte, NC



Casa Agria Specialty Ales Nyland Extra

86

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Export helles-style pale lager brewed with German malt and hops."

What our reviewers

thought: "Clear golden in color with a generous white head. Clean, grassy Noble hops. Big tangerine notes in both the aroma and flavor where it stays on the tongue well into the finish. Light bitterness and toasty, grainy malt. An off-dry to dry finish."

What our editors thought:

"Sunny sweet malt aroma is upbeat and playful. Hop bitterness ducks in and out of the bready malt with herbal aplomb, never stealing the show."

ABV: 5.6% **IBUs:** 30
Loc: Oxnard, CA



Halfway Crooks Beer MTRC

93

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Subtly hoppy, malt-accented bright lager."

What our reviewers

thought: "Grassy Noble hops in the nose. Unexpected bright citrus notes hit the tongue first, followed by a slight sweetness that transitions nicely to a clean bitterness. Fairly bitter, leading into a slight hint of grain and a lemon-like hop finish. More German pils than helles. Very enjoyable and well balanced, crisp, and refreshing."

What our editors thought: "Classical herbal-floral aroma, balanced and restrained, with elegant cohesion. Lightly bready in the sip, lean but full, with a cool detachment."

ABV: 4.8% **IBUs:** N/A
Loc: Atlanta



Kros Strain Brewing Helles Creek

90

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"German-style helles lager with light malt sweetness and no bitterness."

What our reviewers

thought: "Noble, earthy hop and subdued floral aromas with light bread following. Grainy with a hint of dark grapes, grassy hops, a roundness in the mouthfeel. Clean and bright off-dry finish. Enjoyable and easy to drink."

What our editors thought:

"Smooth crusty bread in the aroma with a light floral hop hovering out of focus in the background. Similar notes carry through to the flavor, with orange-blossom notes becoming more pronounced initially before they fade into the zesty bitter finish."

ABV: 4.8% **IBUs:** 18
Loc: La Vista, NE



Soul & Spirits Brewery Bring It Home

96

AROMA: 11
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Smooth malt character and floral freshness with a crisp, clean finish."

What our reviewers

thought: "Intense doughy nose with a hint of tangy, herbal hops. Clean, crisp, very well balanced. As soon as you get a soft bready malt character, an earthy, herbal hop flavor emerges with a soft hop bitterness. Very delicate beer. Easy to drink over and over."

What our editors thought:

"Purple flowers in the aroma with a strong crusty bread note. Hefty and full in the sip with more bread-crust malt and a reassuring weight that still finishes light."

ABV: 4.9% **IBUs:** N/A
Loc: Memphis, TN



TASTED: HELLES

Templin Family Munich Style Helles

90

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"German-style pale lager."

What our reviewers

thought: "Perfectly clear light golden, large, bright white head that stays around. Subdued aromas of herbal hops and soft bread. Grainy, slightly toasty malt flavors. The moderate clean bitterness from the hops just balances the malt character. Clean, dry finish, with a light herbal hop finish. Very light and drinkable but somewhat one dimensional."

What our editors

thought: "Bright balanced floral-herbal aroma with a hefty malt support. Cool and herbal in the sip, light body and refined."

ABV: 5% **IBUs:** N/A

Loc: Salt Lake City



TASTED: CZECH-STYLE PALE LAGER



BKS Artisan Ales Pivo Project: Bohemian Style Pilsner

99

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

What the brewer says:

"Bohemian-style pilsner."

What our reviewers

thought: "Pale yellow color with tight bubbles on a moderate, white head. Pleasant aroma of spicy grass. Lean but clear grainy malt flavor holds up to the moderate-plus bitterness. The hops meld with the malt to form a hoppy chewiness that works. Hint of sulfur is pleasant as well. Striking hop flavor really stands above the rest in this category. All the components dance around each other in harmony. Delicious."

What our editors

thought: "Floral with a touch of orange and lime and a nice bready malt note in the aroma. Hefty in the sip, strong hop character, but finishes dry despite the fullness. Thoughtfully executed."

ABV: 5% **IBUs:** N/A

Loc: Kansas City, MO



Breakside Brewery Noble Pilsner

89

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"A Bohemian-inspired pilsner."

What our reviewers

thought: "Fluffy white head, dark yellow color, clear. Great toasty and biscuity malt aspect in both the aroma and flavor. Pleasant herbal spicy hop aromas. Hint of sulfur. A soft, slightly sweet impression is left on the palate followed by a tempering crisp bitterness. As it warms, more of a papery quality makes an appearance."

What our editors

thought: "Toothy, balanced, malty with a light floral/herbal edge and a bit of sulfur. Ever-so-slight sweetness in the finish softens it."

ABV: 5.6% **IBUs:** 29

Loc: Portland, OR



Getaway Brewing Pit Stop

90

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Malted-wheat Czech-style pilsner."

What our reviewers

thought: "Golden in color. Grain-forward nose. Toast-forward flavor, with a bit of lemon-lime hops poking through. Soft watermelon underneath. A good example of 'malt first, but not lacking on hops.' Easy to drink and quite enjoyable."

What our editors

thought: "Good foam, a bit of color, and toasty malt in the aroma. The touch of sweetness amplifies floral hops in the flavor with a touch of lime, but it ultimately leans more toward malt flavor than hops."

ABV: 5.5% **IBUs:** 20

Loc: Dublin, OH



Trophy Brewing Slim's

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Helles lager with North Carolina pilsner malt and whole-leaf Sterling hop additions."

What our reviewers

thought: "Pale yellow with a white head, tight bubbles. Woody pine, herbal, slightly citrus hop-led nose. Flavor leads with bitter Noble hops with a heavy tangerine character. The German clean, malt-driven character comes out at the end, in the bright, clean, dry finish. An aggressively hopped take on the style, but one that works. Very easy to drink."

What our editors

thought: "Strong earthy hop nose with light citrus underneath. Hefty earthy hops in the sip, strong for the style."

ABV: 5% **IBUs:** N/A

Loc: Raleigh, NC



Divine Barrel Brewing Czech Pils

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Slightly sweet, toasty biscuit notes followed by a restrained hop presence."

What our reviewers

thought: "Clean, crisp bitterness dominates. Grassy hop nose with a touch of sulfur. Lean-bodied, firm bitterness with a burst of lemon hop flavor quickly disappears into an off-dry finish. Dry and lean, crisp with a hint of graininess as it warms."

What our editors

thought: "Woody hop and nutty malt notes in the aroma, with soft herbal and floral harmonics. Fresh herbal hop notes highlight the flavor. While the lean body isn't typically Czech, it feels cohesive and refined."

ABV: 5.2% **IBUs:** N/A

Loc: Charlotte, NC



Good Word Brewing Stověžatá

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Czech lager with Sugar Creek Edelweiss Malt. Collab with Cohesion."

What our reviewers

thought: "Rich, sweet, round breadly malt in the nose. Sweet malt in the flavor. Faint hint of ripe berries. Balance is slightly toward the sweetness with a very subdued bitterness. Incredibly soft and pillowy in the mouthfeel. Soft acidic, almost mineral, note lingers into a sweetish finish."

What our editors

thought: "Feels like a traditional beer that has staled just a touch. Toasty malt with lime edges in the sip, malt in the nose. Hops are present but subdued."

ABV: 5.3% **IBUs:** 30

Loc: Duluth, GA



Green Bench Brewing Bus Beer

89

AROMA: 10
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Our Světlý Ležák 12°, triple-decocted and brewed with Moravian malt and whole-leaf Bohemian Saaz hops."

What our reviewers thought:

"Mild toast on the nose. A big caramel and biscuit malt character, immediately chewed up by a firm bitterness and punch of Noble hop flavor. Finishes off-dry. Quite tasty and a well-crafted bold beverage."

What our editors thought:

"Gorgeous foam, great deep gold color. Toasty nose with a touch of floral, light but full in the sip, perfect hint of bitterness for structure. Excellent and true to the intended style."

ABV: 4.4% **IBUs:** 38

Loc: Saint Petersburg, FL



Liquid Mechanics Czech Shifty

94

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Czech-inspired pilsner."

What our reviewers thought:

"Refreshing and crisp with a moderate bitterness in the finish. Light spice, grass, and raspberry from the hops hit the tongue in the middle. A more modern take. Includes everything one wants out of a pilsner and doesn't overdo any one component."

What our editors thought:

"Elegant floral notes in the nose with bready pils malt and just a touch of fresh sulfur structure. Rounder in the sip without feeling sweet, as the earthy bitterness pulls against the big but dry malt body."

ABV: 4.7% **IBUs:** 30

Loc: Lafayette, CO



Resident Culture Riding for the Feeling

97

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

What the brewer says:

"Hopped with Saphir, Hallertau Mittelfruh, Hersbrucker."

What our reviewers thought:

"Fruity pineapple and kiwi in the aroma. In the sip, soft, ripe red fruit, lime, a hint of spice, moderate bitterness. Hop flavor really leads, covering up the malt, coming across as slightly sweet on the finish. A clean, crisp, soft, well-rounded fruity impression is left at the end of each sip."

What our editors thought:

"Gorgeous foam. Light and refined floral-herbal nose. Feels bigger than it is in the sip, full but with smooth hop spice. It's not afraid to embrace big character."

ABV: 5% **IBUs:** N/A

Loc: Charlotte, NC



Transient Artisan Ales Czech Yourself

97

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

What the brewer says:

"Czech pilsner-style lager."

What our reviewers thought:

"Deep golden color, fluffy white lasting head. Wet grassy hops on the nose. This dankness translates well into the flavor with a surprisingly crisp and light finish. Assertive bitterness. A soft impression balances sweetness and bitterness quite well. An unexpected, untraditional, very enjoyable beer."

What our editors thought:

"Beautiful golden color. Very light malt aroma with subtle spice undertones that push forward in the sip for a very light, almost anise-like bitter spice. Malt feels round with faint lime notes, despite the dry finish."

ABV: 4.8% **IBUs:** N/A

Loc: Bridgman, MI



Hideaway Park Brewery Czech Style Pils

96

AROMA: 12
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Bohemian pilsner malt and Czech Saaz hops."

What our reviewers thought:

"Playful key lime and watermelon rind in the aroma and flavor. Like a watermelon Jolly Rancher without the sweetness. Very clean bitterness helps balance any sweetness. A quick, soft, dry finish sets up the next sip."

What our editors thought:

"Deep red floral notes in the aroma with bread-crust malt undertone. More floral and berry notes in the flavor, buoyed by a big malt character with lime edges. Full and characterful, in the Czech tradition."

ABV: 5.1% **IBUs:** N/A

Loc: Winter Park, CO



Radiant Beer Such a Fine Line

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Showcases the balance between biscuity, doughy malt notes and herbal, spicy Saaz notes."

What our reviewers thought:

"Spicy, slightly floral hops in the aroma. Hop flavor is more lemon spice, with some grainy, slightly bready flavors. Finishes dry, with a good dose of Noble hops. More clean and crisp than rounded. Hop flavor is a real strength."

What our editors thought:

"Good color with an authentic deep tone. Toasty with orange edges in the aroma. Soft, pleasing malt sweetness in the flavor. Herbal and floral notes add intriguing highlights."

ABV: 4% **IBUs:** N/A

Loc: Anaheim, CA



Reuben's Brews Pilsner

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Bready malt notes. Floral and spicy hops are balanced with a hint of sweetness."

What our reviewers thought:

"Bright yellow in appearance, striking. White head lingers. Slightly muted floral background to the aroma. Wisp of graininess. Pink lemonade-like hop flavor. Moderate bitterness lingers on the tongue. Balance is definitely skewed toward the hop flavor, pushing any malt component out of the way."

What our editors thought:

"Nice cool floral note in the nose. Easy in the sip with a round bitterness that builds and supports without stealing the spotlight. Incredibly light."

ABV: 5.4% **IBUs:** 35

Loc: Seattle



Two Roads Brewing Czech Pilsener

98

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

What the brewer says:

"Brewed with Czech malt and Czech Saaz hops."

What our reviewers thought:

"Deep yellow with a puffy white head. Light earthy hops on the nose. Moderate bitterness. Crisp toasty malt background. Smooth, moderately soft mouthfeel leans toward sweetness. Well-balanced with a stronger hop flavor toward the dry, bitter finish."

What our editors thought:

"Czech-ish with a slightly deeper color, woody notes, and a touch of cooked pasta in the nose; cool herbal bitterness in the sip. Hops sing with a remarkable quality and depth."

ABV: 5% **IBUs:** N/A

Loc: Stratford, CT





Rosenstadt Brewery Houblon

98

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

What the brewer says:

"Medium-bodied pilsner with malty, crackerish notes; floral, fruity hop profile with aromas of black currant and lemon-lime."

What our reviewers thought:

"A subtle bread and slight bread crusts aroma with a bit of honey and herbal grassy hops. The flavor shows up with bread-crust notes and a malty hop bitterness. A bit of herbal, pepper hoppiness in the background. Understated, but balanced, herbal and floral hop notes. Very smooth lingering floral finish."

What our editors thought:

"Light, subtle in its berry spice hop in the aroma, while stone-fruit malt notes carry enough sweetness and body to soften the pointier tips of the piqued flavor."

ABV: 5.1% IBUs: 30

Loc: Portland, OR

All Season Brewing Moderne

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Cake-batter malt and soft citrus and floral hop character."

What our reviewers thought:

"Amazing clarity. Low-key but hoppy nose, with jasmine, strawberries, and herbs. Full-bodied with a simple but pleasant, biscuit-like malt presence. Hoppiness is red fruits—think cherry—herbal, and a bit grassy."

What our editors thought:

"Petrol and floral notes in the nose, in equal measure, but light enough to maintain a pleasant distance. Similarly restrained notes in the sip are braced by a touch of herbal bitterness, minimal yet engaging."

ABV: 4.8% IBUs: 26

Loc: Los Angeles



BlackStack Brewing Fugazi

91

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Crisp and light Italian-style pilsner."

What our reviewers thought:

"Spicy, green hops dominate the aroma with hints of fruit leaning toward strawberry. Full, malty body with a tinge of sweetness. Hopping is more fruity, even going slightly tropical. Bold hop bitterness lingers into the fruity finish."

What our editors thought:

"Dank American hop notes in the nose with a hydrocarbon overtone. Softer and a touch sweet in the sip, buffering the rather intense bitterness."

ABV: 4% IBUs: N/A

Loc: St. Paul, MN



Fair-Weather Friend Je Ne Pa Pas

88

AROMA: 12
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "A spicy, fruity note with a touch of bitterness on the finish."

What our reviewers thought:

"Light floral and herbal hops in the aroma. Hawaiian bread-like malt. Flavor showcases lingering perfumy floral notes on a bread-crust malt. Lowish hop bitterness. Finishes not quite dry."

What our editors thought:

"A touch musty but floral in the nose, like some pressed, dried pink flowers. More energetic in the sip, as those pink floral notes play with the lightly sweet malt. A bit more bitterness would balance, but the lightness is welcome."

ABV: 5.5% IBUs: 24

Loc: Oklahoma City



Allagash Seconds to Summer

89

AROMA: 12
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Brewed with hops from the Czech Republic and fermented with Belgian yeast for a crisp, refreshingly hoppy flavor."

What our reviewers thought:

"Hop-forward lager bursts with American-esque citrus. Classic pilsner malt flavors of saline or white bread that are instantly overtaken by the hop additions that lend a resinous, piney character. Ends bitter and dry, drinking like an IPL."

What our editors thought:

"Fragrant, lyrical Noble-like aroma with big rose notes. Light bready body with subtle floral tea hop notes that feel rooted yet quirky and contemporary."

ABV: 4.5% IBUs: N/A

Loc: Portland, ME



Dock Street Brewery Futuro

91

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Dynamic flavor and aroma of herbal nobility, soft melon, and blooming wildflowers."

What our reviewers thought:

"A bright floral, pineapple, papaya, and green-leafy herbal aroma starts things off. The flavor echoes with lots of floral character and bright herbal notes of black currant and mint that really jump off the low bready malt canvas. Bittering is smooth and moderate and lingers into a big hoppy finish."

What our editors thought:

"Grass and melon in the aroma, soft melon in the flavor as a touch of malt sweetness and lower carbonation push the fruit forward."

ABV: 4.8% IBUs: 53

Loc: Philadelphia



Getaway Brewing Italo Disco

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Hopped with Hersbrucker, Wakatu, and Petit Blanc."

What our reviewers thought:

"Understated aroma with low floral and herbal hop notes on a light toasted white-bread malt backbone. Some light peach notes in the flavor, along with the floral and herbal hops sitting on top of a low bread malt base. Finish is relatively short with just a bit of floral hop lingering. Bitterness seems somewhat understated, too."

What our editors thought:

"Lime nose veers toward kettle-sour territory, and the soft lime in the sip with minimal bitterness offers more of the same, sans acidity."

ABV: 5.5% IBUs: 36

Loc: Dublin, OH



Halfway Crooks Beer Exporr

95

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

What the brewer says: "A bolder expression of malt and hop profiles. A sturdy lager."

What our reviewers thought: "Aroma of fresh-cut apples, blooming trees, baking bread. Dry, yet elegant, biscuity malt character with a refreshing, delicate plum-blossom hop character. Flavor adds hints of lemon zest, moderate rosemary and thyme herbal notes. Bitter, but well aligned with the subtle malt character."

What our editors thought: "Fresh with berry and floral zing in the aroma. Light with a very faint woody note and light peppery bitterness in the sip. Very pale, but unabashed in flavor."

ABV: 5.5% **IBUs:** N/A
Loc: Atlanta



King's Road Brewing Nuova Bontà

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Hopped with Czech Saaz, German Saphir, German Tettnang, Spalter Select."

What our reviewers thought: "Herbal and floral aroma supported by a light bread-dough malt backbone. Some light blackberry notes in the flavor add interesting character to the floral hops. Well bittered with some minerality on the smooth bitter finish. Lingering floral and herbal hop notes."

What our editors thought: "Herbal with a tight bitter herb note that plays against some of the lighter doughy malt notes in the aroma. Classic Noble herbal intensity in the sip, with enough malt to back it up."

ABV: 5.3% **IBUs:** 33
Loc: Haddonfield, NJ



Reuben's Brews Apropls

93

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Italian-style pilsner with notes of lemon zest, pear, white grape. Moderate bitterness."

What our reviewers thought: "Subtle aroma of rosemary, hay, and white bread with some floral hop notes. Flavor sports a bread, almost biscuity, malt note, complemented by an earthy, fruit blossom-like hop character. Well-balanced bitterness. Hints of lemon zest and thyme linger into a medium dry finish."

What our editors thought: "Refined light nose with subtle Noble floral and grassy notes. Similarly floral in the sip, with a gauzy sheen, balanced with just a hint of spiky herbal bitterness."

ABV: 5.7% **IBUs:** 28
Loc: Seattle



Twin Barns Itssamee! Italian Pilsner

91

AROMA: 12
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Brewed with Italian malt and dry-hopped gently with Saphir."

What our reviewers thought: "Grands Biscuit aroma with some white pepper and floral hop notes. Flavor is slightly grainy with hints of lilac and honeysuckle that linger into a long floral finish. Bitterness is a bit low for a pils, but still enjoyable."

What our editors thought: "Light stone fruit in the aroma, with a touch of herbal spice. A touch chalky in the sip, but light with subtle fruit notes that intertwine with the malt for a seamless experience."

ABV: 5.2% **IBUs:** N/A
Loc: Meredith, NH



Imprint Beer Company Moda

90

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "Italian-style pilsner."

What our reviewers thought: "A light floral, herbal, stone-fruit nose with a subtle, sweet cereal aspect. Flavor has a light bread-dough malt backbone with a slightly murky set of herbal, floral, earthy, and spicy flavors. Well-balanced bitterness into a short finish. As the beer warms, some light stone-fruit character appears. Body could perhaps be a touch fuller. Carbonation on the higher end."

What our editors thought: "Light and earthy herbal nose, crisp structured sip with a modern light fruity feel that feels a bit more West Coast than Italian."

ABV: 4.8% **IBUs:** N/A
Loc: Hatfield, PA



New Image Brewing Premium Pils

93

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

What the brewer says: "Lightly dry-hopped with Huell Melon."

What our reviewers thought: "Light, crisp pomme fruit and floral hints in the aroma. Subtle malt aromas, with a light touch of banana. Honeysuckle, water cracker, white grape, and some dehydrated orange rinds. Very light body with a low hop bitterness. Finishes dry."

What our editors thought: "Gentle citrus and floral aroma with a bit of green banana. Acidity in the sip highlights that citrus note, with a broad malt behind it, and a strong herbal bitterness one step back."

ABV: 4.5% **IBUs:** N/A
Loc: Arvada, CO



Southern Grist Brewing Franco Crisp

97

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Pilsner style lager brewed with French pilsner malt and Barbe Rouge hops."

What our reviewers thought: "Moderate floral and slightly perfumy on the nose with a slight hint of bread dough. Malt profile is quite delicate, but complex, with toasted brown bread and biscuit with a spicy but smooth phenolic note of black pepper, just a hint of cinnamon, and subtle floral, stone-fruit aspects. Finish is smooth and lingering with black pepper and floral working harmoniously."

What our editors thought: "Light floral nose, lightly sweet malt with a soft floral bitterness. Refined and elegant."

ABV: 4.8% **IBUs:** N/A
Loc: Nashville, TN



WestFax Brewing Pillieve

95

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

What the brewer says: "Italian-style pilsner with Sterling and Saphir hops."

What our reviewers thought: "Moderate floral and herbal hop notes define the aroma with a hint of bread malt. Cracker-like malt body with balanced earthy, floral hoppiness. As the beer warms, light blackberry. Finishes with a lingering rose-like note."

What our editors thought: "Lower-key floral and subtle stone-fruit notes in the aroma. Light floral bitterness in the sip with a bit of bread malt sweetness. Classic and restrained, cleanly executed with some resounding lower mid-frequency notes that provide a satisfying range."

ABV: 5.4% **IBUs:** N/A
Loc: Lakewood, CO





12 West Brewing Radial Spines

98

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Hoppy, American-style lager with Citra and Mosaic hops."

What our reviewers thought:

"In the aroma, spicy herbal notes, barely-there fennel, floral notes, sweet pea flowers, slight lime zest, red berry. Lemony hop notes are punchy up front and allow a slight resinous pine quality to round out the finish. White-bread malty sweetness balances the hops. Luscious, medium body. Finishes perfectly balanced, inviting the next sip."

What our editors thought:

"Tropical floral notes with round orange and orange zest. Strong aromas, buffed with a matte patina. Cool and crisp in the sip, more lime than orange, with an express restraint."

ABV: 5% **IBUs:** 32

Loc: Gilbert, AZ



Finback Brewery Crispy Town

98

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

What the brewer says:

"Pilsner dry-hopped with Tettnanger, Saaz, and Motueka hops."

What our reviewers thought:

"Subtle, light, and delicate aromatics of floral and citrus notes with a clean, malt-forward nose. The hop notes are more present in the flavor and create a nice floral, fruity, and perfume-like counterpoint to the crackery malt sweetness. The mouthfeel is light and airy, and the finish is crisp and clean, creating a subtle but thoroughly enjoyable and supremely drinkable beer."

What our editors thought:

"Floral and fragrant nose, lyrical and looping. Sweet floral sip, endearing and cozy with a clever contemporary twist."

ABV: 5.2% **IBUs:** 20

Loc: Queens, NY

Alma Mader Shifting Shapes

89

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

What the brewer says: "West Coast pilsner with bright berry and citrus aromas and a crisp, floral finish."

What our reviewers thought:

"Soapy and floral hop notes in the aroma blend with subtle fruity notes of strawberry and lemon. Light, clean malt sweetness balances the dank, earthy, and pine-like bitterness that lingers long into the dank, pine-forward assertively bitter finish."

What our editors thought:

"Gorgeous West Coast nose with pineapple, orange, and a light tropical fringe that carry through into the flavor. Clean and methodically presented with lager precision."

ABV: 5.8% **IBUs:** 35

Loc: Kansas City, MO



Around The Horn Lost in Lucidity

97

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

What the brewer says: "New Zealand pilsner. Hopped with Hallertau Mittelfrüh. Dry-hopped with Nectarone."

What our reviewers thought:

"Pleasant balance of perfume, lemongrass, pine, and grapefruit creates a layered aroma. The balance between the light malt, soapy, floral bitterness, and hints of citrus, is spot on. Clean, crisp mouthfeel carries into the finish with just enough bitterness to carry into the next sip."

What our editors thought:

"Light orange-pine-apple aroma with no trace of herbal or dank notes. Similarly light fruit in the sip, with a very light neutral bitterness that leaves everything airy and open."

ABV: 5.2% **IBUs:** N/A

Loc: Groveland, CA



Alvarado Street Brewery Citraveza

93

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

What the brewer says: "Light, crisp bitterness, but Citra hop aroma and flavor are front and center."

What our reviewers thought:

"Nice balance of dank, earthy pine and bright citrus creates an inviting nose. Lively sip from a bright carbonation level and a supportive dose of lemon citrus and pine flavors. Finishes crisp, dry, and refreshing despite its somewhat singular focus."

What our editors thought:

"Bold pineapple and locker-room tropical aroma. Sweet pineapple in the sip with a very light body and sweeter tropical fruit notes and a clean crisp bitterness alongside."

ABV: 4.9% **IBUs:** 35

Loc: Monterey, CA



Barebottle Brewing Grow Haus

93

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "A West Coast pilsner, gushing with aromas of pine needles, cannabis, and tropical citrus."

What our reviewers thought:

"Assertive pine notes in the aroma blend well with orange, lemongrass, and honeysuckle notes. Pine flavors lean a little danker than the aroma suggests and are complemented by hints of orange zest and grapefruit pith. Bold bitterness lingers well into the clean, crisp, bitter finish."

What our editors thought:

"Tropical mango and papaya with a subtle baking-spice top note in the aroma. Spongy and sweet fruit in the sip overwhelms the very light tropical bitterness."

ABV: 5.3% **IBUs:** N/A

Loc: San Francisco



Bill's Bizness in the Front Hoppy Lager

93

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Hoppy pilsner with Citra and Simcoe hops."

What our reviewers thought:

"Mango and passion fruit are the stars in the aroma and flavor. Notes of candied orange peel, pear, guava, honeydew melon. Juicy hop punch has a smooth mouthfeel and malt sweetness that accentuate the juiciness. Seductive fruits."

What our editors thought:

"Bright guava and passion-fruit notes in the aroma, with sleek citrus undertones. Sweeter tropical fruit with strong citrus-zest bitterness in the flavor. Lower carbonation leaves it feeling a bit thick."

ABV: 6.8% **IBUs:** 42
Loc: Wilmington, NC



Burial Beer Extra

89

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"German pilsner malt. DDH with Galaxy, Citra, Nelson, and finished with Citra Cryo."

What our reviewers thought:

"Restrained nose is a balance of dank, earthy pine and tropical citrus. Flavor is bolder, with the dankness dominating. Some subtle lemon and grapefruit-pith notes. Hint of papery dryness in the finish mutes the citrus notes."

What our editors thought:

"Subtle yet evocative aroma hints more than it tells. Tropical fruit on the front of the sip gradually resolves into a medium grassy bitterness, bolstered by the carbonation and tight body, for a beautiful modern pils."

ABV: 5% **IBUs:** 30
Loc: Asheville, NC



Ecliptic + Ravenna Juicy Lager

88

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A multiverse of flavor with a juicy mix of modern hops. Notes of white grape, red currant, lime-orange citrus."

What our reviewers thought:

"Mango and pineapple up front. Passion fruit, mango, and a hint of orange drive the flavor profile. A light saline malt palate allows the hops to shine. Medium-low astringency puts the brakes on the fruit train. Overall, a little clunky."

What our editors thought:

"Bold tropical floral and pineapple aroma with a punchy thiol kick. Heavier in the sip, as the malt pushes forward with light carb and subtle hop definition."

ABV: 5.5% **IBUs:** 35
Loc: Portland, OR



Incendiary Brewing Rise of the Jedi

89

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "New Zealand-style pilsner with Motueka and Waimea hops."

What our reviewers thought:

"Fresh and floral in the nose with some subtle notes of strawberry, lemon, and pine. The fruitiness comes through more in the flavor for an impression of fruit punch-like flavors without the syrupy sweetness. Clean and crisp in the finish with a gentle and restrained bitterness."

What our editors thought:

"Key lime and white floral aroma with a touch of petit-four sweet breadiness. A juniper berry-like freshness adds zip to the citrus in the sip."

ABV: 5.5% **IBUs:** N/A
Loc: Winston-Salem, NC



Burgeon Beer Clever Kiwi

93

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Lightly hopped with Saphir and Nelson in the whirlpool and Nelson dry hop."

What our reviewers thought:

"Delicate notes of mango, fruit punch, and watermelon candy in the aroma give way to a clean, crisp tropical flavor profile that is scary drinkable. Its strength is its subtle and gentle flavor that finishes so clean you could easily miss the beauty of the simplicity."

What our editors thought:

"Diesel dank with light mango and guava around the edges of the aroma. Lemon pineapple in the sip conveys beautifully despite the dryness."

ABV: 5% **IBUs:** 20
Loc: Carlsbad, CA



COVA Brewing Maverick

92

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "Citra dry-hopped pilsner."

What our reviewers thought:

"Aroma of resinous pine, grapefruit, heavy navel oranges, a slight whiff of stanky papaya. An upfront bold, malty sweetness mingles with the resinous hop flavors, and the whole thing balances out in the end. Low bitterness with a lingering graininess in the finish."

What our editors thought:

"Orange and pineapple aroma with tropical tints of guava and mango. The fruit notes heighten the malt sweetness, with little bitterness to counter, making for an intensely fruit-forward expression."

ABV: 5.3% **IBUs:** N/A
Loc: Norfolk, VA



Highland Park Brewery DDH Crosbo Pils

95

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "A DDH West Coast pilsner brewed in collaboration with Crosby Hops."

What our reviewers thought:

"Fruity notes of strawberry and candied peach blend with subtle piney and floral aromatics for a compelling, complex nose. Fruity impression of sweetness in the initial sip is balanced by a floral and soapy bitter counterpoint. Culminates in a clean, crisp, lightly bitter finish."

What our editors thought:

"Light pineapple lime in the aroma with a bit of guava. Softly fruity in the sip with very light bitterness to balance, yet the sweet fruit doesn't overwhelm."

ABV: 5.8% **IBUs:** N/A
Loc: Los Angeles



Los Dos Potrillos Gil's Pils

97

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

What the brewer says:

"Combines the flavor of a traditional German-style pilsner with New World hopping techniques."

What our reviewers thought:

"Bright and lively hop aromatics jump out of the glass with hints of lemongrass, lime, perfume, pine, and pink grapefruit. In the sip, aspects of grapefruit pith and lime zest create a nice rounded but snappy bitterness."

What our editors thought:

"Sweaty tropical-fruit nose with hydrocarbon overtones. Energetic in the flavor with a racing fruit character that overshadows the lager body."

ABV: 4.5% **IBUs:** 35
Loc: Parker, CO



Luce Line Little 500

95



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Rice lager lightly hopped with Motueka hops."

What our reviewers thought:

"Bright and clean tropical lime aroma creates an inviting nose. Sip is nicely balanced between firm bitterness and crisp malt body with flavors of lime zest and basil. Crisp, snappy, clean, and super-drinkable, with just enough bitterness in the finish."

What our editors thought:

"Tight nose with slight tropical leanings played closed to the vest. Lean and vivid in the sip, as restrained tropical notes play against a simple clean body. A tropical-hopped beer that drinks like a lager."

ABV: 4.3% **IBUs:** 20

Loc: Plymouth, MN



Pontoon I Want It Cold & I Want It Now

95



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Intense wafts of clementine, dank haze, bright citrus, with crisp soda crackers on the back end."

What our reviewers thought:

"Light, bright tropical aroma of mango, melon, passion fruit, and lime blend with hints of pine, strawberry, cotton candy for a complex, layered nose. Flavor is less nuanced but delivers a healthy dose of piney and earthy bitterness."

What our editors thought:

"Modern West Coast nose with tropical guava and passion fruit. Clean tropical sip with light malt, a very light hint of pleasant sulfur, and a crisp, dry finish."

ABV: 5% **IBUs:** N/A

Loc: Sandy Springs, GA



Radiant Beer Evolving Universe

89



AROMA: 12
APPEARANCE: 2
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"West Coast pils with Citra, Strata, Motueka, and Loral Cryo hops."

What our reviewers thought:

"Aroma is a nice blend of lemony citrus, light pine, and tea-like elements. Sip is an enjoyable mix of lemony citrus, woody, and tea-like bitterness with a touch of earthy character. Clean, crisp body and light malt sweetness balance the bitterness. Finish is light on the bitterness."

What our editors thought:

"Demure nose with light fruit notes and a bit of soapiness. Dulled down in the sip, muted as light fruit and herbal notes wrestle with the bready malt."

ABV: 5.8% **IBUs:** N/A

Loc: Anaheim, CA



Smith & Lentz Pepperoni Castle

87



AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Pilsner dry-hopped with Simcoe."

What our reviewers thought:

"Bold aroma of dank pine, orange citrus, and peach carries through into the sip with a hint of diesel joining the fray. Somewhat heavy body. Finish leans hard into a bold bitterness that matches the assertiveness of the initial aroma."

What our editors thought:

"Soft citrus on the nose, IPA-like in its boldness. Freer in the sip, as the very light body, low bitterness, and medium citrus hop notes play a more balanced role than in the aroma. Somewhere between West Coast pils and cold IPA."

ABV: 4.6% **IBUs:** N/A

Loc: Nashville, TN



MAP Brewing Great Wave Sake Lager

96



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Rice lager fermented with sake yeast and dry hopped with Nelson Sauvin."

What our reviewers thought:

"On the nose, sweaty peach, melon, guava, canned fruit cocktail (in a good way). Very low water-cracker malt. White pepper hop character. Pineapple and banana flavor dominates up front. Ends with a sake note mixed with pineapple and a hint of warming alcohol. Well-balanced finish."

What our editors thought:

"Bright melon and tropical notes in the nose, IPA-like in their brightness. Kolsch-like in the flavor, with brisk carb, playful tropical fruit, and a crisp malt. Energetic and lighthearted."

ABV: 6% **IBUs:** 21

Loc: Bozeman, MT



Precarious Beer Project Sepulveda

92



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

What the brewer says:

"Slightly tropical and extremely crushable."

What our reviewers thought:

"Earthy, piney hops drive the aroma with low malt notes. Soft, sweet, bread doughy flavor. Floral and spicy hops. Nice bitter finish complements the sun-ripened sweetness. Spritzzy, lively body elevates the base malty flavors. Supremely drinkable."

What our editors thought:

"Lean and sparing nose with bright pineapple and mango. Restrained and balanced in the sip as the modern hop notes tuck into the pils program rather than stealing the show. Finishes with a nice Noble-like refined bitterness."

ABV: 5.6% **IBUs:** N/A

Loc: Williamsburg, VA



Roadmap Beer Curious, Not Judgmental

96



AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Dry-hopped pilsner combines an IPA nose and the clean finish of a lager."

What our reviewers thought:

"Smooth fruity hoppy nose of passion fruit, mango, green grass, apricot, boysenberry. Enveloping, but light, maltiness of toasted Wonder Bread and biscuits. Balanced flavor with notes of lilac, light stone fruit, and berry. Touch of warming alcohol. Moderately long floral and fruity finish."

What our editors thought:

"Soft stone-fruit notes in the nose don't express the expected Noble notes, but the light anise bitterness in the flavor offers an herbal foil to the soft fruit."

ABV: 5.5% **IBUs:** N/A

Loc: San Antonio



Southern Grist Southern Crisp

89



AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Unfiltered pilsner hopped with Nelson Sauvin."

What our reviewers thought:

"Subtle sulfur notes in the aroma quickly dissipate, giving way to hints of corn-like malt and a delicate floral and perfume-like hop profile. The sip is well-balanced with just enough malt character to support the floral notes and just enough bitterness in the finish to carry you to the next sip."

What our editors thought:

"Light stone fruit on the nose, with a tight sulfur burst. Stone fruit and pineapple in the sip with a light body and strong carb that pushes the lightness."

ABV: 4.4% **IBUs:** N/A

Loc: Nashville, TN



Strange Days Brewing Noiseland

93

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "New Zealand-style pilsner hopped with Motueka and Riwaka."

What our reviewers thought: "Orange citrus, herbal notes, and a touch of pine create a marmalade-like nose with a hint of rose petal. The floral notes emerge more in the flavor and add a perfume-like fruitiness, with hints of strawberry and melon mixing in. Clean and crisp with a nice bold, but balanced, bitter finish."

What our editors thought: "Pink grapefruit and cantaloupe in the aroma. Very soft fruit-malt leads in the sip with minimal bitterness, for an unstructured but still pleasing sip."

ABV: 5.2% **IBUs:** 40
Loc: Kansas City, MO



Pinthouse Pizza Radical Pils

97

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Bready aromatics and lemon-pepper zest flavors hit harder than a Buffalo-based breakdown throughout the pint."

What our reviewers thought:

"Subtle aroma of malt and grassy American hops. Complex from the outset. Bready malt, rich esters, and woody hop notes blend seamlessly. More hop flavor than bitterness, but well balanced, though tilted toward the malt side. Nuanced malt profile with hint of honey, hay, cereal with graceful floral hop notes. Rich without being cloying. Not a light beer, but certainly not sweet. Well-balanced hop bitterness and a crisp, clean finish."

What our editors thought: "Toasted bread and very light lemon zest with a faint rounded floral aroma makes it accessible and welcoming while light and fresh. That bready malt leads the sip braced by a firm general pils bitterness with earthy mineral undertones. The bitterness lingers, but a very light malt sweetness emerges to soften the finish. Dynamic and engaging."

ABV: 5.5% **IBUs:** N/A
Loc: Round Rock, TX



Transcend Beer Crafters Iconoclast

87

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "West Coast pilsner bittered with Czech Saaz and dry-hopped with Citra."

What our reviewers thought: "Subtle hints of peach and green tea balance dank, earthy hop notes in the aroma. The tea-like bitterness emerges more in the flavor, adding a fresh, green element to balance the dank, piney notes. Finish is crisp with a gentle but distinct bitterness."

What our editors thought: "Deeper citrus floral notes in the aroma, with a touch of earth. The sip raises the tone with a quirky lift, pushing high-mid citrus tones that feel a bit unsupported."

ABV: 5.4% **IBUs:** 40
Loc: Southington, CT

Alma Mader Brewing Crispy City

87

AROMA: 12
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 4
OVERALL: 9

What the brewer says: "A contemporary feel on a classic style."

What our reviewers thought:

"Playful nose of straw, honeysuckle, and orange blossoms. Bready, floral, herbal at the outset. The malt flavor is subdued with a bit of white bread and Cheerios. Minimal hops, but fermentation esters add complexity. Some graininess, low carbonation, and relatively high residual sugars. Sweetness balanced by herbal hops more than bitterness."

What our editors thought:

"Light, crisp nose with a floral edge. Light hops in the flavor lean floral with a lily freshness, while the malt lurks."

ABV: 4.2% **IBUs:** 30
Loc: Kansas City, MO



Cruz Blanca Brewery Cruz Light

91

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "100 calories, all-malt, dry light lager."

What our reviewers thought:

"Great clarity. Aroma has a bit of brewer's yeast and corn with a hint of peppery hops; cornbread-like. Grainy, moderate sweetness is light on the tongue; some would say 'crisp.' Fun flavors for a subtle style even if it leans a bit to the sweet side."

What our editors thought:

"Bright corn aroma with a touch of sulfur for definition. Very light in the sip, with a comfortable and familiar malt, minimal bitterness, and just a hint of sweetness to soften it. Incredibly drinkable."

ABV: 4% **IBUs:** N/A
Loc: Chicago



Cloudburst Brewing Bleed American

92

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "All-malt contemporary American lager brewed with freedom, Oregon-grown Crystal hops, and more freedom."

What our reviewers thought:

"Quintessential light-lager aroma—sweet corn and generic hops, with slightly dialed-up intensity. Flavor is more neutral with a subdued cereal maltiness and a fleeting hint of floral, grassy hops. Crisp, clean finish with a light body. Hops add floral notes to the flavor, but balance is tilted toward malt sweetness."

What our editors thought:

"Neutral aroma, simple with just a touch of malt. Tight sip with big carb and not much else (in the best way)."

ABV: 4.8% **IBUs:** 15
Loc: Seattle



Devil's Club Alaska Pure Mtn. Spring

85

AROMA: 12
APPEARANCE: 2
FLAVOR: 15
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "Uses untreated water from a natural Alaska spring in a temperate rainforest."

What our reviewers thought:

"Subtle floral notes at the outset, hint of roses. Toasted potato bun flavor with a wisp of plum-like fruitiness. Relatively full-bodied but the high carbonation and touch of hop bitterness help balance the finish. Herbal hops don't quite mesh, but overall, an enjoyable beer."

What our editors thought:

"Light, sweet floral bordering on melon candy in the aroma. Sweet malt in the sip evokes that candy comparison again, but the spiky herbal bitterness feels more like an argument than a complement."

ABV: 5% **IBUs:** 25
Loc: Juneau, AK



Fonta Flora Brewery The Pearl

86

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 5
OVERALL: 9

What the brewer says: "A pilsner-style lager brewed with oyster shells."

What our reviewers thought:

"Very little aroma, just a wisp of white bread. Sweet cereal maltiness interplays with a substantial salty, mineral presence. Low hop bitterness, but the minerality helps pull together a relatively clean finish. There is a hint of shellfish, but it's a hint and not overpowering."

What our editors thought:

"Vinous *sur lees* umami notes in the nose with a touch of Noble floral background. Herbal spice in the sip with a lime brightness, full without feeling heavy."

ABV: 5.5% **IBUs:** N/A

Loc: Morganton, NC



Great Lakes Rally Drum Premium Lager

86

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "An all-star roster of malt and hops swings for the fences and slides into a crisp, clean finish."

What our reviewers thought:

"Neutral aroma with a light hint of green apple. Malt-forward with a surprising hint of nutty brown bread. Understated, but surprisingly full malt flavor. Spicy hops with a wisp of stealthy bitterness are just enough to keep the malt sweetness in check."

What our editors thought:

"Deep golden color, faint bready malt notes in the aroma. Bold and round in the sip, with bread-crust malt notes balanced by lime zest bitterness. A robust take."

ABV: 4.2% **IBUs:** 20

Loc: Cleveland



Kros Strain Brewing Tippy Cup

94

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

What the brewer says:

"Made with corn, hopped with Hallertau Mittelfrüh and Saaz."

What our reviewers thought:

"Extremely pale with a fleeting white head. Classic light-lager aroma of corn flakes and herbal hops. Body cranks the dial to supreme drinkability with background flavors of corn and subtly floral hops. Finishes ultra-dry, almost sparkling water-like with a carbonic bite."

What our editors thought:

"Light malt in the nose with a lightly sweet floral note. Dry, open, and minimal in the sip, with a distinctly integrated light hop bitterness. Rigorously executed simplicity."

ABV: 4.2% **IBUs:** 15

Loc: La Vista, NE



New Image Brewing Tigre Especial

99

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

What the brewer says: "Pale lager with Troubadour Serenade and flaked maize. German Noble hops and lager yeast."

What our reviewers thought:

"Delightfully full of character."

Great white-bread aroma, sweet corn perfume, with a mineral-like carbonation. A moderate bitterness breathes some hop spiciness in there. Soft tortilla malt character finishes very clean on retronasal exhale. Venturing toward Bavarian but remains easy-drinking, easy to return to. Well attenuated and beautifully quaffable."

What our editors thought:

"Beautiful clarity, with a touch of color that suggests intention. Vaguely sweet malt nose with a touch of corn and no noticeable hop notes. Very light and approachable corn and malt sweetness in the sip, with faint floral and citrus-hop tones only there to balance. Finishes quick and clean, with a captivating orange-blossom note. Evokes sweetness without being sweet, appears crisp without being austere, and captures beautiful beer flavors while still remaining light and easy to drink."

ABV: 4.5% **IBUs:** N/A

Loc: Arvada, CO

G5 Brewing Cowboy Competition

87

AROMA: 12
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 4
OVERALL: 10

What the brewer says: "We fancy ourselves as modern-day cowboys."

What our reviewers thought:

"Bright, floral aroma with a healthy dose of honey and corn. Grainy, cracker-like on the nose. Corn-flake flavor with a hint of pear blossoms. Full-bodied but with a semi-crisp finish. Herbal hops add complexity, but let the sweetness grab the stage."

What our editors thought:

"Very subtle tropical hops notes in the nose feel unusual, but they're so dialed-back that they don't distract. They resurface in the flavor, supplanting the very light malt and highlighting the acidity."

ABV: 4.9% **IBUs:** 20

Loc: Beloit, WI



Imprint Beer Philsner

85

AROMA: 11
APPEARANCE: 3
FLAVOR: 16
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Fightin' Phils American light lager."

What our reviewers thought:

"Hint of poppy seeds at the outset—herbal—blends with an impression of toasted bread or bagel that carries over into the flavor. The flavor is surprisingly neutral, at least on the malt front, with an unexpected richness accented by corn sweetness. There are residual sugars but little maltiness to speak of. A bit of grassy floral hop character. High carbonation with a crisp finish."

What our editors thought:

"Woody floral and slightly fruity aroma. The flavor leans sweet, with a brief bitter jab and an acidic lime bite."

ABV: 4.3% **IBUs:** N/A

Loc: Hatfield, PA



pFriem Family Brewers American Lager

94

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

What the brewer says:

"Honeysuckle and a spritz of lemon and pear."

What our reviewers thought:

"Spectacular head, with great foam. Floral at the outset, touch of geranium and perfume, and, well, corn flakes. More corn-flake flavor with a passing hint of herbal hops. Light-bodied, but not thin. Clean, crisp finish is highly drinkable."

What our editors thought:

"Neutral nose with the lightest of malt notes. Light and tight in the sip, with an upper mid-key malt note that's both lightly sweet and properly structured alongside an invisible bitterness that leaves it thoroughly drinkable."

ABV: 5% **IBUs:** 15

Loc: Hood River, OR



12 West Brewing Onza

90

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Brewed with flaked maize, lime juice, Czech Saaz, and Motueka hops."

What our reviewers thought:

"Malt-forward with a kiss of sweet lime zest to keep it drinkable and honest. The flavor drops off a bit. Bready malt and sweet corn-on-the-cob preview an effervescent, dry finish. Very clean, but the acidity doesn't match the lime aroma, and that's a bit off-putting."

What our editors thought:

"Subtle layered lime notes in the nose with a bright minerality. Hefty malt in the sip gets cut instantly by lime acidity and a touch of bitterness, but resurfaces in the lingering lime finish."

ABV: 6% **IBUs:** 22
Loc: Gilbert, AZ



False Idol Brewing Viva Los Vaqueros

94

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

What the brewer says:

"Mexican lager."

What our reviewers thought:

"Aroma and flavor present lightly toasted bread notes, slightly maltier than other examples. Clean fermentation leads into a dry, effervescent finish. Lands on the sweet side. A little corn chip-like finish showcases some of the cereals, with just enough floral hop to work. Highly drinkable, with richer-than-pilsner malt character. Reminds me of barley champagne."

What our editors thought:

"Defined nose with a very light floral edge. Vibrant and energetic sip, properly restrained with a bubbly energy."

ABV: 5% **IBUs:** N/A
Loc: North Richland Hills, TX



Kings County Brewers Tacozilla

89

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Brewed with pilsner malt and flaked corn. Light, crisp, refreshing."

What our reviewers thought:

"Sweet, lightly estery aroma with stewed corn. Flavor has pleasant crackery malt, spritzzy with a slightly metallic, papery finish. Cleanly fermented. A crusher, effervescent and light, a touch of acidity. Balances on the sweet side; a little more hop character would make it more memorable. Would benefit from a lime wedge."

What our editors thought:

"Neutral nose with very faint floral hop notes. A touch sweet in the sip, with light carb and a medium bready middle that feels a touch big for the style."

ABV: 4.2% **IBUs:** N/A
Loc: Brooklyn, NY



Uhl's Brewing Mediodia

94

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Blend of two German pilsner malts and flaked yellow maize. Hopped in the kettle with Mittelfrüh and Tettnang."

What our reviewers thought:

"Pale, with thick foam. Sweet, corny, and cracker-malt character. Finishes dry and drinkable. Well-made, highly consumable. Maybe the most unassuming beer we've had—nothing to fault it, but also nothing that says much. Clean and balanced. Could be the beer the Beastie Boys were rapping about in 'Paul Revere.'"

What our editors thought:

"Light nose with just a touch of lime zest. Lightly sweet but crisp and focused in the sip. Energetic yet relaxed."

ABV: 5.2% **IBUs:** 20
Loc: Boulder, CO



Anchor Brewing San Pancho

89

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Zesty citrus and sweet-corn flavors. Golden maltiness and Saaz hops."

What our reviewers thought:

"Clean, well fermented, with a light hand of zesty lime—enough to be evident but not distract. Malt dominates with soft white bread. A hint of macro malt-and-corn in the flavor keeps it true to style. The lime works well, brightens this up a bit. Enjoyably drinkable. Casual and easy."

What our editors thought:

"Sweetish malt nose with subtle fragrant stone-fruit esters. Very light hops provide a faint herbal contrast to peachy sweet malt, while the carbonation does the heavy lifting for balance."

ABV: 4.9% **IBUs:** 17
Loc: San Francisco



Fly Llama Brewing Me Llamito Llamito

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Brewed with Texas blue corn, great with or without a lime."

What our reviewers thought:

"Grainy, bready nose presents itself as somewhat husky. A hit of perfumy and herbal hops greets you. The malt is out of the way, just a hint of sweetness with moderately low bitterness. A green-fruit character and acidity finishes with the sip. Flabby. Crushable, reminding me of its European roots. Salt of the earth."

What our editors thought:

"Fresh-baked bread in the aroma with slight earthy undertones. Slimmer in the flavor than the nose suggests, with light, refined herbal hops and heavily toasted bread."

ABV: 5.1% **IBUs:** 14
Loc: Biloxi, MS



Pure Project Brewing Built to Last

93

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

"Features Motueka hops from Freestyle Hops in New Zealand."

What our reviewers thought:

"Mint, sage, and savory hop bouquet dominates the aroma. Medium-low bready and crackery malt balanced with a hint of corn sweetness on the finish. Dry and soft on the palate. Clean fermentation. So much fun in a crushable little beer."

What our editors thought:

"Quite modern nose with zesty yuzu and sudachi over a lightly kilned bready malt note. Contemporary vibe extends into the flavor, as bitter citrus notes amplify the dryness, with just a hint of tropical-citrus bitterness."

ABV: 4.7% **IBUs:** N/A
Loc: San Diego



WeldWerks Lime + Sea Salt Long Bones

93

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Mexican-style lager with lime and sea salt."

What our reviewers thought:

"Acidic, fresh-cut lime in a glass with salt on the rim. A bit of malt sweetness balances the lime. There's beer here somewhere, but the slight agave sweetness and rich lime present like a margarita. Salt adds complexity and rounds it out."

What our editors thought:

"Lime and minerality project margarita in the aroma; an earthy funk echoes tequila. Intense lime in the sip rides the ideal balance between sweet and dry, as salt builds a structured, dry body. Finishes with tart, lingering lime."

ABV: 5.7% **IBUs:** N/A
Loc: Greeley, CO



TASTED: AMBER LAGER



Roaring Table Brewing RTB Maibock

98

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:
"Malty spring lager."

What our reviewers thought: "Clean aroma with a low floral note and medium-low toasted malt—quite inviting. Beautifully clear with a small foam head. Very clean flavor with toasted malt dominant, supported by just enough bitterness to balance the finish. Great finish with a light lingering malty note aftertaste. Excellent execution and pleasing character. This would be great on a hot summer day."

What our editors thought:
"Bready aroma spans from sour-dough crust to soft pillowy middle, with a light floral hop hit. Heftier malt in the sip maintains structure with a lemon-lime bitterness and light floral notes, and it finishes with a spring in its step. As spritely as it is brisk, with an endearing lift."

ABV: 6.7% **IBUs:** 30
Loc: Lake Zurich, IL

Birds Fly South The Time It Takes

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Lightly toasted bread malt notes and Noble hops accentuated by a light addition of smoked malt."

What our reviewers thought:

"Fruity aromas of apples and cherries. Smoked component is reserved, barely detectable in the aroma. Flavor is malt-forward, light oak and cherry-like smoke, with earthy, floral hops. Complex and interesting, the flavors play off each other quite nicely. Medium to medium-dry finish."

What our editors thought:

"Very light peach and smoke notes in the aroma, with a backing breadiness that persists in the sip and softens the smokiness. Subtle and refined."

ABV: 5.9% **IBUs:** N/A
Loc: Greenville, SC



Casa Agria Traut

89

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Vienna-style amber lager with a complex malt flavor, light body, and refreshing finish."

What our reviewers thought:

"Floral and perfume hop aromatics are supported by some pleasant bread crust and toast malt character. Malt sweetness is a bit heavy-handed in the sip with an odd fruit tartness. Shifts into the finish as floral and herbal bitter notes arrive to clean it up."

What our editors thought:

"Crisp bready nose with a floral hop note tucked right in. Cool and smooth in the sip, as that dance between light malt sweetness and light hop bitterness commences around the edges."

ABV: 5.6% **IBUs:** 22
Loc: Oxnard, CA



Dimensional Brewing Short Rail

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Amber-colored lager with hints of toast and caramel."

What our reviewers thought:

"Fairly hop-forward initially, herbal and floral. Appealing and inviting with soft toast and light caramel. Solid clarity and color. Malt-forward flavor of pie crust, biscuit, light toast, bread crust. Low hops throughout in bitterness and flavor. Lovely and clean in fermentation. Sweetness and moderate body impact overall drinkability."

What our editors thought:

"Sweet floral notes in the aroma are followed by sweet caramel malt notes in the sip, with a slight vegetal tinge and lingering aromatic floral notes."

ABV: 4.7% **IBUs:** 14
Loc: Dubuque, IA



Brick West Brewing Lucky Penny

96

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "Sweet honey aroma. Flavors of sweet maltiness, lightly toasted breadcrumb."

What our reviewers thought:

"Floral, spicy hops with light sulfur. Light toast and bread crust with very clean toffee and toast malt flavors. Elegant richness without significant sweetness. Firmly bitter with spicy flavors lingering long into the finish. Bright, soft water profile lends a light apricot malt fruit in the finish."

What our editors thought:

"Strong Noble aroma with floral and grassy notes. Subtly sweet malt in the sip with a structured bitterness that quickly takes hold and lingers."

ABV: 5.6% **IBUs:** N/A
Loc: Spokane, WA



Central Standard CSB Vienna Lager

94

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

What the brewer says:

"Expect notes of toasted bread and caramel sweetness, with a clean, balanced sweetness."

What our reviewers thought:

"Wonderfully balanced malt aromatics of roast, toast, bread, and cracker are supported by a clean floral hop note. The sip delivers what the aroma promises with a nice layered-but-restrained malt body and a balanced floral and perfume bitterness. Drinks clean and finishes crisp."

What our editors thought:

"Hefty bready malt in the aroma with a strong floral streak. Sweet but structured in the sip as the bitterness cleans up the strong malt in the finish."

ABV: 5% **IBUs:** N/A
Loc: Wichita, KS



Fair Weather Friend Northern Flicker

87

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Malt-forward Vienna lager with crisp notes of toasted bread and pumpernickel."

What our reviewers thought:

"Floral and herbal hop notes in the aroma balanced by hints of bread crust and toast. Roast character in the malt body creates a nice counterpoint to the otherwise bready sweetness and integrates well with the floral hop bitterness. A touch of carbonic bite attempts to further temper the malt sweetness creating a crisp, clean, but lightly bitter finish."

What our editors thought:

"Toasty bready nose, bready but fruity flavor with a quirky burnt note mid-sip."

ABV: 5.9% **IBUs:** N/A
Loc: Oklahoma City



Grimm Artisanal Ales Maypole

92

AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Toasted bread with whole honeycomb present a cozy sweetness balanced by a light yet lingering bitterness."

What our reviewers thought:

"Clearly made and toasty with no esters evident. Fairly crisp with a solid bitterness that complements without overdoing it. Hop flavor is medium and showcases Noble qualities. Body is medium and helps camouflage the alcohol."

What our editors thought:

"Gentle floral hop aroma with notes of honeydew melon. Earthy bitterness in the sip is buffered by a light bready malt that finishes softly, but with purpose."

ABV: 6.5% IBUs: N/A
Loc: Brooklyn, NY



Indio Brewing El Chombo

90

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Soft coffee, biscuit, and toffee."

What our reviewers thought:

"Notes of roast and dark caramel in the aroma with husky grain, and piney, earthy, and resinous hop notes. Medium body with moderate carbonation. Hints of cherry and golden currant sweetness. The sip is clean and balanced with a nice structure to support the woody, earthy, and light pine bitterness."

What our editors thought:

"Oxidation has knocked the Noble nose down into something that resembles an import and pumped some malt sweetness into the mix."

ABV: 5% IBUs: N/A
Loc: Sugar Hill, GA



KC Bier Maibock

86

AROMA: 11
APPEARANCE: 2
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Medium-bodied with rich malt flavors of caramel and honey, moderate bitterness."

What our reviewers thought:

"Grainy sweet flavor with caramel and hints of floral and herbal hops that improve with warmth. Light apricot malt ester. Despite the present bitterness, surprisingly little hop flavor. Hard to believe a maibock could be too malty, but here it is."

What our editors thought:

"Gentle floral aroma with light bready malt notes and a touch of lime. Sweet bready malt notes initially in the sip resolve with floral bitterness pushing forward in the finish."

ABV: 5.9% IBUs: N/A
Loc: Kansas City, MO



Meanwhile Brewing Vienna Lager

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"We think it's pretty good."

What our reviewers thought:

"A clean malt nose of cracker and bread crust complements floral and perfume hop aromatics. Light malt notes with just a touch of cracker lean into the Munich helles space with a nice complementary bitterness from the floral, lemongrass, and tea-like hop character. Clean and crisp in the finish with a bright carbonic burst."

What our editors thought:

"Quiet nose with purple floral notes and just a tinge of citrus blossom. Chunkier malt in the sip, central and grainy, with a strong bitterness to balance."

ABV: 5.2% IBUs: N/A
Loc: Austin



Hi-Wire Brewing Red Rye Lager

92

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Clean drinker with a pinch of spice and a full body."

What our reviewers thought:

"Initial pencil shavings and cedar note from the rye in the aroma, with light herbal hops. Notable toast and bread crust and light initial acidity. Strong toast and pie crust with a light woody hop aftertaste. Finishes clean, very malty with little hop bitterness as the rye spice attempts balance."

What our editors thought:

"Deep toasted bread crust notes on the nose with a faint lime hop note. Herbal spice in the sip is accelerated by the lean dryness."

ABV: 5.7% IBUs: N/A
Loc: Asheville, NC



Jagged Mountain For the Adventure

94

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

What the brewer says:

"Freshly baked pie crust and subtle toffee caramel notes balanced with a light floral pop."

What our reviewers thought:

"Pleasant, subtle coffee notes emerge out of the roast malt and floral hop aroma. The sip is a nice back and forth of sweet malt and complex bitter hop notes with caramel, cracker, bread crust, rose petal, tea, and touch of perfume."

What our editors thought:

"Warm orange and citrus notes in the aroma, almost classic-pale-ale-like. Bready in the sip, with a lingering citrus-sweetness note."

ABV: 6% IBUs: 15
Loc: Denver



King's Road Brewing El Capitan

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Inspired by the brewing traditions of both Mexico and Austria."

What our reviewers thought:

"Fairly hop-forward aroma, floral and herbal with a hint of apple peel. Bread crust and toasty malt in the flavor with apple that continues in the finish. Not quite clean, but the herbal hop bitterness balances the rich toast and roasted nuts and accents the rich malty notes well."

What our editors thought:

"Floral-vegetal aroma is a bit overwhelming. Brisker in the sip, but the distracting vegetal notes find a bit of spice that adds more chaos."

ABV: 4.9% IBUs: 24
Loc: Haddonfield, NJ



Metazoa Whiskers on Kittens

88

AROMA: 10
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 9

What the brewer says:

"Double-decocted Vienna lager."

What our reviewers thought:

"Clean floral and soapy hop aromatics emerge over the top of subtle bread and crackery malt in the nose. Hint of citrus hops. A bit light in the roast character, but the balance is spot on with floral and perfume-forward bitterness complemented by a supportive clean malt body."

What our editors thought:

"Modern fruit-forward hop notes in the nose, orange and orange-blossom bolstered by sweet malt. Tighter in the sip, as the floral notes lean more classic, with slight malt sweetness that fades into a lingering floral bitterness. Well-paced."

ABV: 5.5% IBUs: 25
Loc: Indianapolis



TASTED: AMBER LAGER

Old Thunder Brewing The Power of Ink

96



AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Brewed with Vienna and Munich malts and Hallertau Mittelfrüh hops."

What our reviewers thought:

"Lemon zest and floral notes in the aroma balanced by bready and cracker malt elements. Lovely soft water brightness throughout. Clean malt flavors combine with citrus and fruity hops to create a sip that leans a little sweet. Malt is elegant with refined biscuit and pie-crust flavors. Great drinkability and beautiful complexity."

What our editors thought:

"Sweet floral notes with a bit of light pils sulfur structure. Equally brisk in the sip, as the high carbonation and light malt amplify the effervescence."

ABV: 4.6% IBUs: N/A
Loc: Pittsburgh



Roaring Table Thither They Return

88



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

What the brewer says:

"This Franconian-style rotbier is a beautiful thing."

What our reviewers thought:

"Roast and earthy malt notes combine with hints of smoke in the nose. The smoke character becomes a bit more meaty in flavor but balances well with the earthy and pine hop notes. It finishes clean with a sense of heft."

What our editors thought:

"Beautiful deep garnet color. Low pitched malt nose with stewed fruits and a floral top note. Unusual in the sip with an upfront fruit-malt flavor that quickly drops. Finishes incredibly light and minimal for a beer with so much upfront flavor."

ABV: 5.4% IBUs: N/A
Loc: Lake Zurich, IL



TASTED: CZECH & GERMAN-STYLE DARK LAGER



Highland Park Brewery Bortz

99



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

What the brewer says:

"Crisp, chocolatey, roasty, and very drinkable, with visuals of dark mahogany and tinges of carnelian gemstone. Named after our former brewer's Dungeons & Dragons character."

What our reviewers thought:

"Opaque, with deep garnet highlights at the edges, with a large but not overly persistent head. Big chocolate notes dominate the aroma. As that settles, more light roast appears. Very clean, no esters. Very smooth, sporting a medium-low roast profile with a hint of chocolate in the finish and aftertaste. Bittering and flavor hops don't stand out, but support and enhance this wonderful concoction. Easy-drinking, with flavor to keep me coming back for more."

What our editors thought:

"Toasty nose with very light roast and a faint hint of barbecue sweetness in the back. Weightless in the sip, defying expectation with a simple bready malt, only the faintest roast undertones, and a very subtle, bready sweetness that somehow remains lean."

ABV: 5.5% IBUs: N/A
Loc: Los Angeles



Incendiary Brewing Schwarzbier

99



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

What the brewer says: "Our house dark lager."

What our reviewers thought:

"Fantastic example of the style. Really nice roasted malt character. Rich, complex dark malt with no roast-bitterness or harshness. Well-balanced mouthfeel with a snappy, balanced finish. Clean without being stark, leaving lingering notes of chocolate and dark caramel. Great simplicity while still having depth. Creamy, subtle, with an understated complexity. Drinks like a lager."

What our editors thought:

"Cold-brew coffee aroma carries through into the sip with a very light sweetness playing against subtle roast notes, but pleasantly restrained with a light finish."

ABV: 5% IBUs: N/A
Loc: Winston-Salem, NC

Roadmap Freudian Slip N Slide

96



AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Notes of bread crust and a balanced sweetness."

What our reviewers thought:

"Lovely toasty biscuit aroma and light, bright floral hops. Light chewy toasty flavor with a hint of tartness. Herbal-floral hop makes it quite dry and refreshing with a pleasant and appealing richness despite the medium-light body. Rush of soapy and floral bitterness is firm and assertive."

What our editors thought:

"Bread crust with vivid floral notes in the aroma, fresh and spring-like. Toastier in the sip, with deeper Maillard notes and a chunky, somewhat intense hop bitterness."

ABV: 5.5% IBUs: N/A
Loc: San Antonio



Twin Barns Pitou Pale Lager

94



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

What the brewer says:

"Classic Vienna lager with a lighter touch on the malt side."

What our reviewers thought:

"Bold floral and perfume-like hop notes in the aroma emerge out of subtle hints of bread and cracker malt. The malt flavors of cracker and light toast support a well-balanced dose of floral and soapy bitterness. Finishes clean and crisp with just enough lingering bitterness."

What our editors thought:

"Deep golden color, light for the style. Simple aroma with very light floral hop notes, orange blossom. Clean and tight flavor in the sip, minimal sweetness but decent body, with a light crisp structure."

ABV: 4.3% IBUs: N/A
Loc: Meredith, NH



Art History Brewing St. George's Day

86

AROMA: 10
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 8

What the brewer says:

"Munich dunkel. Aroma of warm pumpernickel bread and hearty dose of light molasses flavor."

What our reviewers thought:

"Light aroma; as it warms, a vigorous swirl coaxes out a roasted malt hint. Flavor presents more malt, skewing to chocolate rather than toast and bread crust. Pleasant, if not tightly adherent to style. Smooth, drinkable."

What our editors thought:

"Sweet, spicy aroma with light notes of burnt toffee and toast, cinnamon, nutmeg. Those burnt-crust and spice notes dry the body just a hair too much, leaving it more spacious and spare than warming and full."

ABV: 5.1% **IBUs:** 17
Loc: Geneva, IL



Fracture Brewing Czech Dark Lager

94

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Substantial malt backbone with notes of toffee and toasted raisin-wheat bread."

What our reviewers thought:

"Candy-like sweetness on the nose, some burnt sugar, toasted sourdough, rye—effervescent and pleasant. Big, roasty flavors throughout, with hints of ribbon candy. Rounded, complex malt body. Finishes with lingering, dough-like sweetness without being heavy or plodding. Clean and bright."

What our editors thought:

"Deep malt notes, dark toast into light chocolate, with a significant herbal and floral hop aroma. Bold, with a malt sweetness buffered by hops—finishes with a light, pleasing herbal bitterness."

ABV: 4.8% **IBUs:** N/A
Loc: Portland, OR



Hoppin' Frog Brenda's Schwarzbier

92

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

What the brewer says:

"German malt and just the right amount of hops to create an ideal balance."

What our reviewers thought:

"Light-roast coffee and strawberry ribbon candy in the nose; like Neapolitan ice cream. Blurs into stout territory—fairly rich and full-bodied. Pleasant and complex malt character, but a bit roast-heavy, with a lingering sweetness to wrap it up. Balanced mouthfeel that leans sweet, yet the bitterness keeps it restrained."

What our editors thought:

"Woody hops and roasty malt in the nose. Sweet latte in the sip, with creamy roast and unsweetened chocolate that finishes a bit soft."

ABV: 5.8% **IBUs:** N/A
Loc: Akron, OH



Strange Days Brewing Desolation

92

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

What the brewer says:

"German-style black lager."

What our reviewers thought:

"Chocolate notes with a kind of distractingly effervescent bite in the nose. Aromatically, it has a lot of lift; moderate roasted character with esters that push through. Chocolate and coffee with noted roast harshness and hints of smoke. Light to medium body with higher carbonation. Leaves a bit of a chalky mouthfeel. Spicy-grassy hop character balances well on the clean finish. Pleasant, but a bit rough on the edges."

What our editors thought:

"Woody, light roast nose. Round and soft malt in the sip, a bit too friendly."

ABV: 5.4% **IBUs:** 35
Loc: Kansas City, MO



Barebottle Brewing Dark Cosmos

93

AROMA: 11
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Discover a portal to a dark cosmos full of soft, rich dark malts."

What our reviewers thought:

"A bit austere on the nose; one-dimensional dark malt with a black-marker note leaves a stark overall impression. Thin body, with a roasted note that persists. Stands up straight with a pleasant, structured bitterness to balance some roast sweetness. Lacking in depth and complexity to really let you savor it. Clean finish."

What our editors thought:

"Cool herbal-floral character on the nose, strong but refined and a bit distant. Quiet in the sip, with a tight, herbal bitterness that resolves into softer spice in the finish."

ABV: 5.3% **IBUs:** 29
Loc: San Francisco



Good Word Only Memories Remain

91

AROMA: 11
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Col-lab with Bluejacket. Medium-bodied dark lager, a bit toasty, subtle dark fruit with minimal roast."

What our reviewers thought:

"Fruity malts with some toasted pecan undertones. Toffee and toasted sugar up front with a mild, hoppy spiciness throughout. A bit muted—sweet on the finish without much bitterness to tie everything together. Like a light American amber, low on hop character, with a light-lager fermentation profile."

What our editors thought:

"Light caramel notes in the nose entwine with soft, grassy hops. Light and enticing toasted-bread notes in the sip resolve into a subtle, Noble bitterness in the finish."

ABV: 4.4% **IBUs:** 22
Loc: Duluth, GA



Pontoon Brewing The Schwarz

98

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

"Enjoy this delicious black lager to keep those cold nights going smooth."

What our reviewers thought:

"Pleasant dark-roast character in the nose; toasted bread with nuts. Beautifully creamy like a nitro pour, accentuating dry chocolate and roast malt. Clean bitterness pairs well with subtle sweetness. Maybe a bit heavy on the roast, but it adds a nice backing bitterness to the nice, snappy finish. Punches above its weight."

What our editors thought:

"Inky herbal and forest notes in the aroma. Lighter in the sip, with crusty bread notes and a light floral bitterness that softens the intensity."

ABV: 5% **IBUs:** N/A
Loc: Sandy Springs, GA



Transient Artisan Ales Contronym

98

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

What the brewer says:

"Czech-style dark pilsner."

What our reviewers thought:

"Toasty malt aromas with hints of peat and smoke. Light-bodied, crisp, with pleasantly complex darker malt on the finish and notes of caramel, dried cherries, and chocolate. Subtle spice and burnt sugar. The roast gives it a slight chalky note but still very pleasant on balance. Lighter to medium body with a clean finish. Complex without being heavy or sweet. Beautiful everyday drinker."

What our editors thought:

"Smoky nose with fruity undertones. Light in the sip, with vague, unsweetened chocolate notes that develop a smoky tinge in the finish."

ABV: 4.3% **IBUs:** N/A
Loc: Bridgman, MI



TASTED: STRONG DARK LAGER



Wise Man Living a Double Life

98 AROMA: 12
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Rich and dark, this silky-smooth lager seduces you with sweet malty flavors. But drink carefully, because it packs quite a punch."

What our reviewers thought:

"Aroma is fairly light with notes of dark fruit and light toasty malt. Deeply mahogany with good clarity and a small but persistent head. Flavor is smooth and rich, with deep maltiness and strong dark fruit and cherry notes. Bitterness is low and balanced, keeping the finish from being overly sweet. Hops are minimal throughout. Very pleasant to drink."

What our editors thought:

"Crisp toasty edge on the nose evokes everything from dried oak leaves to stewed plums—rich with both sweet and more structuring elements that build a broadly intriguing aroma. It's more indulgent in the flavor, as the sweeter dark-fruit notes initially push forward and claim space, only to be dried out in the finish by the light woody and herbal notes. Ranging yet focused, sweet yet spry, it's a thoughtful study in contrasts."

ABV: 8.5% **IBUs:** 20

Loc: Winston-Salem, NC

Birds Fly South Sometimes Goats

90 AROMA: 12
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Intense malt notes of raisin, caramel-drizzled toasted breads, and a pleasant hop bite."

What our reviewers thought:

"By-the-book malt with some toffee, hints of toasted coconut, maybe light fruit, but at the expense of depth. Spicy and floral with undertones of toffee and ribbon candy. Clean and crisp on the finish, almost veering toward easy drinking. Well executed, just a bit understated."

What our editors thought:

"Sweet toasty breadly malt in the nose with just a touch of herbal hops. Significantly sweet in the sip, but clean with a crisp herbal edge. Sweet, yet sophisticated."

ABV: 7% **IBUs:** N/A

Loc: Greenville, SC



Field Brewing Doppel Dribble

96 AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Full-bodied German spring lager."

What our reviewers thought:

"Rich malty aroma, clean and toasty with a hint of floral hops. Smooth and rich, with a full body and low bitterness. Minimal hop flavor. Alcohol is very well hidden, lingers with a hint of sweetness and light toasted malt. Very well balanced and superbly drinkable."

What our editors thought:

"Light nose with oatmeal-cookie notes. Soft sweetness in the initial sip finds a light herbal hop bitterness and a bit of malt tannin to balance. Finishes with a tight herbal bitterness that plays nicely with the lingering malt."

ABV: 7% **IBUs:** 23

Loc: Westfield, IN



Grimm Artisanal Ales Prognosticator

90 AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 4
OVERALL: 10

What the brewer says:

"Notes of molasses, toasted bread, warm baking spices, dark caramel, raisin."

What our reviewers thought:

"Rich malt body, but hopped with a heavier hand. Citrus and fruity hop notes accentuate the malt sweetness. Fresh red apple. Sweet on the finish, but masked by a relatively aggressive bitterness. Big and loud, rather than the more typical refined and understated."

What our editors thought:

"Fruity hop notes on the nose play with the strong malt sweetness. Cooler in the sip, as the fruit notes drop back and the malt pushes forward with some lime-zest bitterness."

ABV: 7.5% **IBUs:** N/A

Loc: Brooklyn, NY



Dock Street Illuminator

96 AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says:

"Decoction-brewed with German Munich and specialty malts."

What our reviewers thought:

"Unassuming nose, but a fantastic malt profile—layers of toasted coconut, dried fruit leather, and toast, yet not particularly sweet or heavy. Bread crust and cooked sugar. Clean, balanced bitterness on the finish with some sneaky smooth alcoholic heat. Full-bodied, but transitions to a lingering, lightly bitter finish."

What our editors thought:

"Strong malt and floral-hop notes in the nose. A touch of woody and tannic bite in the sip balances the malt sweetness while the hops fade."

ABV: 7.5% **IBUs:** 20

Loc: Philadelphia



Goldfinger Brewing Zlotonator

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

What the brewer says:

"Deep flavors of molasses, caramel, and dark fruits rounded out by a herbal hop flavor and subtle minerality."

What our reviewers thought:

"Dried fruit, leather. Toffee and stewed fruits with a spicy hop character that binds it together. Slightly boozy, with a nice warming effect. Some tea-like astringency on the finish. Complex and interesting throughout."

What our editors thought:

"A touch of phenol character in the aroma with some sweet dark toasted malt. Sweet and rich in the sip with a strong herbal-floral hop note that feels almost lyrical."

ABV: 7.6% **IBUs:** 20

Loc: Downers Grove, IL



Halfway Crooks Beer Bash

96 AROMA: 11
APPEARANCE: 3
FLAVOR: 20
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Mocha coffees. Bittersweet chocolates. Essence of fruit in the malt profile."

What our reviewers thought:

"Clean and subtle, with low roasted and chocolate malt character. Super-smooth and rich flavor with medium-low chocolate notes. Medium-full body and creamy, but not sweet in the finish. Bitterness supports well and keeps the sweetness in check."

What our editors thought:

"Rich and toasty in the nose, with a nutty tone. Full in the sip without feeling heavy, buoyed by an ebullient herbal-floral hop note that cuts through the malt with utmost subtlety."

ABV: 7.7% **IBUs:** N/A

Loc: Atlanta



Hoppin' Frog Pete's Amburana Black Lager

96

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 10

What the brewer says: "An intense black schwarzbier aged on amburana wood."

What our reviewers thought:

"Aromas of cinnamon, nutmeg, milk chocolate, and marshmallow. Molasses and licorice on the nose, along with chocolate milk and espresso cookies. A shake of cinnamon sprinkled on top of a toasted slice of brown raisin bread. Big, bold body with flavors to back it up."

What our editors thought:

"Sweet nose with amburana's vanilla-cinnamon spice. Hefty body in the sip with layers of deep malt, but the spice, roast bitterness, and burnt toast note only allows the sweetness small side glances."

ABV: 11.9% **IBUs:** N/A

Loc: Akron, OH



New Image Brewing Cozy Vibes

96

AROMA: 12
APPEARANCE: 3
FLAVOR: 19
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Smoked Baltic porter."

What our reviewers thought:

"Low chocolate nose with just a hint of roast, clean with no esters. Smooth and inviting. Flavor is very smooth with a rich blend of chocolate and roast. Hops are subdued, but bitterness is firm enough to keep things interesting. Clean and well made, easy drinking. Great chocolate aftertaste that lingers."

What our editors thought:

"Smoked malt on the nose with a lightly sweet milk chocolate and stone-fruit softness. Rigorous body feels big and supportive without sweetness. Exquisitely balanced with big flavors and no crutches."

ABV: 6.6% **IBUs:** N/A

Loc: Arvada, CO



pFriem Family Brewers Doppelbock

88

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

What the brewer says:

"Creamy, ruby-hued headlands give way to malt-rich flavors of dark chocolate, caramel, roasted nuts."

What our reviewers thought:

"Deep brown, nearly opaque with garnet highlights. Low-intensity aroma with toasted notes and a hint of dark-fruit esters. Flavor is similar, with more intense cherry esters and stronger toasted malt. Fairly rich despite the thinner body."

What our editors thought:

"Burnt bread-crust nose with faint coffee and floral notes. Tight toasted rye bread sip with light roast hints and a touch of sweetness as it lingers."

ABV: 7.2% **IBUs:** 25

Loc: Hood River, OR



Maplewood Silver Morning

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 8

What the brewer says:

"Notes of dark fruit and hoppy spice, and a finish with hints of toasted bread and toffee."

What our reviewers thought:

"Subdued aroma, though pleasant with toasted malt and dark cherry. Full bodied and smooth but simple malt. Carbonic bite is a bit prickly on the tongue, making it a harder to quaff."

What our editors thought:

"Heavy toast and peanut-brittle aroma with charred oak undertones. Simple sip with a soft tannic brown malt note, light herbal hop bitterness, and just a glimpse of sweetness as it lingers."

ABV: 6.8% **IBUs:** N/A

Loc: Chicago



Noble Beast Murder Ballads

94

AROMA: 12
APPEARANCE: 3
FLAVOR: 18
MOUTHFEEL: 5
OVERALL: 9

What the brewer says:

"Horizontally lagered for clarity of flavor."

What our reviewers thought:

"Restrained and pleasant smoke character with hints of roast and coffee that float underneath and support it. The flavor follows suit—subtle but firm focus with just enough support. High carbonation helps scrub smoke off the palate. Very easy drinking."

What our editors thought:

"Gorgeous dense brown foam with a bit of nitro-like cascade. Toast and chocolate in the aroma with a re-served sophistication. Sweeter malt notes push the chocolate in a more crowd-pleasing direction in the sip."

ABV: 8.1% **IBUs:** 39

Loc: Cleveland



Pontoon Brewing Battle of the Baltics

88

AROMA: 11
APPEARANCE: 3
FLAVOR: 17
MOUTHFEEL: 5
OVERALL: 8

What the brewer says:

"Malty sweet complexity of caramel, toffee nuttiness. Finished off with cocoa nibs."

What our reviewers thought:

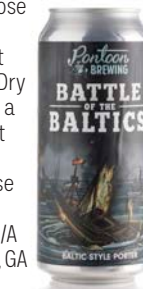
"Smooth and restrained roast character in the aroma, with a clean ester profile. The flavor has a touch of rough dark chocolate with a slight pepper-flesh edge. Clean lager character throughout with supporting bitterness that doesn't distract."

What our editors thought:

"Rich roast in the nose with a roasted-nut note and an almost barreled oak note. Dry in the sip, light with a very light hop-roast axis that feels far lighter than the nose suggests."

ABV: 7% **IBUs:** N/A

Loc: Sandy Springs, GA



AD INDEX

Our advertisers help make it possible for us to bring you great content from the best contributors, issue after issue!

Angel Yeast	9
Bairds Malt	29
Brewers Publications	24
BSG	17
Canada Malting Co.	C3
Cascade Floors	26
Country Malt Group	5
Great Western Malting	23
Hop Revolution	25
Hopsteiner	21
INX International Ink Co.	33
Lawson's Finest Liquids	7
NZ Hops Limited	C4
Original Gravity Events	10-11
Prairie Malt	1
Ss Brewtech	2
Yakima Chief Hops	C2
Yakima Valley Tourism	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.



2023 Brewer's Retreat

After a four-year hiatus, the Craft Beer & Brewing Brewer's Retreat returned in May 2023 as a very special event hosted by Russian River Brewing in Santa Rosa and Windsor, California. Here we share some photos of the event, which we lovingly shorthand as "fantasy homebrew camp," where passionate brewers join together with legends of the craft-beer world to embrace the sheer love of brewing.

