

PRE-PROHIBITION
AMERICAN PILSNER

APHRODISIAC BEERS
FOR VALENTINE'S DAY

STABILIZING
MASH TEMPERATURES

Brew

THE HOW-TO HOMEBREW BEER MAGAZINE

YOUR OWN

JANUARY-FEBRUARY 2012, VOL.18, NO.1

IMPROVE YOUR HOMEBREWS!

foolproof keys to
brewing better beer

Brewing a Guinness
Recipe from 1801

Build a Brewing
Temperature Controller

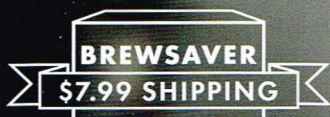
Add a Tap to a Table

www.byo.com

\$4.99US \$4.99CAN



+ Black IPA
Weizenbock



northernbrewer.com/brewsaver



BREW BETTER BEER IN 2012

Shop our extensive selection of homebrewery upgrades

northernbrewer.com/upgrade

NORTHERN BREWER
HOMEBREW SUPPLY

1150 Grand Ave
SAINT PAUL, MN

1306 S 108th St
MILWAUKEE, WI

6021 Lyndale Ave S
MINNEAPOLIS, MN

BREW SHARE ENJOY

800.681.2739

CONTENTS

January-February 2012 Volume 18 Number 1

34



26



42



features

26 “Have Another Falstaff Folks”

Follow the rise and fall of Falstaff beer, the German-influenced lager, made in America, with the English name. Plus, learn how to brew a classic American Pilsner — the way Falstaff and other breweries did before Prohibition.

by Bill Pierce

34 Aphrodisiac Valentine’s Beers

Spicy, chocolatey and coffee-flavored beers brewed for when you want to set the mood.

by Richard Bolster

42 Improve Your Homebrew

Want to get better at brewing? Learn about the path to better homebrew, with tips on cleaning and sanitation, keeping a useful brewing notebook and the equipment upgrades that really make a difference.

by Chris Colby

52 Draft Table

Serve beer and start conversations by building this distinctive draft table for your next homebrew party.

by Christian Lavender



19

departments

5 Mail

Questions about alcohol content in a clone and more.

8 Homebrew Nation

An electric HERMS, a strained reader tip and The Replicator clones Smuttynose's Noonan Black IPA.

13 Tips from the Pros

Brewing with real chocolate. Three pros provide the can do for making a cocoa-infused brew.

15 Mr. Wizard

The Wiz lays down the cold, hard facts on wort chilling and gives a sweet answer to a bitter question.

19 Style Profile

Want to brew a strong, malty, dark beer with wheat beer character? Give weizenbock a try.

57 Techniques

What did Guinness' West India Porter — the forerunner to their famous stout — taste like? Terry Foster goes to the source, finds the old 1801 recipe and brews it.

61 Advanced Brewing

Insulating your mash tun saves energy and ensures a more stable temperature and more even heat distribution.

65 Projects

Ferment at just the right temperature by building your own fermentation temperature controller.

80 Last Call

Minnesota homebrewers unite to help a young girl fight cancer, by brewing a batch of Emma's Ale.

where to find it

68 Classifieds & Brewer's Marketplace

70 Reader Service

71 Homebrew Supplier Directory

RECIPE INDEX

Cilantro Lime Wheat Beer 8

Smuttynose Brewing Co.'s
Noonan (Black IPA) clone 12

Weizenbock 20

Your Father's Mustache
(Classic American Pilsner) 30

Jolly Roger Double Mocha Porter 36

Gato Negro 36

Strawberry Choco 36

Hot Chocolate Porter 37

West India Porter (test batch) 58

West India Porter (final) 59

BYO RECIPE STANDARDIZATION

Extract efficiency: 65%

(i.e. — 1 pound of 2-row malt, which has a potential extract value of 1.037 in one gallon of water, would yield a wort of 1.024.)

Extract values for malt extract:

liquid malt extract
(LME) = 1.033–1.037
dried malt extract (DME) = 1.045

Potential extract for grains:

2-row base malts = 1.037–1.038
wheat malt = 1.037
6-row base malts = 1.035
Munich malt = 1.035
Vienna malt = 1.035
crystal malts = 1.033–1.035
chocolate malts = 1.034
dark roasted grains = 1.024–1.026
flaked maize and rice = 1.037–1.038

Hops:

We calculate IBUs based on 25% hop utilization for a one hour boil of hop pellets at specific gravities less than 1.050.



MUNTONS

GREAT BRITISH MALT

EST. 1921

Muntons Malted Ingredients has been producing the highest quality malt since 1921. Call us to discuss your requirements for grain malt, liquid and dried malt extract and natural beer colorant.

Now available direct from USA warehouse locations.

MUNTONS - The independent choice for the free thinking brewer

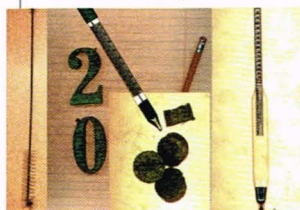


sales@muntons-inc.com
Muntons Malted Ingredients
2018 156th Ave NE Suite 230, Bellevue, WA 98007



what's happening at BYO.COM

More Expert Advice



Looking for even more ways to brew better beer? Get more information for improving your homebrews

with 20 tips from some well-known homebrew shop owners.

www.byo.com/component/resource/article/1777

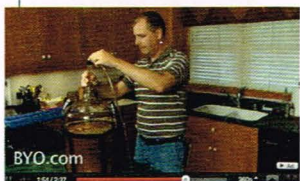
Try Brewing with Chocolate



If you're considering making an aphrodisiac beer with chocolate like those on page 36, learn more about brewing with chocolate before you begin for sweeter results.

www.byo.com/component/resource/article/316

Watch and Learn



Watch *BYO's* series of instructional homebrew videos to learn the basics. *Basic*

Brewing Radio's James Spencer walks you through the steps of racking, kegging, growing hops, making a yeast starter, and more!

www.byo.com/videos

THE HOW-TO HOMEBREW BEER MAGAZINE
Brew
YOUR OWN

EDITOR
Chris Colby

ART DIRECTOR
Coleen Jewett Heingartner

ASSOCIATE EDITOR
Betsy Parks

TECHNICAL EDITOR
Ashton Lewis

CONTRIBUTING WRITERS
Chris Bible, Christian Lavender, Marc Martin, Terry Foster,
Glenn BurnSilver, Kristin Grant, Forrest Whitesides, Jamil Zainasheff

CONTRIBUTING ARTISTS
Shawn Turner, Jim Woodward, Chris Champagne

CONTRIBUTING PHOTOGRAPHERS
Charles A. Parker, Les Jørgensen

PUBLISHER
Brad Ring

ASSOCIATE PUBLISHER & ADVERTISING DIRECTOR
Kiev Rattee

ADVERTISING SALES COORDINATOR
Dave Green

EVENTS/MARKETING COORDINATOR
Alex Ramsvig

BOOKKEEPER
Faith Alberti

SUBSCRIPTION CUSTOMER SERVICE MANAGER
Linda Marlowe

NEWSSTAND DIRECTOR
Carl Kopf

EDITORIAL REVIEW BOARD

Tomme Arthur • Port Brewing/Lost Abbey Steve Bader • Bader Beer and Wine Supply
David Berg • August Schell Brewing Co. John "JB" Brack • Austin Homebrew
Horst Dornbusch • Beer Author Greg Doss • Wyeast Laboratories
Chris Graham • MoreBeer! Bob Hansen • Briess Malt & Ingredients Co.
Anita Johnson • Great Fermentations (IN) John Maier • Rogue Ales Paul Manzo • Homebrew Consultant
Ralph Olson • Hopunion USA Inc. Mitch Steele • Stone Brewing Co.
Mark & Tess Szamatulski • Maltose Express John Weerts • Homebrew Consultant
Chris White • White Labs Anne Whyte • Vermont Homebrew Supply David Wills • Freshops

SUBSCRIPTIONS ONLY

Brew Your Own P.O. Box 469121 • Escondido, CA 92046
Tel: (800) 900-7594 • M-F 8:30-5:00 PST
E-mail: byo@pcspublink.com • Fax: (760) 738-4805
Special Subscription Offer
8 issues for \$28.00

EDITORIAL & ADVERTISING OFFICE

Brew Your Own
5515 Main Street
Manchester Center, VT 05255
Tel: (802) 362-3981 Fax: (802) 362-2377
Email: BYO@byo.com

ADVERTISING CONTACT: Kiev Rattee (kiev@byo.com)

EDITORIAL CONTACT: Chris Colby (chris@byo.com)

FACEBOOK: www.facebook.com/BrewYourOwn

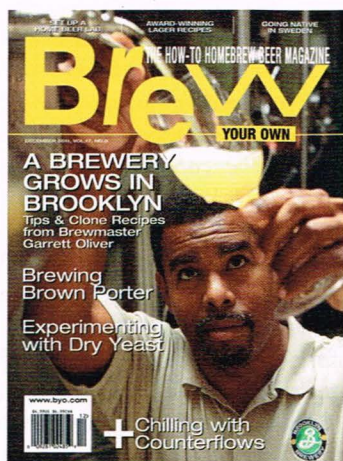
TWITTER: @BrewYourOwn

Brew Your Own (ISSN 1081-826X) is published monthly except February, April, June and August for \$28.00 per year by Battenkill Communications, 5515 Main Street, Manchester Center, VT 05255; tel: (802) 362-3981; fax: (802) 362-2377; e-mail: BYO@byo.com. Periodicals postage rate paid at Manchester Center, VT and additional mailing offices. Canada Post International Publications Mail Agreement No. 43025970. Return undeliverable Canadian addresses to Express Messenger International, P.O. Box 25058, London BC, Ontario, Canada N6C6A8. POSTMASTER: Send address changes to *Brew Your Own*, P.O. Box 469121, Escondido, CA 92046-9121. Customer Service: For subscription orders call 1-800-900-7594. For subscription inquiries or address changes, write *Brew Your Own*, P.O. Box 469121, Escondido, CA 92046-9121. Tel: (800) 900-7594. Fax: (760) 738-4805. Foreign and Canadian orders must be payable in U.S. dollars plus postage. The subscription rate to Canada and Mexico is \$33; for all other countries the subscription rate is \$45.

All contents of *Brew Your Own* are Copyright © 2012 by Battenkill Communications, unless otherwise noted. *Brew Your Own* is a registered trademark owned by Battenkill Communications, a Vermont corporation. Unsolicited manuscripts will not be returned, and no responsibility can be assumed for such material. All "Letters to the Editor" should be sent to the editor at the Vermont office address. All rights in letters sent to *Brew Your Own* will be treated as unconditionally assigned for publication and copyright purposes and subject to *Brew Your Own's* unrestricted right to edit. Although all reasonable attempts are made to ensure accuracy, the publisher does not assume any liability for errors or omissions anywhere in the publication.

All rights reserved. Reproduction in part or in whole without written permission is strictly prohibited. Printed in the United States of America. Volume 18, Number 1: January-February 2012

Cover Photo: Charles A. Parker



Alcohol estimate — does it rule or drool?

The Moose Drool clone recipe in the November 2011 issue lists the OG as 1.052 and the FG as 1.012. How is it that the ABV is 5.3%? Is there a temperature correction that is not mentioned?

Jim Weins
via email

Homebrewers typically estimate the alcohol content of their homebrews via a simple formula. For example, BYO uses the common formula:

$$\text{Alcohol (by volume)} = (\text{OG} - \text{FG}) * 0.129$$

where OG and FG are the original and final specific gravities of the beer, in “gravity points”

So, for example, if the beer's OG was 1.052 and the FG was 1.012, the estimated alcohol by volume would be $(52 - 12) * 0.129 = 5.16$. In other words, 5.2% ABV.

As you noticed, 5.2 is not 5.3. The 5.3% ABV quoted in our recipe stats is the actual alcohol level in commercial Moose Drool. (It's listed on their website.) Actual fermentations do not always yield the amount of alcohol predicted by the above formula. Yeast health, pitching rate, aeration and other variables affect what percentage of the sugars the yeast consume gets converted to ethanol and what percentage goes down other metabolic pathways. So, a drop of 40 gravity points isn't always going to yield 5.2% alcohol.

Lots of commercial breweries list the OG, FG and ABV of their beers and ABV estimates from the OG and FG don't always match up with the actual ABV. (It's actually informative to see how divergent some of them are.)

Because the stats in BYO recipes are meant to be accurate descriptors of the beer, we went with the actual alcohol content as measured by the brewery instead of an estimated alcohol content obtained from a generic formula. However, we felt it was a bit of a moot point — or would it be a moose point? — to worry about a difference in alcohol levels of 0.1%. Homebrewers don't actually measure the alcohol



Bill Pierce started brewing in 1994 and was instantly hooked. His first beer was a brown ale. Bill has completed the Craft Brewers Certification program from the Siebel Institute in Chicago, Illinois and briefly worked as a brewpub brewer.

Bill is a BJCP judge and a longtime active member of the Home Brew Digest (hbd.org), an online brewing forum. In addition, he formerly wrote the “Advanced Brewing” column for *Brew Your Own*.

In the May-June 2010 issue of *BYO*, Bill took readers back in time to when the Ballantine Brewing Company was in full swing. In this issue, on page 26, he takes another page from brewing history and discusses the long rise and ignoble fall of former US brewing giant Falstaff.



Marc Martin lives in the Pacific Northwest, where he is the Primary Fermenter of the Washington homebrew club Plato Republic. In the July-August 2010 issue of *BYO*, Marc wrote about attending a symposium in which

the style guidelines for a proposed new beer style, which proponents dubbed Cascadian Dark Ale, were drafted. Some *BYO* readers felt that the moniker was misleading, and perhaps even a snub to the recently deceased Greg Noonan, whose Vermont brewpub brewed a “black IPA” many years ago.

In this issue, Marc — wearing the hat of *BYO*'s Replicator — talks to Smuttynose Brewing and clones their beer called Noonan, a black IPA, on page 12.



Terry Foster was born in London, England and holds a PhD in chemistry from the University of London. He has written extensively about beer and brewing and now lives in the United States. He frequently helps out with the

brewing at New Haven, Connecticut's brewpub, called BruRm@BAR.

As well as being *BYO*'s “Techniques” author, Terry has written several feature stories for *BYO*, most recently a profile of Scotland's Brew Dog Brewery in the January-February 2010 issue, a story on an Irish Viking ale in the May-June 2011 issue and a story on Welsh ale in the September 2011 issue.

In this issue, on page 57, Foster sets about recreating a famous historical beer — Guinness' West India Porter from 1801 (a precursor to their stout).

content of their beers (that takes some fairly expensive equipment), so nobody will ever know if their beer turns out to contain 5.2% alcohol, 5.3% alcohol, or some other level. (The same can be said for IBUs.) We just went with 5.3% percent because that's the actual amount in the commercial beer. In the end, for the homebrew clone, what's most important is if the beer turns out good.

Nugget Nectar needs notes

I've been reading your magazine for a long time and I've trusted many of your recipes with very good success. I was going to run the recipe for the Nugget Nectar Amber (October 2011) and did some calculations before hand. It appears that the ABV is off as well as the original gravity. I was checking it based upon using the all-grain version. I came out with an ABV of 5.3%, assuming a 70% total process efficiency. The final gravity was correct based upon the yeast suggested (75% attenuation) using the grain bill as suggested. What would the corrected recipe look like? I also compared this to the Hop Back Amber recipe and that recipe was correct in terms of original gravity and final gravity plus SRM.

Mark Bossart
via email

Marc Martin responds: "Good catch on this one. It is sharp readers like you that keep us on our toes. I went back through my notes from Andy Dixon and this led me to the mistake. I had sent in what I thought was the final copy of the article when, in fact, I had another copy with the one important addition you noticed was missing. Both the dark Munich malt and the Vienna malt need to be bumped up to a total of 2.5 lbs. (1.1 kg) each. Here is the corrected text for the all-grain option:

This is a single step infusion mash using an additional 7.75 lbs. (3.51 kg) Pilsner malt, 2.0 lbs. (0.91 kg) dark Munich malt and 2.0 lbs. (0.91 kg) Vienna malt to replace the liquid and dry malt extracts. Mix the crushed grains with 4.75 gallons (18 L) of 172 °F (78° C) water to stabilize at 152 °F (67 °C) for 60 minutes. Sparge slowly with 175 °F (79 °C) water. Collect approximately 6.5 gallons (25 L) of wort runoff to boil for 90 minutes. Reduce the 90 minute hop addition to 1.25 oz. (35 g) Nugget hop pellets (13% alpha acid) (16.25 AAU), to allow for the higher utilization factor of a full wort boil. The remainder of this recipe and procedures are the same as the extract recipe.

ENTER YOUR MEAD

IN THE

2012 WineMaker International Amateur WINE COMPETITION



The best homemade meads from across North America will compete for gold, silver and bronze medals plus a best of show award. Enter your meads and you can gain international recognition for your skills and get valuable feedback from the competition's experienced judging panel!

Enter your best in one of the three mead categories:

TRADITIONAL MEAD

Sponsor: The Brewer's Apprentice

FRUIT MEAD

Sponsor: The Purple Foot - Milwaukee

HERB AND SPICE MEAD

Sponsor: Brew Your Own magazine

THE BEST OF SHOW MEAD

medal is Sponsored by:

NORTHERN BREWER

HOMEBREW SUPPLY

Entry deadline is:
March 16th, 2012
Entry forms and
competition rules are
available online at:
www.winemakermag.com/competition



Questions? Contact us at: Battenkill Communications • 5515 Main Street • Manchester Center, VT 05255
e-mail: competition@winemakermag.com ph: (802) 362-3981 fax: (802) 362-2377

"For what it's worth, all BYO recipes are based upon 65% grain utilization.

"Regarding the question of yeast attenuation. This is based on the actual number achieved at their brewery with American ale yeast strains. If the proper number of cells are provided, good aeration is achieved and temperature control is maintained, 80 to 82% attenuation is normally achieved. Hence, $1.071 - 72$ OG and 1.014 FG, a differential of 58 points. $58 / 72 = 80.5\%$

"As a quick aside let me give you one of the formulas know as a 'brewers divisor'—you can take the differential of your OG and FG and divide that number by 7.7 to achieve the estimated alcohol by volume (ABV). In this example $58 \text{ points} / 7.7 = 7.53$. This can be handy to do in a pub that posts OG and FG, but not alcohol content."

No sparge grain adjustments (I)

I am intrigued with Louw's article on no sparge brewing in the November 2011 issue.

I am new to the hobby, and tend to brew smaller volumes while I master the techniques. I don't know enough to figure out how to adjust the grain mixtures as he did.

Scott Harmon
via email

No sparge grain adjustments (II)

Dave Louw gives a formula for adding more water to the mash when performing a no sparge operation. He mentions an addition of more grain to the mash, but I can't tell how much.

Sean Pryor
via email

Formulating recipes for no sparge brewing is just like formulating regular beer recipes, except the extract efficiency is usually a little lower. In theory, if you grind the grain as finely as you normally would and stir the mash as frequently, your extract efficiency in a thin, no-sparge mash should be the same as usual. But in practice (frequently with unstirred mashes) homebrewers report somewhat lowered efficiency. So, to calculate your adjusted grain addition, you would need to brew one batch of no sparge beer to find your new extract efficiency. The amount of additional grain you add to future recipes would depend on the change in your extract efficiency. If your extract efficiency does drop, the easiest way to calculate the adjustment in grains would be to use brewing software. Type the original recipe into the software, then change the extract efficiency to your new level. Then add pale malt to the recipe until the OG climbs to its original value. **BYO**

NEW!



Put your hop aroma into orbit!

- Hopback, filter and Randalizer/infuser in one!
- Pressure tight!
- Massive 4oz capacity
- Stainless construction

Therminator™
Stainless Wort Chiller



BeerGun™
Bottle Filler



(10, 15, 20, 30, 55gal)

BoilerMaker™
Brew Pots



Fermenator™
Stainless Fermentor



TopTier™
Modular
Brewing
Stand

www.BLICHMANNENGINEERING.com or visit your local Home Brew Retailer

homebrew nation

READER PROFILE



Brewer: Lenny Camperlango

Hometown/State: Kingston, New York

Years brewing: Four

Type of brewer: All-grain

Homebrew setup (volume, style, efficiency): I brew 5.5-gallon (21 L) batches using an outdoor turkey fryer and a 10-gallon (38-L) Rubbermaid cooler with a false bottom. I get about 80% efficiency and I brew outside. I also have a 2-tap keezer so I keg the majority of my

beers, although I still bottle any beers that I want to age.

Currently fermenting: Golden Ale, Pumpkin Ale, Saison and Columbus IPA

What's on tap/in the fridge: Cilantro Lime Wheat Beer, New Zealand IPA, Kane (American Strong Ale), Belgian Tripel, Strawberry Melomel and Old Ben (old ale).

How I started brewing: I found my passion for quality beers when I worked at a beer store. People would come into the store every once in a while and request to buy empty Grolsch bottles to bottle their homebrews. This is where I first became interested and always kept it in the back of my mind. When I finally moved into my first apartment I decided, "Why not?" and ordered a homebrew kit and made my first extract amber ale. It tasted like cherry lollipop seltzer, but it was mine and I loved it. I became hooked and started adding steeping grains to my recipes with extract, and I brewed like this for about a year. Then I finally stepped up to partial mash and did two batches before I finally jumped into all-grain brewing. I started out doing stove top beer in a bag (BIAB) beers. I did those for a couple years and was quite happy with my results. I've just recently upgraded my set up and am now brewing outdoors which I absolutely love!

reader recipe

CILANTRO LIME WHEAT BEER (5 gallons/19 L, all-grain)

OG = 1.066 FG = 1.017
IBU = 42 SRM = 97 ABV = 6.4%

Ingredients

4 lbs. (1.8 kg) American Pilsner malt
3 lbs. (1.4 kg) white wheat malt
5.4 AAU Cascade hops
(1 oz./28 g at 5.4% alpha acids)
(60 min.)
2.7 AAU Cascade hops
(0.5 oz./14 g at 5.4% alpha acids) (20 min.)
2.7 AAU Cascade hops
(0.5 oz./14 g at 5.4% alpha acids) (5 min.)
2.1 oz. (60 g) fresh chopped cilantro (5 min.)
0.3 oz. (8.5 g) fresh grated lime zest (5 min.)
2.8 oz. (79 g) lime juice (2 limes squeezed) (0 min.)
Safale US-05 yeast (rehydrated)

Step by step

Use a 90-minute mash: 3.5 gallons (13 L) of water at 148 °F (64 °C). Sparge with 3 gallons (11 L) of 168 °F (76 °C) water. The total boil time is 90 minutes. Cool wort to 60 °F (16 °C) and pitch the yeast. Ferment in primary for one month.

byo.com brew polls

Do you brew lagers?

No, but I would like to 46%
Yes, sometimes 29%
No, I'm not interested 17%
Yes, all the time 8%

social homebrews



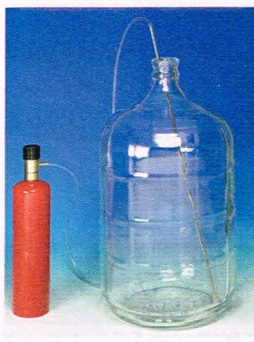
Join *BYO* on Facebook:
www.facebook.com/BrewYourOwn



Follow *BYO* on Twitter at:
@BrewYourOwn

what's new?

Brewer's Edge Oxygen Injector



This new oxygen injector from Brewer's Edge makes it easy to add oxygen to your wort by using easy to purchase canned 1.4 and 2.1-ounce oxygen tanks sold by Bernsomatic and Worthington (available inexpensively in the welding/brazing section of most hardware stores). One tank will oxygenate 10 to 16 5-gallon (19-L) batches of wort.

Available at retailers who carry Brewer's Edge products or wholesale through Brewmaster, 800-288-8922.

essencia™ Distilling Equipment now available in North America



North American brewers and distillers now have instant access to the whole range of top-line essencia™ equipment, ingredients and techniques designed to lift both the quality and the affordability of crafting premium liquors for the craftsman at home and small commercial distillery. In addition

to the production of liquor, much of the essencia™ range is widely used and well suited to other uses such as winemaking, water purification, wort boilers, essential oil extraction and bio-fuel production. The essencia™ system has been developed to produce the best possible quality liquor either with or without distillation. This is a great advantage in areas where home distillation of alcohol is not legal. If alcohol distillation (home, craft or commercial) is intended, country and local laws need to be consulted and all requirements met.

www.essenciana.com



calendar



January 14 Boneyard Brew-Off Urbana, Illinois

The Urbana-area Boneyard Union of Zymurgical Zealots invite homebrewers to enter their 18th annual homebrew competition. The sole requirement for entering is that it must be a beer, mead or cider with a starting gravity over 1.070.

Entry Fee: \$6 for the first entry;
\$5 additional entries

Deadline: January 9

Contact Email: Marco Boscolo,
marco75boscolo@gmail.com

Web: www.buzzbrewclub.org/competition

February 4 GEBL IPA Bracket Challenge Everett, Washington

The Greater Everett Brewer's League (GEBL) invites you to enter their head-to-head IPA competition, featuring four brackets (English IPA 14a, American IPA 14b Imperial IPA 14c and Experimental IPA 23a). The winner of each bracket will advance to a final best of show round. It is a BJCP/WAHA registered competition and provides points toward the Washington Homebrewer of the Year circuit.

Entry Fee: \$6 for first entry;
\$4 additional entries

Entry Deadline: January 31

Contact Email: William Fredin,
teamoly@yahoo.com

Web: www.gebl.org

February 17-18 Midwinter Homebrew Competition Milwaukee, Wisconsin

The Beer Barons of Milwaukee will again sponsor their annual homebrew competition, which is a qualifier in the Midwest Homebrewer of the Year circuit. The top scoring English Session Beer (BJCP categories 8A, 8B, & 11A) will be brewed commercially by Milwaukee Brewing Co. and tapped during a special event honoring the entrant at the Milwaukee Ale House.

Deadline: February 5

Entry Fee: \$7

Web: midwinterhbc.beerbarons.org

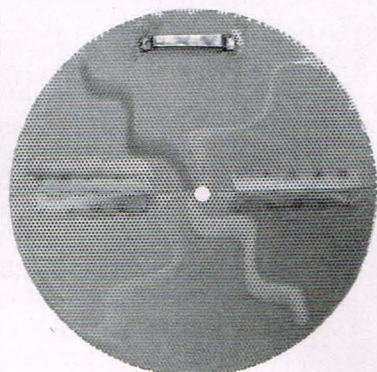
NOR CAL BREWING SOLUTIONS



Keg & Cooler Conversion Kits

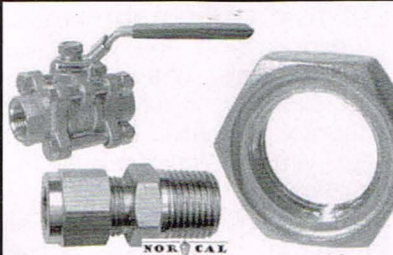


Dip Tubes



Exclusive Manufacturer

"Jaybird" Custom False Bottoms



Lowest hardware prices

530-243-BEER

NorCalBrewingSolutions.com

homebrew nation

homebrew drool systems Joe's Electric Brewery

Joe Lynch • Kansas City, Missouri

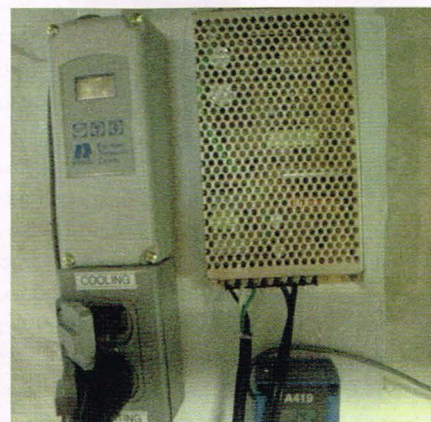
My all-electric homebrewery is a basic HERMS system and the whole setup including the heat/cooled conical cost about \$4000 to build. The temperature is controlled using digital controllers. It took about six months to build. I had a professional electrician do all of the wiring. All electric is the way to go — use the propane for cooking your turkeys.



The mash tun and HLT are powered by a March pump using a 110-volt hot water heater element. The mash tun and HLT are insulated with hot water tank insulation found at any hardware store. I can keep the mash temperature within a 2-degree Fahrenheit differential. The brew kettle uses a 220-volt system from High Gravity.



I usually reach a hard boil in about 20 minutes. After the wort is boiled, it passes through a counter-flow chiller and then through an inline oxygen system where it is pumped into my temperature-controlled conical fermenter from MoreBeer! I had originally built it in on a wood base using scrap wood from my home remodeling project. It just wouldn't stay clean so I changed over to the metal shelving. They were cheap and strong. My first test run was with just water, and I found a few leaks that were very easily fixed.



I have a filtered water system nearby and I do very little lifting. The system is placed on shelving from the hardware store. All connections are quick disconnects. The system is easy to breakdown for a complete cleaning. After each brewing session I run some PBW using hot water through, then back flush.

This setup is in my unfinished basement (man cave). I estimate that using this system, I have shaved about an hour off my all-grain brew day. As with any HERMS-type system, the mash efficient percentage is fantastic. I have also compared the kilowatt usage - this system costs just slightly more than propane but is easier to use.



beginner's block

THE BASICS OF BASE MALT

by betsy parks

Base malt makes up the majority of the bulk of any batch of beer, but base malt isn't a blank canvas that you use to build your beer. Learn more about the variations in base malt and you will be better able to build your own beers one day.

If you've ever brewed anything from Jamil Zainasheff's "Style Profile" column, you will have noticed variations in base malt recommendations: British pale ale malt for British ales like brown porter, Pilsner malt or malt extract for Maibock and domestic 2-row pale malt for American IPA. This is because every malt, including the base malt, varies in flavor, color and diastatic power, which can produce very different finished beers.

What's the difference?

All malts start out essentially in the same way: as raw grains of barley that are processed by maltsters to convert the starch in the grains into fermentable sugars. After that, the grains are processed depending on their purpose: base malts, kilned malts, roasted malts as well as kilned and roasted malts, which involves

roasting and kilning to produce the malts' individual flavors and colors. While they are not as dark as other malts, base malt colors do vary, often between 2 to 4 °Lovibond.

Like brewing water, differences in base malts can often be traced back to the conditions and ingredient availability where the beer style originated, or were created with a certain type of beer in mind. For example, pale British ale malt is often made with Maris Otter barley, which is a 2-row variety that is native to the UK and was bred in Cambridge to brew traditional cask conditioned ales. It is said to provide a slightly more biscuity, bready flavor than standard barleys.

Some of the most common base malts include: North American 2-row, British pale ale, domestic pale ale, wheat, rye and Pilsner. For more information about each of these, including color and suggested beer styles, visit *BYO's* online malt charts at www.byo.com/resources/grains. In addition to these variations between types of malts, there can also be variation between similar malts depending on which maltster made it.

reader tip

Harold Martin • Snohomish, Washington



After my wort is chilled and I'm ready to pour it into the primary fermenter I like to run it through a strainer. This helps remove spent hops but trying to do this procedure by myself was tedious until I tried this:

I simply place the strainer on top of my

fermenting bucket and then position the bucket's handle on top of the strainer's handle. Doing this keeps the strainer very steady while I pour the wort through it. It also helps to oxygenate the wort.



Did you know

**The company
that brings you**



**PBW™
and
StarSan™**

also makes



**5² Ph Stabilizer™
and
SuperMoss HB™**

**Visit your local
homebrew store to find
these great products.**

Biodegradable, Effective
& User-Friendly

**Five Star Chemicals
& Supply, Inc.**

(800) 782-7019

www.FiveStarChemicals.com

homebrew nation

by marc martin

DEAR REPLICATOR, I LOVE BYO AND I READ EVERY ISSUE. I DID, HOWEVER, TAKE EXCEPTION TO YOUR JULY-AUGUST 2010 ARTICLE, "BIRTH OF A NEW STYLE," DISCUSSING "CASCADIAN" DARK ALE. SUCH A BEER, BLACKWATCH IPA, WAS AN ORIGINAL OFFERING FROM, NOW DEPARTED, GREG NOONAN AT THE VERMONT PUB AND BREWERY IN BURLINGTON, VERMONT. HAVE YOU TRIED THE SMUTTYNOSSE BREWERY'S TRIBUTE BEER, "NOONAN"? I BEG YOU TO CONSIDER RUNNING A REPLICATOR ARTICLE ON THIS BEER.

MICHAEL BURDICK
BURLINGTON, VERMONT



I must admit, I could have done a better job of researching the true beginnings of this type of beer before finalizing the July-August 2010 article. I have since verified that the first version of a black IPA was brewed at Vermont Pub and Brewery. Hopefully this article will serve to honor Greg Noonan.

Smuttynose's owner, Peter Egelston and his sister, Janet opened the Northampton Brewery in Northampton, Massachusetts in 1986, and later the Portsmouth Brewery in Portsmouth, New Hampshire. In 1993 Peter attended an auction of the bankrupt Frank Jones Brewing Co. (also in Portsmouth) and agreed to

purchase the entire brewery. This was to become the Smuttynose Brewery, which opened in January of 1994.

Smuttynose Brewmaster David Yarrington's homebrewing roots date back to his college days in the late 1980s. He worked at 20 Tank Brewery in San Francisco, California then helped open Tokyo Brewing Co. After that he moved back to the states and completed the Master Brewer program at UC-Davis in 2001. He soon joined Smuttynose and has been there ever since.

"Noonan," a black IPA, was created as part of Smuttynose's "Short Batch" series, which are their limited edition, experimental beers. They felt

a good way to honor Greg's memory would be to create a beer very similar to Black Watch. The main challenge with this beer is to achieve the black color without imparting the acrid grain astringency. To subdue the heavy roast flavors, the dark Carafa® II malt is not mashed with the rest of the grains. Instead it is added to the top of the mash just prior to sparging. A combination of Magnum and Columbus hops contribute an elegant and refined bitterness that parallels the reduced astringency. The result is a light bodied, non-acrid, very dark beer with plenty of flavor and aroma.

Now, Michael, Greg's contribution to brewers everywhere lives on. **BYO**

SMUTTYNOSSE BREWING COMPANY'S SHORT BATCH #12 "NOONAN" CLONE (5 gallons/19 L, extract with grains)

OG = 1.061 FG = 1.013 IBU = 75 SRM = 42 ABV = 6.4%

Ingredients

6.6 lbs. (3 kg) Briess light, unhopped, liquid malt extract
1.5 lb. (0.68 kg) pale ale malt
12 oz. (0.34 kg) Belgian aromatic malt (25 °L)
10 oz. (0.28 kg) crystal malt (60 °L)
4 oz. (0.11 kg) black malt (600 °L)
1.0 lb. (0.45 kg) Carafa® II malt (450 °L) (** follow special instructions to right)
11.3 AAU Magnum hops (0.81 oz./23 g of 14% alpha acid) (75 min.)
7.5 AAU Columbus hops (0.5 oz./14 g of 15% alpha acid) (30 min.)
3.75 AAU Columbus hops (0.25 oz./7 g of 15% alpha acid) (20 min.)
3.75 AAU Columbus hops (0.25 oz./7 g of 15% alpha acid) (10 min.)
7.5 AAU Columbus hops

(0.5 oz./14 g of 15% alpha acid) (0 min.)
Glacier hops (1.0 oz./28 g of 5.5% alpha acid) (dry hop, 7 days)
Nugget hops (1.0 oz./28 g of 13% alpha acid) (dry hop, 7 days)
½ tsp. yeast nutrient (last 15 min.)
½ tsp. Irish moss (last 30 min.)
White Labs WLP 001 (American Ale) or Wyeast 1056 (American Ale) yeast
¾ cup (150g) of corn sugar for priming (if bottling)

Step by Step

Steep the milled grain in 2 gallons (7.6 L) of water at 154 °F (68 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. **In a separate saucepan combine 1 lb. (0.45 kg) milled Carafa® II malt with 1.5 quarts (1.42 L) water at 130 °F (54 °C) for 3 minutes. Remove

grain and add this black liquid and the liquid malt extract to the wort and boil for 75 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. During the boil, use this time to thoroughly sanitize a fermenter. Now add the wort to 2 gallons (7.6 L) of cold water in a fermenter and top off with cold water up to 5 gallons (19 L). Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Nugget and Glacier dry hops. Allow the beer to condition for 1 week and then bottle or keg. Allow the beer to carbonate and age for two weeks. For all-grain instructions, visit www.byo.com/component/resource/article/2492

Cocoa Love

Brewing with chocolate

ON PAGE 36 OF THIS ISSUE, WE SHARE SOME RECIPES FOR BEERS WITH APHRODISIAC QUALITIES, MANY BREWED WITH SOME FORM OF CHOCOLATE. TAKE SOME ADVICE FROM THE BREWERS IN THIS ISSUE WHO ALL BREW A COMMERCIAL "CHOCOLATE" BEER.

We brew a beer called Hot Chocolate, which is basically a porter base: basic two-row and chocolate malt with chocolate, oatmeal and lactose. The oatmeal gives the beer a structure and silkiness, while the lactose gives it a creamy sweetness. It is "hot" thanks to cayenne pepper.

We use "free trade" powdered chocolate in the kettle to make Hot Chocolate. Totally ignoring the social aspects of it, from a culinary point of view the free trade chocolate is far superior to conventional varieties.

Powdered chocolate is messy, though. The biggest problem we've had with it is learning to not add the powder directly to the kettle as it turns into little balls. Instead we pull a small amount of hot wort out and mix it with the chocolate, then mix that

back into the kettle. It's basically like making gravy — you mix the dry ingredients with a bit of the hot liquid so that you don't get a lumpy gravy. If you want to experiment with brewing with chocolate, you don't want to use chunk chocolate because of the fat, which can cause all kinds of problems, including issues with head retention. You want to keep the fat level as low as possible, which is why we use the powdered stuff.

At home you can also experiment with the timing of when you add chocolate to the beer. You can add it at different times in the kettle, add it past the boil, or use chocolate nibs in the secondary fermenter. You could also try adding chocolate liqueur in the secondary, which might get scrubbed in primary, but it might be fun to experiment after primary is over.

When we brew our Chocolate Ale, we use Venezuelan cocoa nibs after the primary fermentation, as you would do when dry hopping. We always went with nibs — we never experimented with raw or baking chocolate. We also went to the source by working with a chocolatier who sourced cocoa nibs that he thought had a nice flavor. We leave the beer on the nibs for about two weeks, after which the cocoa is almost completely in solution and the hulls are empty. The nibs still have some oil, however we don't see too much of an effect on the beer. When you add chocolate on the cold side, the oils are less of a concern.

The big issue we had with chocolate in our brewing process was how to add the nibs to the beer and then get them back out. We lost a lot of

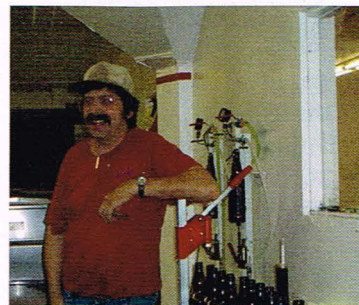
beer in the process, but in the end we put them in bags and hung them in the fermenter, much like dry hops.

One of the things that I decided not to do from the get go was using chocolate or roasted malt or barley, as I wanted to focus more on a bready character. I feel that this lets the chocolate flavor come out more — it's not subdued by what's called chocolate flavor from the malt. We use special wheat malt from Briess that has a nice, nutty, bready character that gives the beer an amber, rusty color. I feel that it really helps push the chocolate flavor out without going over into the roast flavors.

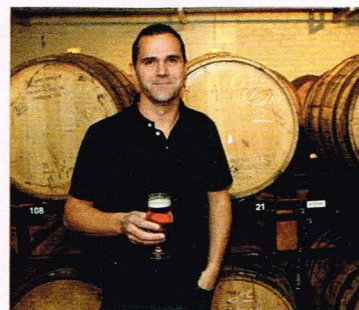
We use a lot of Belgian yeast, however, for our chocolate beer we went with a more neutral strain. I felt that the banana/clove flavors from the Belgian yeasts weren't a good match for the chocolate.

tips from the pros

by Betsy Parks



Randy Lee, Brewmaster at Valkyrie Brewing Company in Dallas, Wisconsin. Randy and his wife, Ann, opened Viking Brewery in 1994 — the first microbrewery in northwest Wisconsin. They recently sold the trademark Viking and renamed their brewery Valkyrie.



Steven Pauwels, Brewmaster at Boulevard Brewing Company in Kansas City, Missouri. Steven started out in the brewing industry at his hometown brewery, Eeklo's Brouwerij Krüger. He has held positions at the Domus brewpub in Louvain and at RIVA brewery in Dentergem (both in Belgium). He has been the Brewmaster at Boulevard for the past twelve years.



Steve Polewacyk, Owner of the Vermont Pub and Brewery in Burlington, Vermont. Steve opened VPB in 1988 with his partner, Greg Noonan. He started out as a homebrewer under Greg, and worked closely with him in the brewery and in administrations until Greg passed away in 2009.

In our experience throughout the years there have been a few beers where we've emulated chocolate flavor with malts, however, for our Double Chocolate Stout we partnered with a local chocolate company, Lake Champlain Chocolates, to source cocoa nibs.

We have made three versions of the chocolate stout: in the first experiment we made the beer with cocoa powder added to the boil, which was great through the primary fermentation, but each subsequent week we lost the chocolate in the secondary. The second experiment we used cocoa powder in the boil, as well as cocoa nibs in the secondary. That seemed to bring the chocolate flavor back.

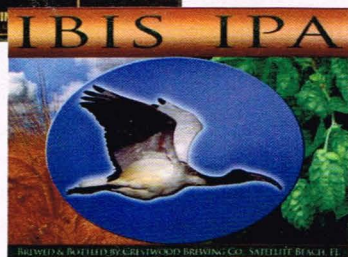
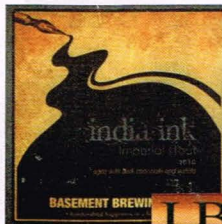
One of the problems with chocolate, especially something like baking chocolate, is that the chalkiness can come out of a lot of products, which can give a mouthfeel that is grainy or gritty.

If you are brewing with chocolate at home and want to experiment, lactose is also a great feature in any chocolate beer,

especially if the chocolate flavors are on the dark side, because it helps to sweeten it up. For example, we recently took a keg of milk stout and aged it on Madagascar cocoa nibs and then added more lactose — the lactose makes the chocolate flavor more predominant.

Also, beware if you're not familiar with an ingredient — especially with chocolate, and be careful of overroasted products. Inexperienced brewers tend to go overboard with new ingredients, but you should start small and then work your way up. It's easier to add than it is to take away. It is possible to take flavor away, but only if you have an extra batch of beer to blend back. There's a level of patience that some homebrewers perhaps don't have — they want to hit the beer right the first time. But go at it easier and wait for the second batch of your same beer to hit what you're looking for. We are the same way here — we brew experimental beers every week and sometimes we're going to hit it, sometimes not. **BYO**

Brew THE HOW-TO HOMEBREW BEER MAGAZINE **17th Annual Homebrew LABEL CONTEST**



Send us your best homebrew labels and you could win some great brewing prizes from **BYO** advertisers! Enter as often as you like, but you can only win one prize. Winners will see their artwork featured in the July-August issue of the magazine. **Deadline to enter is April 27, 2012.**

Brew THE HOW-TO HOMEBREW BEER MAGAZINE **Label Contest Entry Form**

Name _____
Address _____
City _____ State/Prov _____ Postal Code _____
E-mail _____
Daytime Phone _____

All original artwork? Y or N (circle one)

Send your entry to:
BYO Label Contest
5515 Main Street
Manchester Center, VT 05255

DEADLINE: April 27, 2012

Rules: Entrants can send labels or labels already stuck to bottles. The bottles can be full of beer. No digital or electronic files will be accepted. All other rules are made up by the editors of **BYO** as we go along. Labels are judged in one category, open to graphic artists and amateurs alike, so ultimate bragging rights are on the line. When submitting your labels, tell us a bit about the artwork and its inspiration. Is it hand-drawn? Created on a computer? Send us your best labels, tell us how you made them, and good luck!

Debunking Bitterness

Mystery fermentation, no chill brewing

help me mr. wizard

by Ashton Lewis



Q

I RECENTLY SAW AN IPA RECIPE FROM JAMIL ZAINASHEFF THAT LISTED THE IBUS AT 100. IS THIS IN THE REALISTICALLY ATTAINABLE RANGE ON A BASIC HOMEBREW SETUP (FULL VOLUME BOIL POT AND MASH TUN ONLY) WITH "NORMAL" HOPS/HOP PRODUCTS (WHOLE LEAF, PELLETS OR PLUGS)? I RECALL READING SOMEWHERE THAT 80-85 IBUS WAS THE MAX WITHOUT SPECIAL EQUIPMENT.

MIKE KILLGORE
BEAVERTON, OREGON

A

The limit of beer bitterness is really a function of the solubility of iso-alpha-

acids in wort and their survival into finished beer. Most of the literature on this topic is of the practical sort where data showing the IBU level of various commercial beer is part of the discussion. Hypothetical discussions that focus on everything but real beer makes me a little grumpy. Brewing beer with 100 IBUs is certainly within the realm of reality based on beer that is brewed and commercially sold.

It is true that there is not a singular "Max IBU" value that is applicable to all beer because wort pH and wort gravity directly affect hop isomerization during the boil. Furthermore, what happens during fermentation, aging and filtration (for brewers who filter) influences hop utilization. If you are attempting to get the maximum bitterness level and are limited by iso-alpha-acid solubility in wort, then it logically follows that downstream iso-alpha-acid loss will reduce beer bitterness. Loss occurs when trub sticks to fermenter walls, foam is skimmed from fermenters, bitter acids adhere to yeast cells and when beer is filtered.

I am not sure what special equipment is required to brew high IBU beers. Wort loss can become a real issue, so this may be what you have read. Commercial brewers brewing some of these monsters often launch an über-bitter beer as a special and are

not overly concerned about efficiency. But then the special sticks and their consumers want more. And then efficiency becomes a real concern because excessive wort loss is an expensive proposition when operating a brewery with the intent of making money. Very broad whirlpools are one solution to deal with high hop loads in the brewhouse if pellet hops are used. If cone hops are used things are a bit easier since the hops are typically removed with a hop separator before the whirlpool. So there are some practical concerns related to hop removal when brewing beers with big hop additions.

The bottom line with this question is that you are correct to be asking about limits, because they do exist when it comes to bitterness. I am a very skeptical consumer when it comes to putting much faith in certain claims, especially the claims of small packaging breweries, pub brewers and homebrewers. The reason for my skepticism is simple; claims without lab analyses equal estimates. And most small brewers do not have the laboratory equipment required to perform IBU analyses. Couple this with the sometimes tremendous testosterone flow present when brewers brag about the big size of their latest imperial this or that and the result is often exaggeration.

I am a simple brewer and simple beer consumer with a unified philosophy about brewing. Rule number one; it's all about perception. If what we do

“The limit of beer bitterness is really a function of the solubility of iso-alpha-acids in wort and their survival into finished beer.”



Brew Me Now



Take my Top Off & Pitch Me.

White Labs Pitchable Yeast

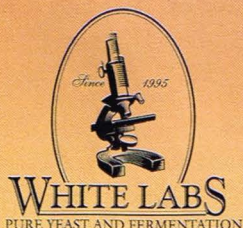
NEW For January & February

**WLP022:
Essex Ale Yeast**

**WLP510:
Bastogne Belgian Yeast**

**WLP815
Belgian Lager Yeast**

*Contact your local
homebrew shop to order*



WWW.WHITELABS.COM

1.888.5YEAST5
(1.888.593.2785)

help me mr. wizard

in the brewery cannot be perceived by the consumer or does not influence efficiency then why worry about it? Some brewers advertise that they lager for eight weeks, or whatever. That's cool, but does the beer taste better than beer aged for six weeks, five weeks or four weeks? If it does, then there is a compelling reason to age for eight, but if the only reason is to talk about it in marketing I am not the type of brewer who would agree with the decision. Rule number one has a few caveats. For starters, I am not referring to ingredients in beer that can cause bodily harm without being detected when drinking; these are still perceived, just not immediately. I am also not referring to cleaning and maintaining the brewery environment. My rule number one is really about brewing process decisions.

Rule number two; limit brewery speak when communicating with consumers. People do not consume laboratory results, they consume beer (in the context of this discussion). Laboratory numbers taken out of context really give very little information about flavor. We may assume that beer with a meager 50 IBUs is less bitter than another with 80 IBUs, but perceived bitterness has much to do with the beer itself. Alcohol content, residual extract and malt selection all influence bitterness and IBU values alone do not define perceived bitterness. Some brewers and beer writers share the opinion that beer consumers are often turned off by this "geek speak" because it has the effect of alienating people who may really like beer, yet know little or nothing about the process.

Q

I BREWED A FOUNDER'S BREAKFAST STOUT CLONE FROM *BYO*, ADDED SOME EXTRA GRAIN AND MY OG WAS 1.090. IT WAS MY FIRST BEER WITH COFFEE, CHOCOLATE AND COCOA NIBS. I PITCHED HALF OF THE BATCH WITH SOME S-05 YEAST HARVESTED FROM A RECENT BATCH OF PORTER AND PITCHED THE OTHER HALF WITH FRESH S-04 AS AN EXPERIMENT. I BREWED THE STOUT ON SUNDAY, AND ON MONDAY WHEN I GOT HOME THERE WAS ONLY A BIT OF FOAM (IT WAS OILY LOOKING) ON TOP OF THE BEER BUT NO REAL KRÄUSEN AND THERE WERE NO BUBBLES COMING OUT UNLESS I SHOOK THE CARBOY. AFTER ABOUT THREE DAYS OF SHAKING, I COULDN'T GET ANY MORE BUBBLES TO COME OUT FROM SHAKING. THINKING I DID SOMETHING TO KILL MY YEAST, I ADDED EXTRA YEAST (S-05 TO BOTH). I KEPT WATCHING AND SAW NO SIGNS OF FERMENTATION. THINKING THAT MAYBE THE CHOCOLATE OR COFFEE DID SOMETHING TO PREVENT THE YEAST FROM FERMENTING, I GAVE UP ON THE BEER BUT DECIDED TO HOLD OFF ON DUMPING IT. SIX WEEKS AFTER BREWING THE GRAVITY READING WAS 1.030. HOW AND WHEN DID THIS FERMENT? DID AN INFECTION CONSUME THE SUGAR?

BOB HINES
CHAPMAN, KANSAS

A

True mysteries are rarely encountered in a brewery when the facts related to a particular problem are at hand. The problem lies in obtaining the facts and this is particularly true when homebrewing. In a commercial brewing operation it is common for brewers to be in the brewery most of the time and in some of the larger breweries instrumentation and data collection is used to gather and track data related to production. Production staff and historical data are

pretty handy when it comes to tracking down the ghosts that seem to haunt the brewery, but in cases like yours there is not much information to evaluate.

The beer you brewed had a fairly high original gravity and also contained a high proportion of specialty malts. Based on this information I would not predict a very low finishing gravity. Couple that with the single step infusion mash at 155 °F (68 °F) for one hour specified in the recipe and I suggest that 70% is a reasonable guess for

the apparent degree of fermentation (how much extract is consumed during fermentation as measured using a hydrometer). Thirty percent of 1.090 is 1.027 and your final gravity was 1.030. This tells me that your OG and FG numbers are believable. When I solve problems I first begin by questioning the validity of the information at hand — because that is what Wizards do!

The other fact at hand is that you added an ingredient that contains fat to your wort; baking chocolate contains cocoa butter. You also added ground coffee beans and coffee beans contain oils. Fats and oils are the same general class of components that are deposited on the rim of a beer glass if you happen to be noshing on greasy finger foods while enjoying a frothy pint . . . well, perhaps previously frothy pint. Fats and oils are well-known anti-foaming compounds because they have a higher affinity for the surface of liquids than do foam-positive compounds from beer. This means that proteins and hop compounds normally involved in beer foam are prevented from stabilizing foam bubbles when these strongly hydrophobic molecules are present. In simple terms you may have had carbon dioxide escaping from your fermenting batch of Breakfast Stout with little to no commotion at the surface of the carboy. Some brewers intentionally add anti-foams to fermenters to suppress foam during fermentation and increase the capacity of their fermentation vessels.

I can understand everything so far, but now I am faced

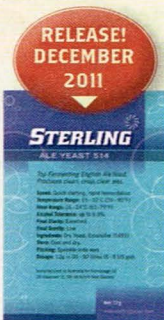
with the piece of evidence that I cannot believe and that is the seeming lack of carbon dioxide gas. When beer ferments, nearly half of the sugar (by weight) is converted to carbon dioxide gas and nearly all of this gas leaves the fermenter. Your beer did ferment, therefore carbon dioxide gas left the fermenter. Until physicists at CERN in Geneva present data showing that $C_6H_{12}O_6$ does not release CO_2 when fermented by yeast I will continue believing in fermentation as we know it. I think what happened is that you had a faulty carbon dioxide gas detector . . . I mean a leak in your airlock. Hmmm, I wonder if that is how they clocked those neutrinos moving a few nano-seconds faster than photons of light in their accelerator?

A leaky airlock would explain why your airlock wasn't gurgling during fermentation and a slow fermentation would explain why shaking your carboy did not seem to generate much activity. Six weeks is a long time to ferment 60 gravity points and I think what happened is that you had a long and slow fermentation that never appeared to be doing much of anything. The only negative consequence of fermentations that drag out is the potential for contamination associated with slow pH reduction in the early hours of fermentation and off-flavors associated with under-pitching, often the cause of slow fermentation. Also, I don't think contamination explains your observations. All microbes that consume carbohydrates for energy give off gas.

THE NEW STANDARD of excellence for hand-crafted spirits and liqueurs has landed in North America.



NOW!
FREE SHIPPING
ON ALL ORDERS
OVER \$200



Spirit essences
Liqueur essences
Condensers (100% copper)
Stainless boilers (240 & 120v)
Super 6 yeast
Sterling beer yeast
Bourbon chunks
Whisky chunks
Stainless wine fermenters
Carbon filters
Carboys
Bungs
On-line gift certificates

**For North American retail
opportunities, contact:**
(888)977-0027
sales@essenciana.com

For all orders go to:
www.essenciana.com

The use of distillation equipment to extract alcohol may not be legal in your area — check with your local authorities.

ESSENCIA DISTRIBUTORS LTD

23500 109th Ave, Maple Ridge, BC, Canada, V2W 1A8, (888) 977-0027



essencia

www.essenciana.com

Q

I HAVE BEEN READING ABOUT A METHOD OF CHILLING CALLED "NO CHILL," WHERE THE BREWER SIMPLY POURS THE WORT AFTER FLAME OUT INTO A SUITABLE WATER CONTAINER, PURGES THE AIR AND SEALS IT AIRTIGHT. WHAT ARE YOUR THOUGHTS?

NICK ROLHEISER
EDMONTON, ALBERTA

A

My first thought is that this method is certainly not new. Rapid chilling is a very recent development in the history of brewing. Prior to the advent of the plate heat exchanger, brewers had to wait for wort to cool prior to pitching. Most breweries eventually settled on coolships, which are large shallow pans resembling Olympic-sized kiddie pools, to cool wort prior to fermentation. Although cooling required only eight hours or so, wort contamination was a real issue with the coolship design. Then, in 1856, Jean Louis Baudelot invented a novel wort chiller and the brewing world was changed forever when his invention made rapid chilling a reality. The Baudelot chiller was copied and later modified into enclosed designs. Baudelot's basic design is still widely used in all sorts of different heating and cooling applications.

There are two real problems with slow wort chilling. One is the risk of microbiological contamination. The other problem associated with slow wort cooling is DMS formation after wort boiling. The precursor for DMS, S-methyl-

methionine, decomposes when heated and becomes DMS (DMS smells like cooked corn and most brewers consider it a defect in almost all beer types). Although much of this compound is transformed to DMS and removed with steam vapor during wort boiling, some does remain. This means that the wort DMS concentration increases after boiling and prior to cooling, and is especially noticeable if wort is in a sealed container that prevents the volatile DMS to escape.

The good news is that homebrewers do not have a very large volume of wort to chill and it is certainly possible to cool a carboy of wort in a reasonable time frame if the carboy is plunged into a cold water bath that is kept cold during cooling. Agitating the carboy will also dramatically increase the heat transfer rate during cooling. My personal preference is to cool wort using a wort chiller either in the kettle with an immersion chiller or en route to the fermenter with a plate or shell-in-tube chiller. I suppose if I were brewing on a desert island and only had the no-chill method I would make do, but neither one of us is stranded on an island. **BYO**

Brand New Packages. Same Premium Yeast.

Our new packaging is not only bright & bold, it also offers a new level of protection to our premium yeast. Our **new vacuum-sealing technology** minimizes packaged air, offering maximum performance throughout the rated life of our products. This new package allows brewers to see and feel that the package is airtight and ready for use. **No other brewing yeast offers this extra level of product assurance.**

Get the Dry Yeast Advantage with Danstar Premium Yeast from Lallemend.



WWW.LALLEMANDBREWING.COM

Weizenbock

Big German wheat beer

style profile

by Jamil Zainasheff



One of my favorite “Dad” activities when my kids were little was taking them out for trick-or-treat on Halloween. I got such a thrill seeing how excited they were as we approached each house and their excitement at getting any sort of candy, good or bad. When they were really young we would just walk around our block. As they got older, we would go farther and farther afield and I would have to carry more and more candy, coats, hats, gloves, water bottles, flashlights — and sometimes even an exhausted child. It didn’t take long for me to start hauling along our little red wagon. The wagon made it so much easier to drag along the expedition supplies, and I found out there was even room for a bottle of weizenbock, which made wagon pulling a little more enjoyable. Weizenbock is the perfect Halloween beer. The rich, malty character, the gently warming alcohol and the spicy and fruity notes make it seem like an adult candy, perfect for the cooler weather of fall.

Weizenbock has the same spicy/fruity character of a hefeweizen, but it also has a rich, bock-like malt character. Weizenbock is often hazy, ranging in color from dark amber to a dark, ruby brown, and topped with a large, dense, creamy off-white head. Like a good hefeweizen, the aroma includes moderate spicy notes and some banana-like esters, but it also has these dark fruit flavors and aromas. There should be notes of figs, plums, raisins and more. This fruit character blends in with the overall harmony of the beer, creating complex, rich, bready, bock-like melanoidins and a fruitcake-like character.

Like most weizen-style beers, weizenbock has a grainy, bready flavor underlying the beer. Slight, soft caramel notes and toasty, bread crust-like melanoidin character from Munich malt should be present in moderate levels. While it has a rich color, roast-

ed flavors and aromas are limited to subtle dark toast or chocolate notes. Hop character is non-existent and hop bittering is subtle. The balance between bittering and sweetness is even or balanced slightly sweet. I think the BJCP style guide captures this style’s overall impression well with, “A strong, malty, fruity, wheat-based ale combining the best flavors of a dunkelweizen and the rich strength and body of a bock.” That malty richness balanced with the spicy/fruity character is what it is all about. The one thing I disagree with in the BJCP description is the “faintly tart character.” I think tartness is a flaw in this style and more indicative of beer spoiled through long travel times and low levels of bacteria than it is a well made wheat beer.

A traditional weizenbock would be 50 to 70% wheat malt and the rest dark Munich malt. What I have found is that a blend of dark wheat, Munich and Pilsner malt, along with some caramel and roasted malt, seems to do well in competition. Although there are lots of quality malts out there, I always prefer to use continental malts in my German-style beers. I find the flavors of those malts consistent with the beers I drink when visiting Germany. I use a ratio of 4-2-1 (dark wheat, Pilsner, Munich) and a small amount (< 10%) specialty malts for my weizenbock. The use of specialty malts makes it easier to develop a rich color and flavor, but make sure what you are planning is balanced.

While you want to develop color without adding lots of roast malt flavors, a touch of dark toasted or even slightly chocolate notes is a nice touch. My preference is to use at least some dark caramel malt along with a small amount (1 to 2 %) of pale chocolate malt. If you use something darker than pale chocolate, make sure you do not over do it. Caramel malt can range from 5 to 10% of the grist. I like to make sure that at least some of the

WEIZENBOCK by the numbers

OG:	1.064–1.090 (15.7–21.5 °P)
FG:	1.015–1.022 (3.8–5.6 °P)
SRM:	12–25
IBU:	15–30
ABV:	6.5–8.0%

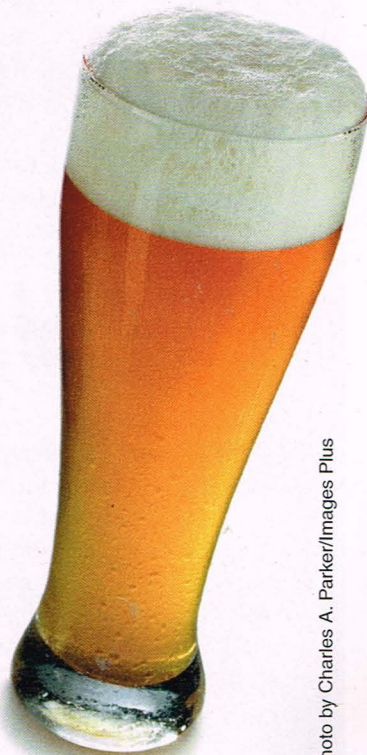


Photo by Charles A. Parker/Images Plus

Continued on page 22

Weizenbock

(5 gallons/19 L, all-grain)

OG = 1.082 (19.7 °P)

FG = 1.021 (5.3 °P)

IBU = 23 SRM = 19 ABV = 8.1%

Ingredients

8.8 lb. (4 kg) Best Malz dark wheat malt (8 °L)

4.4 lb. (2 kg) Best Malz Pilsner malt (2 °L)

2.2 lb. (1 kg) Best Malz Munich malt (8 °L)

7.1 oz. (200 g) Franco-Belges caramel Munich malt (40 °L)

7.1 oz. (200 g) Castle Special B malt (120 °L)

3.5 oz. (200 g) Thomas Fawcett pale chocolate malt (200 °L)

5.36 AAU Hallertau pellet hops, (1.34 oz./38 g at 4% alpha acids) (60 min.)

Wyeast 3068 (Weihenstephan Weizen) or White Labs WLP300 (Hefeweizen Ale) yeast

Step by step

Mill the grains and dough-in targeting a mash of around 1.5 quarts of water to 1 pound of grain (a liquor-to-grist ratio of about 3:1 by weight) and a temperature of 152 °F (67 °C). Hold the mash at 152 °F (67 °C) until enzymatic conversion is complete. Infuse the mash with near boiling water while stirring or with a recirculating mash system raise the temperature to mash out at 168 °F (76 °C). Sparge slowly with 170 °F (77 °C) water, collecting wort until the pre-boil kettle volume is around 6.5 gallons (24.4 L) and the gravity is 1.062 (15.3 °P).

The total wort boil time is 90 minutes, which helps reduce DMS in the finished beer and increases melanoidin formation. Add the bittering hops with 60 minutes remaining in the boil. I skip using kettle finings in this beer. Chill the wort rapidly to 62 °F (17 °C), let the break material settle, rack to the

fermenter, pitch the yeast and aerate thoroughly. The proper pitch rate is three packages of liquid yeast or one package of liquid yeast in an appropriate starter.

Ferment at 62 °F (17 °C) until the beer attenuates fully. With healthy yeast, fermentation should be complete in a week, but don't rush it. The cooler than average ale fermentation temperature can extend the time it takes for complete attenuation. Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar, and bottle. Target a carbonation level of 2.5 to 3 volumes.

Weizenbock

(5 gallons/19 L, extract with grains)

OG = 1.082 (19.7 °P)

FG = 1.021 (5.3 °P)

IBU = 23 SRM = 17 ABV = 8.1%

Ingredients

8.3 lb. (3.75 kg) Wheat liquid malt extract (4 °L)

2.2 lb. (1 kg) Munich liquid malt extract (8 °L)

7.1 oz. (200 g) Franco-Belges caramel Munich malt (40 °L)

7.1 oz. (200 g) Castle Special B malt (120 °L)

3.5 oz. (200 g) Thomas Fawcett pale chocolate malt (200 °L)

5.36 AAU Hallertau pellet hops, (1.34 oz./38 g at 4% alpha acids) (60 min.)

Wyeast 3068 (Weihenstephan Weizen) or White Labs WLP300 (Hefeweizen Ale) yeast

Step by step

I have used a number of wheat and Munich malt extracts with good results. Feel free to use whatever your shop recommends. If you can't get Munich extract, you can do a partial mash with Munich malt instead. If you can't get fresh liquid malt extract, it is better to use an appropriate amount of dry malt

extract (DME) instead. I use Best Malz Pilsner, dark wheat, and Munich malt. The Caramel Munich 40 is from Franco-Belges, the Special B from Castle, and the pale chocolate from Thomas Fawcett. Feel free to substitute any high quality malt of a similar flavor and color from a different supplier. My hops are in pellet form and come from Hopunion.

Mill or coarsely crack the specialty malt and place loosely in a grain bag. Avoid packing the grains too tightly in the bag, using more bags if needed. Steep the bag in about 0.5 gallon (~2 liters) of water at roughly 170 °F (77 °C) for about 30 minutes. Lift the grain bag out of the steeping liquid and rinse with warm water. Allow the bags to drip into the kettle for a few minutes while you add the malt extract. Do not squeeze the bags. Add enough water to the steeping liquor and malt extract to make a pre-boil volume of 5.9 gallons (22.3 liters) and a gravity of 1.069 (16.7 °P). Stir thoroughly to help dissolve the extract and bring to a boil.

The total wort boil time is 60 minutes. Add the bittering hops with 60 minutes remaining in the boil. I skip kettle finings for this beer. Chill the wort rapidly to 62 °F (17 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly. The proper pitch rate is three packages of liquid yeast or one package of liquid yeast in an appropriate starter. Ferment at 62 °F (17 °C) until the beer attenuates fully. With healthy yeast, fermentation should be complete in a week, but don't rush it. The cooler than average ale fermentation temperature can extend the time it takes for complete attenuation. Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar, and bottle. Target a carbonation level of 2.5 to 3 volumes.

Weizenbock Commercial Examples

AleSmith Weizenbock
AleSmith Brewing Company
San Diego, California
www.alesmith.com

Eisenbahn Vigorosa
Cervejaria Sudbrack Ltda
Blumenau, Brazil
www.eisenbahn.com.br

**Erdinger Weissbier
Pikantus**
Erdinger Weissbräu
Erding, Germany
www.erdinger.de

Glockenspiel Weizenbock
Great Lakes Brewing Company
Cleveland, Ohio
www.greatlakesbrewing.com

Moonglow Weizenbock
Victory Brewing Company
Downington, Pennsylvania
www.victorybeer.com

**Plank Bavarian Dunkler
Weizenbock**
Brauerei Michael Plank
Laaber, Germany
www.brauerei-plank.de

**Plank Bavarian Heller
Weizenbock**
Brauerei Michael Plank
Laaber, Germany
www.brauerei-plank.de

Ramstein Winter Wheat
High Point Brewing Company
Butler, New Jersey
www.ramsteinbeer.com

Schneider Aventinus
G. Schneider & Sohn
Kelheim, Germany
www.schneider-weisse.de

**Schneider Aventinus
Eisbock**
G. Schneider & Sohn
Kelheim, Germany
www.schneider-weisse.de

“Although there are lots of quality malts out there, I prefer to use continental malts in my German-style beers. I find the flavors of those malts consistent with the beers I drink when visiting Germany.”



Rye has been a staple grain for millennia—sought after for its stubborn resilience in the field and revered for its unique flavor. Ruthless Rye IPA is brewed with this rustic grain for refined flavors—combining the peppery spice of rye and the bright citrusy flavors of whole-cone hops to create a complex ale for the tumultuous transition to Spring.

AVAILABLE EVERYWHERE JANUARY 2012

BREWED & BOTTLED BY SIERRA NEVADA BREWING CO., CHICO, CA.

style profile

“ Hop aroma or flavor is not part of this beer style, but I still like to use German hops for German beers. In this case Hallertau, Spalt, Tettnang, Perle, Magnum or Tradition are fine choices. ”

caramel malt is in the darker color range (>80 °L). The darker caramel malts adds color and helps enhance the dark fruit character that is critical to this beer.

The ideal extract for this style does not exist. The ideal extract would be at least 50% dark wheat malt and the rest Pilsner and Munich malt. Most wheat extracts are made with a lighter kilned wheat malt and most Munich extracts are approximately half Pilsner or two-row malt, which is more Pilsner malt than desired. If you are interested in giving all-grain a try, the brew in a bag method is an easy way to get started, as it is very similar to steeping grain in a bag. You can find lots of good information on this technique by searching for “brew in a bag method” on the Internet. If you would rather stick with extract, use any high quality wheat extract and Munich extract.

Historically, like most weizen-type beers, weizenbock would have been decoction mashed. While a decoction mash might induce more Maillard reactions, the rich malt flavors provided by today’s Munich and Pilsner malts is more than adequate and a single infusion or step mash works well. Weizenbock has a medium-full to full body. Target a mash temperature range of 150 to 156 °F (66 to 69 °C). If you are making a lower gravity beer, use the higher end of this temperature range to leave the beer with a bit more body. If you are making a bigger beer, use the lower end of the range to avoid too full of a body, which can become syrupy when extreme. Keep in mind wheat malt is huskless, so if your equipment is prone to stuck mashes, you might want to add a volume of rice hulls equal to the volume of wheat malt.

Hop aroma or flavor is not part of this beer style, but I still like to use German hops for German beers. In this case Hallertau, Spalt, Tettnang, Perle, Magnum or Tradition are fine choices. Liberty or Mount Hood can be acceptable substitutes if you cannot source one of the others. Balance the beer with enough hop bitterness to firm up the beer, but not enough to

Better Beer in Just One Click!!

Rebel



Brewer

HOMEBREW MEGA-MART

154 Varieties of Yeast

170 Different types of Grain (from 75¢/lb.)

67 Varieties of Hops (from 89¢/oz.)

Equipment from Beginner to Insane

Lowest Prices

Fastest Shipping

for a Limited time

FREE SHIPPING

on all **BLICHMANN** products

*mainland US only

Order Online:

RebelBrewer.com

Beer Made Better

overcome the malt sweetness of the beer. The balance should be even or maybe slightly sweet, but not more. Target a bitterness-to-starting gravity ratio (IBU divided by OG) between 0.2 and 0.4.

While the traditional weizen fermentation esters and phenols should be obvious in weizenbock, keep in mind that the fermentation character

“My favorite yeasts for all weizen-type beers is White Labs WLP300 Hefeweizen Ale and Wyeast 3068 Weihenstephan Weizen. You can try other weizen-type yeasts and might prefer one over the other, so feel free to experiment.”

— the clove and banana — should blend well with the rest of the beer character. While some brewers like to pitch a reduced cell count to increase weizen fermentation characteristics, I’m not a big fan of that technique. Instead, pitching rates should be the same as other ales. My favorite yeasts for all weizen-type beers is White Labs WLP300 Hefeweizen Ale and Wyeast 3068 Weihenstephan Weizen. You can try other weizen-type yeasts and might prefer one over the other, so feel free to experiment. A restrained fermentation temperature of 62 °F (17 °C) creates a beautiful balance of fermentation flavors and helps keep some unpleasant flavors in

check. It is very important to follow the recommended fermentation temperature for this beer. **BYO**

BYO “Style Profile” columnist Jamil Zainasheff is an award-winning Northern California homebrewer, author, and host of “The Jamil Show” and “Brew Strong” shows on The Brewing Network. A “stylish” guy, Jamil has brewed every style of beer

described in the Beer Judge Certification Program (BJCP) Style Guidelines. He writes “Style Profile” in every issue of Brew Your Own.

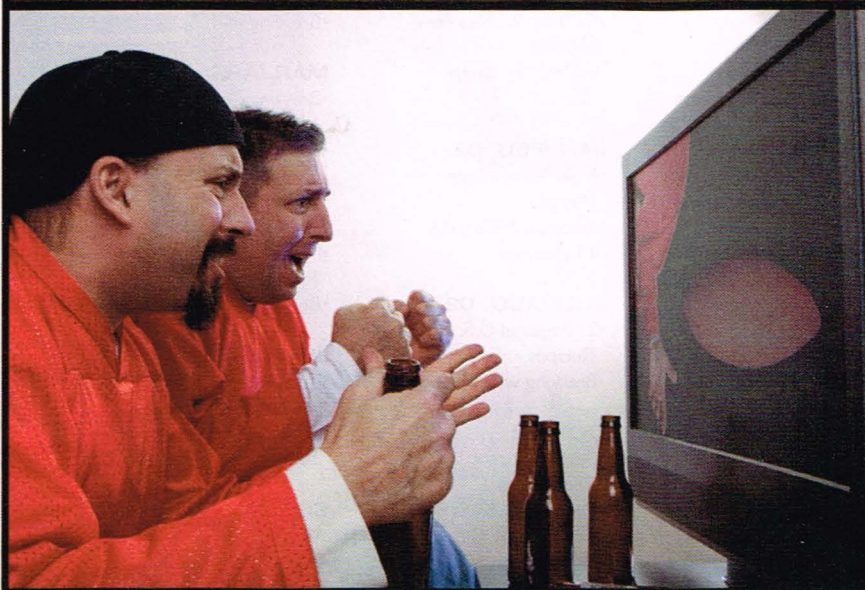
Web extra:



Follow Jamil’s blog as he opens his own commercial brewery, Heretic Brewing:

www.byo.com/blogs/blogger/Jamil

CHEERS!



**Home
Brewing
Supplies**

**Brew Pots, Kettles, Wort Chillers,
Coolers, Mash/Lauter Tuns,
& Brewing Accessories**



Proud USA
Manufacturer
Since 1907



POLAR WARE
COMPANY

800-237-3655

www.polarware.com

customerservice@polarware.com

BYO BACK ISSUE SALE!

Buy 5 Issues...Get 5 More Issues FREE!



We are offering readers a very special deal on our limited quantities of back issues. Buy any 5 issues for \$25 (plus \$12.50 shipping) and receive 5 more issues for **FREE!** Buy 5 and get 5 **FREE!** Choose from these collectible classics still in stock from 1998 through 2009, and now 2010 back issues as well!

HURRY! SUPPLIES ARE LIMITED!

NOW AVAILABLE ONLINE AT
WWW.BREWYOUROWNSTORE.COM

JULY 98

- 15 Clone Recipes
- 3 Beers, 1 Mash

OCT. 98

- Great Bock Recipes
- Choose the Right Kit

JAN. 99

- Aging in Wood
- Figuring Hop Bitterness

FEB. 99

- Malta Yeast Starter
- Organic Homebrewing

MAR. 99

- Imported Clone Recipes
- Build an Electric Brew Stove

AUG. 99

- Wit, Kölsch Recipes
- American Lager Clones

JAN. 00

- 7 Czech Beer Recipes
- Your First Brew

FEB. 00

- High-Gravity Brewing
- Foreign Clone Recipes

OCT. 00

- 20 Autumn Extract Recipes
- Build a Counterflow Wort Chiller

JAN. 01

- Brew Indigenous Beers From 4 Continents
- Making Root Beer

FEB. 01

- 5 German Clone Recipes
- Decoction Step-by-Step

MAR. 01

- Growing Yeast Strains at Home
- Brew Low-Carb Beer with Beano®

MAY 01

- 20 Extract Recipes for Spring
- Build a Counter Pressure Bottle Filler

SUMMER 01

- 5 Clone Recipes for Summer
- Build a Big-Batch Mash Tun

JAN./FEB. 02

- 8 Ski Town Clone Recipes
- Thomas Jefferson's Homebrew

JULY/AUG. 02

- 21 Regional U.S. Recipes
- Brewing with Fruit

OCT. 02

- Better Extract Techniques
- One Batch, Two Beers

JAN./FEB. 03

- Brewing Porter
- Cleaning & Sanitation Made Easy

MAY/JUNE 03

- How to Control the Color of Your Beer
- Adding Oak to Beer

JULY/AUG. 03

- Light Beer Recipes
- Tips for Entering Homebrew Competitions

SEPT. 03

- Pale Ale Recipes
- Yeast Pointers

OCT. 03

- 17 Foolproof Extract Recipes
- Trappist Ale Tips & Recipes

NOV. 03

- Choosing and Using Homebrew Pumps
- Steeping vs. Partial Mash

DEC. 03

- High-Gravity Beers
- Brewing with Spices

MAR./APR. 04

- Brewing Sugars & How to use Them
- Yeast: Choose the Right Strain for your Beer

MAY/JUNE 04

- Making Low-Carb Homebrew
- Beer Barbecue Recipes

JULY/AUG. 04

- Brewing Bocks — American & German
- Water Tips for Extract Beer

SEPT. 04

- 13 Commercial Hoppy Beers Cloned
- Brewing Old Ales

OCT. 04

- Extract Experiments
- Lambic Brewing

MAY/JUNE 05

- 10 Classic Clones: Anchor Steam, Fuller's ESB, Guinness, Sierra Nevada Pale Ale, Orval, Duvel, Paulaner Hefeweizen, Pilsner Urquell, Celebrator, Warsteiner

JULY/AUG. 05

- Brewing Heineken and International Lagers
- Belgian Saison

DEC. 05

- Pacific Northwest Clones
- 10 Hardest Beer Styles

MAY/JUNE 06

- 5 British Beer Clones
- Mashing Techniques

MAR./APR. 08

- Hop Substitution Guide
- Batch & Continuous Sparging

MAY/JUNE 08

- Czech Pilsners
- Build a Hop Drying Oast

JULY/AUG. 08

- 6 Belgian Inspired Clones
- Fruit Meads

SEPT. 08

- Low-Hop Recipes
- Dry Stout, Scottish Ale

NOV. 08

- Build a Kegerator and Multi-Tap Bar
- Brewing Imperial IPA

DEC. 08

- Stone Brewing Tips & Recipes
- Turning Pro

MARCH/APRIL 09

- Australian Brewing
- Controlling Fermentation Temperatures

OCT. 09

- Imperial German Beers - Take Malt Classics Big and Extreme
- Zombie Clones: Bring 5 British Ales Back from the Dead

NOV. 09

- Small Space Brewing Tips
- Countertop All-grain Brewing System

DEC. 09

- Pro Brewers Who Homebrew
- Rise of Small Hop Farms

JAN./FEB. 10

- Dark Secrets of Porter
- Brewing with Scotland's Brewdogs

MARCH/APRIL 10

- Bicycle Themed Beer Clones
- Master Dry Hopping

MAY/JUNE 10

- Breakfast Beers
- Build Your Own Keg & Carboy Cleaner

JULY/AUG. 10

- Grain to Glass - Your First All-Grain Brew Session
- Cascadia Dark Ale

SEPT. 10

- 15 Tips from 15 Pro Brewers
- Cooking with Homebrew

OCT. 10

- Extract Brew Day: A Pictorial Guide
- Use Malt Extract Like a Pro

NOV. 10

- Tap Into Kegs
- Barleywine Clones

DEC. 10

- Recipes & Tips from New Belgium Brewing
- Build a Motorized Mill

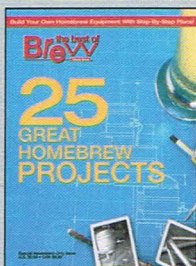
BUY 5 ISSUES...GET 5 MORE ISSUES FREE!

SPECIAL ITEMS:

NEW!

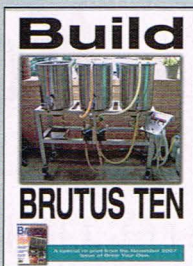
25 GREAT HOMEBREW PROJECTS

- Best projects from 16 years of *BYO*
- Includes parts & tools list as well as detailed instructions & pictures for each build



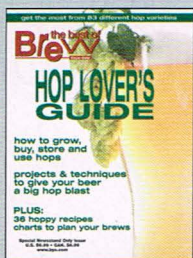
BUILD BRUTUS TEN

- Build your own single-tier, 10 gal. (38 L) semi-automated brewing system
- Includes plans, photos and step-by-step diagrams
- Special re-print from sold out November '07 issue



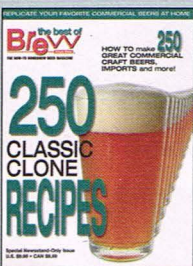
HOP LOVER'S GUIDE

- Hopping methods for extract & all-grain brewers to get the most out of your hops
- Comprehensive charts for 83 hop varieties
- Backyard hop growing instructions
- 36 hoppy recipes



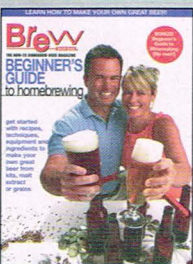
250 CLASSIC CLONE RECIPES

- New edition of our popular special issue now with 100 more recipes
- Brew your favorite commercial beers at home



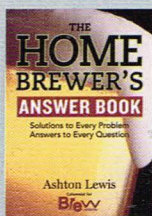
BEGINNER'S GUIDE

- How to brew with kits, extracts & all-grain
- Also provides introduction to winemaking!



THE HOME BREWER'S ANSWER BOOK

- Direct from the pages of *BYO*, this collection of Q&A from our "Mr. Wizard" column is the perfect reference for beginners and advanced brewers — and everyone in between!



Brew THE HOW-TO HOMEBREW BEER MAGAZINE
YOUR OWN

Mark your 10 choices below.

Qty.	Issue	Qty.	Issue
_____	July 98	_____	May/June 04
_____	October 98	_____	July/Aug. 04
_____	January 99	_____	September 04
_____	February 99	_____	October 04
_____	March 99	_____	May/June 05
_____	August 99	_____	July/Aug. 05
_____	January 00	_____	December 05
_____	February 00	_____	May/June 06
_____	October 00	_____	Mar./April 08
_____	January 01	_____	May/June 08
_____	February 01	_____	July/Aug. 08
_____	March 01	_____	September 08
_____	May 01	_____	November 08
_____	Summer 01	_____	December 08
_____	Jan./Feb. 02	_____	Mar./April 09
_____	July/Aug. 02	_____	October 09
_____	October 02	_____	November 09
_____	Jan./Feb. 03	_____	December 09
_____	May/June 03	_____	Jan./Feb. 10
_____	July/Aug. 03	_____	Mar./April 10
_____	September 03	_____	May/June 10
_____	October 03	_____	July/Aug. 10
_____	November 03	_____	September 10
_____	December 03	_____	October 10
_____	Mar./April 04	_____	November 10
		_____	December 10

* previous issues not listed are sold out;
2011 back issues still cost the full \$5.00

5 copies	\$25	
5 BONUS copies	FREE	FREE
25 Great Homebrew Projects _____ x \$10 ea =		
Build Brutus Ten Brewing System _____ x \$3 ea =		
Hop Lover's Guide _____ x \$7 ea =		
250 Clone Recipes _____ x \$10 ea =		\$ _____
Beginner's Guide _____ x \$7 ea =		\$ _____
Homebrewer's Answer Bk. _____ x \$14.95 ea =		\$ _____
Shipping/Handling (see below).....	=	\$ _____
1 unit = \$2.50 • 2 units = \$5.00		
3-9 units = \$7.00 • 10-49 units = \$12.50		
50-99 units = \$25.00 • 100+ units = \$37.50		
Orders outside the U.S. please call or e-mail for shipping quote.		
BYO Binders _____ x \$20 ea. (incl. shipping)		\$ _____
(Binders hold 12 issues each)		
Total		\$ _____

Name _____

Address _____

City _____ State _____ Zip _____

E-mail _____

Phone _____

☐ Check Enclosed ☐ MasterCard ☐ Visa

Card# _____

Exp. Date _____

Signature _____

www.brewyourownstore.com

MAIL ORDER FORM TO:
BYO Back Issues
5515 Main Street
Manchester Center, VT 05255

FAX FORM TO:
802-362-2377
or CALL:
802-362-3981

“have another **FALSTAFF** folks”



remembering the
choicest product of
the brewers' art

Although St. Louis is now associated with Anheuser-Busch, A-B was neither the first nor the largest brewery there until the second half of the 20th Century. In fact, 100 years ago the most popular beer from that famous brewing city was Falstaff.

The roots of the Falstaff Brewing Corporation, which existed in one form or another for 167 years — from 1838 to 2005 — go back to German immigrant Johann Adam Lemp. Lemp was born in Gruningen in 1793. At the age of 43 he left for Cincinnati, another city associated with German immigration, and then moved to St. Louis two years later in 1838. His first business there was a grocery store. Along with other food items, he made and sold his own vinegar and beer in the new lager style that was beginning to achieve popularity in his native land. Almost all American beers at the time were top-fermented ales, and Lemp's lager became a favorite of other immigrants who wanted to keep up with trends in the old country.



Story by **Bill Pierce**

Beer, Not Groceries

Soon enough, the brewing eclipsed the grocery operations and in 1840 Lemp founded the Western Brewery, located on what is now the south leg of St. Louis's most prominent landmark, the Gateway Arch. Underneath the brewery, near the Mississippi River, were natural caves, which provided a cool location for lagering and storing the beer. Adam Lemp's son William came to America with his family as a very young boy. He attended St. Louis University and worked at the Western Brewery until he left in 1860 to form a partnership with another brewer. However, in 1862 the elder Lemp died suddenly, and his son returned to take over the reins of the family business. At that time, there were 40 breweries in St. Louis.

William Lemp did well, and by 1864 he had renamed the business to Lemp's Western Brewery and built a new facility at a location in south St. Louis that had access to larger caves, cooled in the summer with ice harvested from the river during the winter. Several years later he moved into a sizeable home near the site and connected it to the brewery via an underground tunnel. By the 1870s Lemp's was the largest brewery in St. Louis and the eighth largest in the US, with an annual production of 500,000 barrels. They were able to afford what were then significant tech-



Public Domain Photo



Photo by Matt Kastner

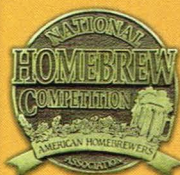
Top: All Falstaff brewery locations are now shuttered, but in its heyday, Falstaff was the third largest brewery in the United States, behind Schlitz and Anheuser-Busch.

Bottom: Falstaff aggressively expanded and bought out other breweries, until it fell on hard times. The historic brand was acquired and allowed to languish. The last Falstaff was brewed in 2005.

THE LARGEST
BEER COMPETITION
IN THE WORLD



American Homebrewers Association® 34th Annual



NATIONAL HOMEBREW COMPETITION

ENTRY DEADLINE:

First Round, March 19–March 28, 2012

FINAL ROUND: June 21, 2012

AWARDS CEREMONY: June 23, 2012

34th Annual National Homebrewers Conference • Seattle, Washington

Visit the Competitions section of HomebrewersAssociation.org
for rules, regulations and judging center locations.

American Homebrewers Association
A Division of the Brewers Association
www.BrewersAssociation.org



nical innovations — in 1878 the first refrigeration machine in any American brewery and soon thereafter refrigerated railroad cars to transport the beer and distribute it over a wider area. Lemp's beers were even exported to Europe in ships newly fitted with refrigeration. They also were one of the first large brewers to operate their own bottling plant.

Fiction and Fact

Lemp introduced the Falstaff brand in the 1850s. Although the family was German, the beer was named after a fictional character made famous in the plays of William Shakespeare.

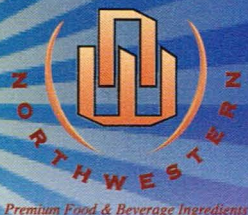
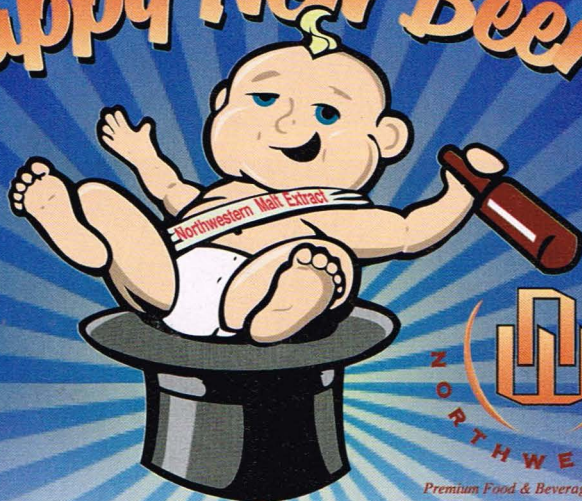
Sir John Falstaff was depicted as a portly and boastful English knight known for his love of good food, drink and conversation as well as being a patron of the arts. A longtime slogan used in Falstaff advertising was "The choicest product of the brewers' art," and the shield that appeared in the logo first trademarked in 1896 is said to be based on an artist's palette.

Three of William's four sons followed him into the business. His favored successor was his youngest, Frederick, who unfortunately had health problems and died at age 28 in 1901. Despondent over the loss and suffering from depression, William Lemp took his own life with a gunshot to the head in February 1904 at the age of 68. Eldest son William Jr. (Billy), assumed the presidency of the company, but he had his own problems. His wife Lillian was known for her lavish lifestyle and in 1908 sued him for divorce; the trial lasted 11 days and received sensational coverage in the national newspapers.

The Lemp family troubles were compounded by the growing temperance movement. The company was ill-prepared for the passage of the 18th Amendment in 1919 and had made no real plans for diversification. A non-alcoholic "near beer" introduced at the last minute did not sell well. By 1921 almost all employees had been let go. The brewery sat nearly empty and the business was short of cash.

Rescue came in the form of a rival St. Louis brewing family. Anton

Happy New Beer!



If you want to brew the best start with the best.

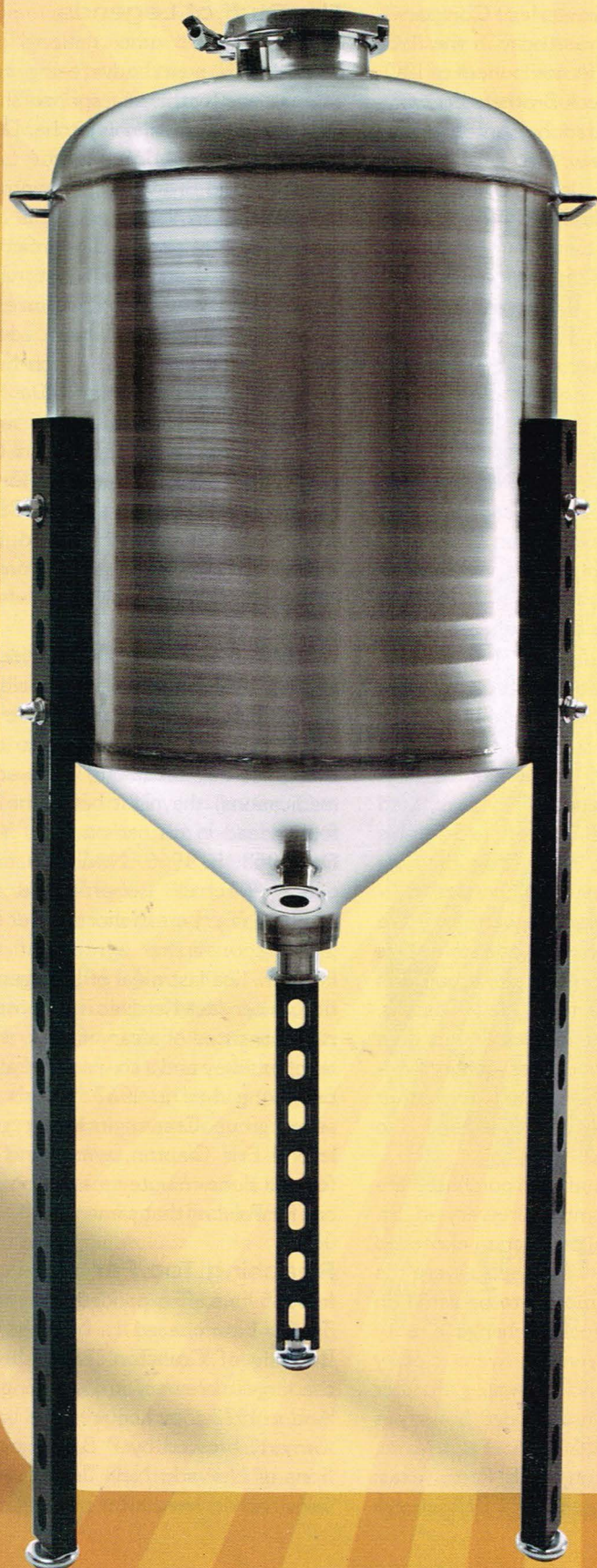
Northwestern Malt Extract

W194N11250 McCormick Drive, Germantown, WI 53022-3032

www.nwextract.com • flavors@nwextract.com

Phone: 262-345-6900 • Fax: 262-345-6901

BREW POWER



Take your home brewing to the next level. Stop using a plastic bucket and start brewing like the pros with the new Brewhemoth.

One big, bad, beer fermenter, the Brewhemoth gives you a $\frac{1}{2}$ barrel fermenting capacity in its 22 gallon, 304 stainless steel tank.

Designed by guys who brew, the Brewhemoth has the features you need to make brewing easier. Check it out at:

www.brewhemoth.com

Then place your order with Coupon Code BREW2012* to get 10% off your new Brewhemoth!



*Orders must be placed by February 29, 2012. Can't be combined with any other offer.

**Your Father's
Mustache (Classic
American Pilsner)**

by Jeff Renner

(5 gallons/19 L, all-grain)

OG = 1.051 FG = 1.013

IBU = 35 SRM = 4 ABV = 5%

Ingredients

9.0 lbs. (4.1 kg) 6-row pale malt

2.25 lbs. (1.0 kg) brewer's grits

7 AAU Cluster hops (60 mins)

(1.0 oz./28 g of

7.0% alpha acids)

5 AAU Styrian Goldings hops

(15 mins) (1.0 oz./28 g

of 5.0% alpha acids)

White Labs WLP833 (German

Bock Lager) or Wyeast 2487

(Hella-Bock) yeast

Step by Step

Cereal mash corn grits. Mash in main mash to 140 °F (60 °C). Transfer cereal mash to main mash and adjust temperature to 152 °F (67 °C). Boil for 70 minutes. Ferment at 52 °F (11 °C).

**Your Father's Mustache
(5 gallons/19 L,
extract with grains)**

OG = 1.051 FG = 1.013

IBU = 35 SRM = 4 ABV = 5%

Ingredients

1 lb. 9 oz. (0.7 kg) 6-row malt

6.5 oz. (180 g) flaked maize

3 lb. 11 oz. (1.67 kg) Briess Light
dried malt extract

15 oz. (425 g) corn sugar

7 AAU Cluster hops (60 mins)

(1.0 oz./28 g of 7.0% AA)

1.0 oz. (28 g) Styrian Goldings
hops (15 mins)

White Labs WLP833 (German
Bock Lager) or Wyeast 2487

(Hella-Bock) yeast

Step by Step

Steep grains in 2.8 qts. (2.6 L) of water at 150 °F (66 °C). Add extract, sugar and water to make 3.5 gallons (13 L). Boil 60 minutes. Ferment at 52 °F (11 °C).

Griesedieck was another German immigrant who had arrived in 1866 and invested in a number of St. Louis brewing-related businesses which by 1907 had become part of the International Breweries Company. (The name survives today in the IBC root beer brand.) A component of IBC was the Griesedieck Brothers Brewing Company, operated by Anton's four sons and a nephew. One of the sons, Joseph (Papa Joe) Griesedieck, stepped in and purchased the Falstaff brand from the Lemp family for the bargain sum of \$25,000, reorganizing as the Falstaff Corporation (later Falstaff Brewing). He survived for the next 12 years by making soft drinks, and by curing, cooking and canning ham and bacon.

The Order of the Day

Upon Prohibition's repeal in 1933, brewing very quickly began again, with newly rehired employees working 48 hours straight to rush the product to thirsty customers who gathered on the brewery grounds and had to be restrained by police. It was clear America's love for beer had not diminished, and expansion was the order of the day. Falstaff responded with a series of acquisitions. They purchased the former Stiefel brewery in St. Louis and in 1935 the Fred Krug Brewing Company of Omaha, Nebraska, making them the first brewery to have operations in more than one state. This was followed shortly by the acquisition of National Brewing in New Orleans. Falstaff's practice of imposing its own production methods and quality control became the model for other national breweries as they expanded to multiple locations.

By 1948 Falstaff had purchased the competing Columbia Brewery in St. Louis and annual production exceeded 2,000,000 barrels. They also were the first brewing company to be listed on the New York Stock Exchange, a rarity when most breweries were closely held by their founding families. Further 1950's acquisitions included breweries in San Jose, California; Ft. Wayne, Indiana; Galveston and El Paso, Texas; and the remaining Griesedieck

Brothers brewery in St. Louis. It was one of the most technically advanced breweries at the time and became the flagship of Falstaff operations.

The Stuff of Legends

Falstaff followed other national beer brands with major advertising campaigns and athletic sponsorships. Popular former Cardinals pitcher Dizzy Dean began broadcasting St. Louis Cardinals and Browns games on radio for Falstaff in 1941, and this was expanded to television. The infamous "midget strike zone" incident where Browns owner Bill Veeck inserted three-foot-six-inch (1.1-m) dwarf Eddie Gaedel as a pinch-hitter occurred during "Falstaff Day" at Sportsman's Park in 1951. Veeck would later purchase the Chicago White Sox. Eventually he brought another former St. Louis announcer, Harry Caray, who had originally promoted rival Griesedieck beers but now made famous the line "Holy cow! Have another Falstaff, folks!"

Falstaff was the first brewer to sponsor major entertainers, including the 1950 tour of country music star Hank Williams, who is said to have consumed Falstaff (along with various medications) the night before he was found dead in his car on New Year's Day 1953. In 1966, NASCAR driver Glenn "Fireball" Roberts died as a result of a fiery crash shortly after signing a sponsorship agreement with Falstaff. The last meal of beat generation writer Jack Kerouac is supposed to have consisted of a can of tuna, a bottle of whiskey and a six-pack of Falstaff before he died in 1967. British rock super group Cream, including guitar legend Eric Clapton, wrote and performed a one-minute musical commercial for Falstaff that same year.

Reaching Too Far

In 1965 Falstaff expanded once again. They purchased Narragansett Brewing of Cranston, Rhode Island, the largest brewery in New England. And in 1972 they acquired the brands formerly brewed by P. Ballantine and Sons of Newark, New Jersey, whose sales had declined after peaking in the

1950s. Total corporate production reached a maximum of just over 7 million barrels in 1966, making Falstaff the nation's third largest brewer, behind Schlitz and resurgent St. Louis rival Anheuser-Busch.

The Narragansett and Ballantine acquisitions proved to be difficult ones. The East Coast beer market was highly competitive, especially in terms of price. Additionally, the State of Rhode Island and the US Justice Department sued Falstaff on antitrust grounds, and another suit brought by former Ballantine shareholders claimed the negotiations for the brand were conducted unfairly and royalties improperly accounted and paid. These were eventually settled in Falstaff's favor, but defending them was expensive and time-consuming. The antitrust case was decided by the US Supreme Court in 1973. Meanwhile, sales, profit and production all declined for the first time in many years, to 6 million barrels by the early 1970s.

Enter Mr. Paul

At the time the American brewing industry was undergoing a period of major change and consolidation, ironically a trend that had begun by Falstaff itself more than 35 years earlier. One of the biggest players in those changes was Paul Kalmanovitz, a legendary and controversial figure. Born in Poland in 1905, he first immigrated to Egypt, and then joined the merchant marine, jumping ship in New York in 1926, where he did odd jobs and acquired US citizenship via marriage to another immigrant. Ten years later the Kalmanovitzes arrived in Los Angeles and opened a gas station; Paul also briefly worked as a driver for Hollywood film mogul Louis B. Mayer. Later they invested in real estate and operated nightclubs. In 1950 Kalmanovitz purchased the struggling Maier Brewing Company and its Brew 102 brand, which he managed to turn around. In 1958, Falstaff, eyeing the Southern California market, had tried to buy Maier. A Falstaff executive told Kalmanovitz, "You better sell or we will bury you." The threat was ignored. By the 1970s Kalmanovitz had taken

over popular California rival Lucky Lager Brewing Company. Falstaff was seeking to shed some of its inefficient operations, and sold a recently acquired former Schlitz brewery in San Francisco to Kalmanovitz's General Brewing Corporation, which continued to brew Falstaff under contract. However, this was not enough to stanch the flow of red ink at Falstaff, and in 1975 they were in danger of

being unable to meet their considerable payroll. Kalmanovitz, who already was a large shareholder, stepped in with a \$25 million cash offer in exchange for majority control.

Such was his reputation as a fierce cost-cutter that employees at Falstaff's St. Louis headquarters flew the American and corporate flags upside down and at half-staff. The action may not have been unwarrant-

Born in the USA.
Bred for the World's classic styles.

Briess is located in Chilton, Wisconsin. That's a long way from Munich, Burton upon Trent or any other "traditional" brewing region. So we understand if you think imported malt is the way to go when making a German Pils or an English Ale. But scores of American brewers know they don't need to wait for the boat to arrive to brew award-winning traditional beers. They brew with handcrafted specialty malts from Briess.

Because, the best homebrewed beer starts with the finest handcrafted malt.

Ask your local homebrew store for the true-to-style malts from Briess.

BRIESS
MALT & INGREDIENTS CO.
All Natural Since 1876

Chilton, WI, USA | 920.844.7711
www.BrewingWithBriess.com

Brew a great all-grain Bock or an extract and grain Doppelbock using all Briess malt!

You can find these recipes and more at BrewingWithBriess.com/BornintheUSA

©2011 Briess Industries, Inc.

ed; Forbes magazine later reported that “Kalmanovitz went through Falstaff like Grant through Richmond . . . he took no prisoners.” In less than a year the offices in St. Louis were consolidated with General Brewing in San Francisco, and by 1977 all Falstaff operations ceased there after a 139-year history in the city of its birth. Kalmanovitz and his executives continued their campaign of acquiring — and closing — struggling breweries. Over the next 22 years, even though Paul Kalmanovitz himself died in 1987, these included many of the former icons of American brewing, among them National Bohemian, Pearl, Olympia, Pabst and finally Stroh’s. Of the large brewers, only Anheuser-Busch, Miller and Coors remained unscathed. Prior to the craft brewery revival, the number of breweries in the US had reached a low of 80 in 1983.

“Mr. Paul,” as he was known, had an aversion to labor unions and taxes. He endured and survived numerous strikes and lockouts as a result of his takeovers. Upon his death, he left an elaborate will that attempted to avoid estate taxes by transferring the brewing interests to a nonprofit charitable trust. While the trust made numerous gifts to universities and medical research, it was also charged by the Internal Revenue Service with operating a profit-making business in violation of the tax code. After a long series of appeals and extensions that lasted for more than a decade, in 2010 the trust finally sold the Pabst Brewing Company, under which it had consolidated all its brewing operations, to a group of private investors.

Not With a Bang, But a Whimper

The decline of Falstaff after the Kalmanovitz buyout was neither short nor pretty. Very little was spent on advertising and promotion, and the brand withered. Breweries continued to be closed and demolished; in at least two cases the brewing equipment was dismantled and shipped to China. Sales of Falstaff had already fallen to 900,000 barrels in 1984; a decade later it was 270,000, and only 20,000 bar-

rels were produced in 2001. The Ft. Wayne brewery, the last one that remained from the Falstaff era, was closed in 1990. Brewing was transferred to Pabst facilities in Milwaukee and the former Pearl brewery in San Antonio. After both of those breweries closed, Falstaff was brewed briefly under contract by Miller, variously in Fort Worth, Milwaukee, and Trenton, Ohio.

Finally, in 2002 the Falstaff contract moved to City Brewing of La Crosse, Wisconsin, which had been purchased and reopened by managers of the former G. Heileman brewery there. However, the patient had virtually no life left after its long, lingering illness. When annual sales declined to an all-time low of 1,468 barrels (the production of a medium-size brewpub) in 2004, the Falstaff brand was put to sleep once and for all in April 2005. Almost no one remained to note the passing, apart from those of us who mourn and remember when “the choicest product of the brewers’ art” was indeed a proud and vital part of the tradition of American brewing.

Recipe Time

The taste of Falstaff from the 1960s onward is approximated by many of the “value priced” beers available at retail locations in your neighborhood. There is little reason to brew them yourself. However, a different beer entirely is the Classic American Pilsner style that attempts to recreate what was very likely brewed by American breweries, including Falstaff, prior to Prohibition in 1919.

Present-day commercial versions of this style are rare, but one of its champions is homebrewer Jeff Renner of Ann Arbor, Michigan, whose recipe for Classic American Pilsner uses 6-row American base malt, which is high in protein (including enzymes), and corn as a low-protein adjunct. It is more highly hopped than today’s mainstream American lagers, but results in smooth flavor — and drinkability — the beer your great grandfather experienced. (See recipe on page 30.)

Because it duplicates the original

style, Renner’s recipe uses brewer’s corn grits, which are still in common use by large breweries but not easily available from homebrew suppliers. Substitutions that produce good results include degermed corn meal and polenta. You will need to do a cereal mash or “double mash” because the corn starches will not be gelatinized at normal mash temperatures, as occurs with barley. To achieve gelatinization of the starches, corn needs to be boiled. (The same goes for rice as well, another common adjunct in American-style Pilsners.)

A cereal mash consists of adding 20–30 percent by weight of 6-row malt to the corn (this helps to keep the mash from sticking) and hot water to a thickness of about 1.5 quarts per pound (3.1 L/kg) of dry ingredients and a temperature of 152–154 °F (67–68 °C). Use a pot with a thick bottom to avoid burning. Hold for 20 minutes, and then increase the heat, stirring until it comes to a boil and occasionally thereafter. Boil for at least 30 minutes for corn meal, 45–60 minutes for corn grits or polenta. Add hot water if it becomes too thick or sticks. Meanwhile, you will have mashed in the rest of the grist for the recipe and held it at a temperature of about 140 °F (60 °C). Add the boiled cereal mash back to the main mash in order to achieve a temperature of 149–158 °F (65–70 °C). The lower end of that range results in a drier beer, the higher end more body and residual sweetness. Be prepared to adjust the temperature by adding hot or cold water as appropriate. Maintain that temperature for 40–45 minutes to achieve complete conversion of the gelatinized starches.

Should you not want to go to the effort of a cereal mash, you can use flaked maize (corn). The process of manufacturing the flakes gelatinizes the starches so that a standard single infusion or step mash will suffice. The resulting beer will be similar, but you will have missed an opportunity to connect with brewers of a century or more ago. **BYO**

Bill Pierce is a frequent contributor to Brew Your Own magazine.

Let Us Help You Make Your Own
Beer • Wine • Soda • Cheese
 Equipment • Ingredients • Friendly, Knowledgeable Advice



Since 1984 • Ozark, Missouri

Call Today To Receive a FREE Catalog!

800-321-BREW(2739)

www.homebrewery.com



Exciting News From the American Brewers Guild...

New Middlebury Facility!



The American Brewers Guild would like to announce a brand new classroom, laboratory and brewery facility on Route 7 South in Middlebury, Vermont, set to open in early 2012. Along with the usual twice annual IBS&E and CBA distance learning programs there will be

some new class offerings such as; Brewing Grain to Glass, How to Open a Brewery, Homebrewers Fantasy Camp. This facility will also be home to our new commercial brewery. So keep an eye on our advertisements and visit our website for more details on this exciting evolution of the American Brewers Guild!

— Christine and Steve

TRAINING THE BREWERS OF TOMORROW TODAY!

Classes are full through 2013!

2014 class dates will be posted on the website as soon as they are available.

Intensive Brewing Science & Engineering (IBS&E, 23 weeks)

FULL

Craftbrewers Apprenticeship (CBA, 28 weeks)

FULL

Call us or email for more information (800) 636-1331

www.abgbrew.com • email: info@abgbrew.com

www.breworganic.com

Great organic beer starts with great organic ingredients!



30 Organic Hop Varieties:

Admiral, American Fuggles, Belgian Cascade, Belgian Saaz, Bravo, Cascade, Centennial, Challenger, Chinook, Fuggles, Hallertaur Tradition, Hershbrucker, Horizon, Ivanhoe, Kent Goldings, Motueka, Nelson Sauvin, New Zealand Hallertaur, Nugget, Opal, Pacific Gem, Palisade, Perle, Pilgrim, Rakau, Saphir, Smaragd, Spalt Select, Summit, Whitbread Goldings Variety.

28 Organic malts:

From Briess, Crisp, Gambrinus, Great Western, & Weyermann

The world's best selection of organic ingredients to make the world's best organic beer.. whether it's your first brew ever or a 200 gallon batch in your craft brewery.



Green Coffee Too! Fair Trade certified, which supports fair wages for the growers who craft the best organic coffee in the world.

800-768-4409

325A River Street, Santa Cruz, CA 95060

Retail Store Hours:

Mon-Sat 10 am to 6 pm, Sun 12 to 6 pm

7bridges@breworganic.com

Dallas Home Brew

a division of

The Wine Maker's Toy Store

FROM LIGHT TO DARK
 AND EVERY STYLE IN BETWEEN



We have all
 of the ingredients,
 supplies and
 equipment
 to make your
 favorite brews!



1300 N. I-35E, Suite 106., Carrollton, TX 75006

<http://www.finevinewines.com>

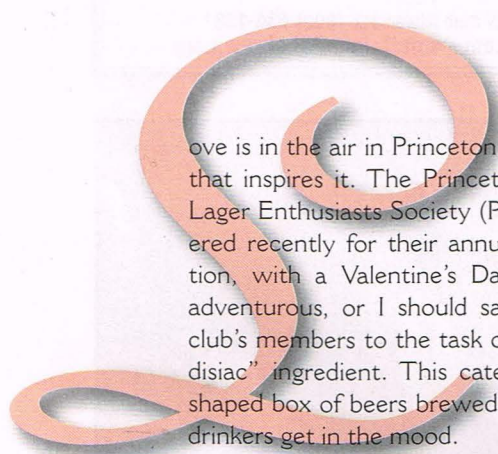
1-866-417-1114

Story by **Richard Bolster**

Aphrodisiac

VALENTINE BEERS

BREWED FOR THE RIGHT MOOD

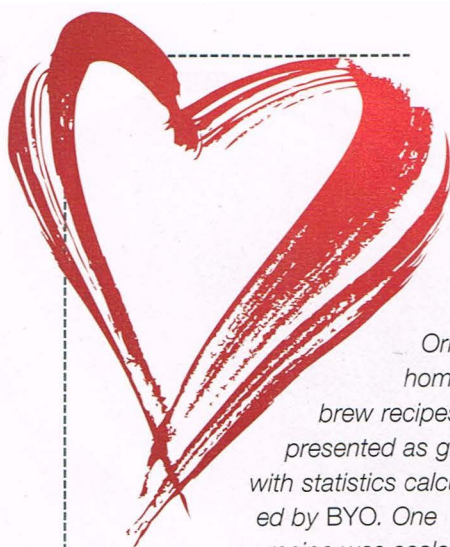


Love is in the air in Princeton, New Jersey, or at least the stuff that inspires it. The Princeton And Local Environs Ale And Lager Enthusiasts Society (PALEALES) homebrew club gathered recently for their annual club-only homebrew competition, with a Valentine's Day twist. The organizers set the adventurous, or I should say, amorous, brewers among the club's members to the task of creating a beer with an "aphrodisiac" ingredient. This category featured a veritable heart-shaped box of beers brewed with assorted ingredients to help drinkers get in the mood.

The members of the PALEALES club, which was founded in 1995, gathered at Princeton Homebrew, the homebrew supply store owned by brewing oracle and PALEALES founder, Joe Bair. They came from Princeton and Piscataway and from right around the corner in Trenton, all with the hope of scoring the grand prize (besides bragging rights, of course): a \$100 Princeton Homebrew Gift Certificate. About two dozen members, including first time attendees and longtime club members — mostly men, but with a solid female presence — met on an unseasonably warm day that didn't feel much like February outside. Inside, too, things were heating up as PALEALES members' hearts were pounding with anticipation and love . . . of homebrew.

The rules were simple. Beers were given an identifying number and the judges were told the intended style of each contest entry. All members tasted and scored the beers from 0–5 based on appearance, aroma and overall impression. Up to 10 points could be awarded for flavor, for a maximum total score of 25 points.





Original home-brew recipes are presented as given, with statistics calculated by BYO. One recipe was scaled from 10 gallons to 5 gallons. Conversions to all-grain or extract version by BYO.

Jolly Roger Double Mocha Porter
by Dave Rawlins
(5 gallons/19 L, all-grain)
OG = 1.062 FG = 1.016
IBU = 45 ABV = 6.0%

Ingredients

11 lbs. (5.0 kg) Maris Otter pale malt
0.25 lbs. (0.11 kg) crystal malt (120 °L)
0.25 lbs. (0.11 kg) crystal malt (150 °L)
0.25 lbs. (0.11 kg) Weyermann Carafa® Type II malt
0.25 lbs. (0.11 kg) 2-row black malt
0.5 lbs. (0.23 kg) kiln coffee malt
0.5 lbs. (0.23 kg) chocolate malt
8.5 AAU Summit hops (45 mins) (0.5 oz./14 g of 17% alpha acids)
5 AAU Willamette hops (20 mins) (1.0 oz./28 g of 5% alpha acids)
5 AAU Willamette hops (5 mins) (1.0 oz./28 g of 5% alpha acids)
75% Wyeast 1764 (Rogue Pacman) and 25% White Labs WLP028 (Edinburg Ale) yeast

Step by Step

Mash in at 152 °F (67 °C). Hold at 152 °F (67 °C) for 60 minutes. If possible heat mash to 168 °F (76 °C) and hold for 10 minutes for mash out. Sparge with 168 °F (76 °C) water and collect 7.5 gallons (28 L)

Aphrodisiac Beer Recipes

of wort or collect runoff until Plato drops to 2.0 (1.008 SG) and add water to the 7.5-gallon (28-L) mark. Boil for 60 minutes, adding hops as indicated. Cool to 65–68 °F (18–20 °C) and pitch yeast. Ferment at 65–68 °F (18–20 °C) for 1 week. Transfer to secondary fermenter for 2 weeks. Crash cool at 36 °F (2.2 °C) for 1 to 2 weeks then keg or bottle. Carbonate to 2.3 to 2.5 volumes.

Jolly Roger Double Mocha Porter
(5 gallons/19 L, extract with grains)
OG = 1.062 FG = 1.016
IBU = 45 ABV = 6.0%

Ingredients

8.0 lbs. (3.6 kg) Muntons Light liquid malt extract
0.25 lbs. (0.11 kg) crystal malt (120 °L)
0.25 lbs. (0.11 kg) crystal malt (150 °L)
0.25 lbs. (0.11 kg) Weyermann Carafa® Type II malt
0.25 lbs. (0.11 kg) 2-row black malt
0.5 lbs. (0.23 kg) kiln coffee malt
0.5 lbs. (0.23 kg) chocolate malt
8.5 AAU Summit hops (45 mins) (0.5 oz./14 g of 17% alpha acids)
5 AAU Willamette hops (20 mins) (1.0 oz./28 g of 5% alpha acids)
5 AAU Willamette hops (5 mins) (1.0 oz./28 g of 5% alpha acids)
75% Wyeast 1764 (Rogue Pacman) and 25% White Labs WLP028 (Edinburg Ale) yeast

Step by Step

Steep grains at 152 °F (67 °C). Stir in half of the malt extract and boil wort for 60 minutes, adding hops as indicated. Stir in remaining malt extract in final 15 minutes of the boil. Ferment at 65–68 °F (18–20 °C).

Gato Negro
by Dawn Coluccio
and Kate Saik

(5 gallons/19 L, extract with grains)
OG = 1.054 FG = 1.013
IBU = 21 ABV = 5.2%

Ingredients

6.0 lbs. (2.7 kg) dark malt extract
1.0 lb. (0.45 kg) domestic special pale malt
1.0 lb. (0.45 kg) medium crystal malt
0.50 lb. (0.23 kg) roasted barley
0.25 lb. (0.11 kg) chocolate malt
0.50 lb. (0.23 kg) oatmeal
1.75 cup unsweetened cocoa powder
2 whole vanilla beans
5 AAU UK Kent Golding hops (45 mins) (1.0 oz./28 g of 5% alpha acids)
8.5 AAU UK Northdown hops (5 mins) (1 oz./28 g of 8.5% alpha acids)
White Labs WLP002 (English Ale) yeast

Step by Step

Heat 1.0 gallon (3.8 L) of water to 170 °F (77 °C). Add grain bag and steep for 30 minutes. Sparge grains at 168 °F (76 °C) bringing volume up to 2.0 gallons (7.6 L). Return to boil. Turn off heat and add malt extract. Boil for 60 minutes adding hops as indicated. Turn off heat. Split and scrape vanilla beans and add. Add cocoa powder. Stir thoroughly. Bring the total volume up to 5 gallons (19 L). Cool to 70 °F (21 °C) and pitch yeast. Ferment at 60–75 °F (16–24 °C). Rack to secondary when gravity is 1.016 or lower. Ferment until action has ceased and beer has clarified. Prime, bottle and age at room temperature for at least two weeks before chilling.

Strawberry Choco
by Mike Moreken
(5 gallons/19 L, extract with grains)
OG = 1.051 FG = 1.013
IBU = 23 ABV = 5.3%

Ingredients

1.0 lb. (0.45 kg) crystal malt (60 °L)
0.20 lb. (91 g) CaraPils® malt
1.0 lb. (0.45 kg) pale malt
3.2 lb. (1.5 kg) golden liquid malt extract (45 min)
3.0 lb. (1.4 kg) amber liquid malt extract (45 min)
6.1 AAU Nugget hops (60 mins)
(0.5 oz./14 g of 12.2% alpha acids)
1 whirlfloc tablet (15 mins)
Nottingham dried yeast
3.0 lb. (1.4 kg) Sweet Cherry Puree Vintner's Harvest (secondary)
0.33 cup baker's chocolate (secondary)
2.0 oz. (57 g) strawberry extract (bottling)
0.5 lb. (0.23 kg) lactose (bottling)
¾ cup brown sugar (for priming)

Step by Step

Bring about 2.5 gallons (9.5 L) to roughly 155 °F (68 °C). Soak grain for 30 minutes. Remove grain. Bring to a boil. Remove pot from heat and stir in extract. Return to boil for 60 minutes. Add hops and whirlfloc as indicated. Add cool sterilized water to make 5 gallons (19 L). Aerate and pitch yeast at 72 °F (22 °C).

Ferment for one week then rack to secondary. Add cherry puree and chocolate to secondary. Move to cooler area for two weeks at 70 °F (21 °C), if possible. At bottling, add strawberry flavor and lactose, stir gently. Prime, bottle and condition at room temperature for four weeks minimum.

(OG and FG are given as before lactose and fruit added. Estimated ABV includes sugar from strawberry puree. Lactose will boost beer's FG by about 4 "gravity points.")

Strawberry Choco (5 gallons/19 L, all-grain)

OG = 1.051 FG = 1.013
IBU = 23 ABV = 5.3%

Ingredients

8.5 lb. (3.9 kg) pale malt
1 lb. 6 oz. (0.63 kg) crystal (60 °L)
0.20 lb. (91 g) CaraPils® malt
6.1 AAU Nugget hops (60 mins)
(0.5 oz./14 g of 12% alpha acids)
1 whirlfloc tablet (15 mins)
Nottingham dried ale yeast
3.0 lb. (1.4 kg) Sweet Cherry Puree Vintner's Harvest (secondary)
0.33 cup baker's chocolate (secondary)
2.0 oz. (57 g) strawberry extract (bottling)
0.50 lb. (0.23 kg) lactose (bottling)
¾ cup brown sugar (for priming)

Step by Step

Mash at 152 °F (67 °C). Boil for 90 minutes, adding hops with 60 minutes remaining. Ferment at 72 °F (22 °C), then rack to secondary, adding fruit puree and chocolate. Add lactose and fruit extract at bottling, along with priming sugar.

Hot Chocolate Porter by Kevin Trayner (5 gallons/19 L, extract with grains)

OG = 1.050 FG = 1.012
IBU = 53 ABV = 4.8%

Ingredients

6.6 lbs. (3.0 kg) amber liquid malt extract
0.50 lb. (0.23 kg) chocolate malt
0.50 lb. (0.23 kg) black patent
0.50 lb. (0.23 kg) CaraMunich® malt
2.5 oz. (71 g) Ancho chile powder
5.0 oz. (142 g) cocoa powder
8.0 oz. (227 g) milk chocolate bar
4.5 AAU Northern Brewer hops (60 mins)
(0.50 oz./14 g of 9% alpha acids)
9.0 AAU Northern Brewer hops (45 mins)
(1.0 oz./28 g of 9% alpha acids)
4.5 AAU Northern Brewer hops (10 mins)
(0.50 oz./14 g of 9% alpha acids)
Wyeast 1099 (Whitbread Ale) yeast

Step by Step

Bring two gallons water to 160 °F (71 °C). Turn off heat and add specialty grains. Steep for 30 minutes. Stir in extract. Return to heat and bring to boil. Add cocoa powder, chile pepper, and chocolate bar. Boil for 60 minutes, adding hops as indicated. Remove from boil. Top up to 5.0 gallons (19 L). Cool, aerate and pitch yeast at 72 °F (22 °C). Ferment at 65–68 °F (18–20 °C) for two weeks then rack to secondary. Prime, bottle and condition at room temperature for one week.

You can use different peppers for different flavors. I like the smokiness of Ancho. Alternate pepper flavor method: Sear 1–3 whole peppers on a grill. Add to secondary.

Hot Chocolate Porter (5 gallons/19 L, all-grain)

OG = 1.050 FG = 1.012
IBU = 53 ABV = 4.8%

Ingredients

8.5 lbs. (3.9 kg) pale malt
0.50 lb. (0.23 kg) chocolate malt
0.50 lb. (0.23 kg) black patent
1.25 lb. (0.57 kg) CaraMunich® malt
2.5 oz. (71 g) Ancho chile powder
5.0 oz. (142 g) cocoa powder
8.0 oz. (227 g) milk chocolate bar
4.5 AAU Northern Brewer hops (60 mins)
(0.50 oz./14 g of 9% alpha acids)
9.0 AAU Northern Brewer hops (45 mins)
(1.0 oz./28 g of 9% alpha acids)
4.5 AAU Northern Brewer hops (10 mins)
(0.50 oz./14 g of 9% alpha acids)
Wyeast 1099 (Whitbread Ale) yeast

Step by Step

Mash at 152 °F (67 °C). Boil for 60 minutes, adding hops as indicated. Ferment at 65–68 °F (18–20 °C) for two weeks then rack to secondary. Prime, bottle and condition at room temperature for one week.

SMARTPHONE QR CODE



FLAT RATE SHIPPING!

\$7.95

32 QT KETTLE
STAINLESS STEEL



\$99

W/ VALVE AND THERMOMETER

HOPS!
30+ VARIETIES



STARTING
AT \$1.00/OZ

WORT CHILLERS
25', 50' & CUSTOM



\$49

WE MAKE THEM!

DOUBLE DRAFT TOWER
W/ STAINLESS DRIP TRAY



3"
STAINLESS
TOWER
\$120

BREW FOR LESS!

WWW.HOMEBREWSTUFF.COM

GET EVERYTHING.

The competition was collegial rather than cutthroat with an emphasis on participation, education and enjoyment. Newbies were as welcome to enter the competition as were the club's founders.

The event featured three broad categories of judging. The first two were based on gravity. Category 1 included brews with an original gravity of less than 1.060. Category 2 concoctions were those with an OG of 1.060 or higher. But the third category was where we all felt the love. The centerpiece of the afternoon, the aphrodisiac category, allowed brewers to highlight their creativity and to channel their inner Cupid.

The term "aphrodisiac," which is derived from Aphrodite, the ancient Greek goddess of love and beauty, and which Webster's defines as, "an agent that arouses . . . sexual desire," was loosely interpreted by the brewers, and that was a good thing. The aphrodisiac

ingredients ranged from the perennial Valentine favorite, chocolate, to beers brewed with honey, strawberry extract and, to really spice things up, ancho chile peppers.

THE RESULTS ARE IN

Dave Rawlins was inspired to create his Jolly Roger Double Mocha Porter after falling hard for Rogue Brewery's Double Mocha. A homebrewer since 1997 who loves French roast coffee, he explained, "I was 'trying to get a mocha edge.' He got his edge and stole the hearts of the judges as his beer took top honors. This smooth robust porter was dark brown, almost black, with surprisingly subtle chocolate notes. Coffee dominated — a pound of kiln coffee malt, from Belgian maltsters Franco-Belges, will do that — but never overpowered this fine brew. (See all the recipes on page 36.)

Though nosed out at the finish line, the dynamic brewing duo of Dawn



Caluccio and Kate Saik were thrilled to finish second with their own chocolaty entry. Their Gato Negro – named for Kate's thirsty feline who got a little too close to the kettle and almost met the proverbial fate of all curious cats – was a black beauty of a beer with a thick, *café au lait* head and a rounded milk chocolate flavor. To get that flavor this brewing tandem did their homework.

"We thought about using actual chocolate but after . . . asking many questions of our more seasoned brew buddies [in the club] we decided on using the classic Hershey's unsweetened cocoa powder." Theirs was a double whammy, too, with vanilla bean adding richness and depth of flavor.

Chocolate was clearly a hit with the judges but honey, too, was well received. Russ Acevedo's Belgian Honey received an honorable mention.

THE BEST OF THE REST

Brewer Mike Moreken was covering all



Weyermann : Superb German Malts

Weyermann is Germany's oldest and finest maltster, producing a wide range of barley, wheat and rye malts to optimize every beer!

- **Superb quality Pilsner, Pale Ale, Vienna and Munich base malts**
- **Specialty malts to match just about any recipe**
- Weyermann crystal and roast malts are produced in rotary roasting drums rather than in the usual flatbed kilns, producing a more consistent, high quality end product
- **NEW** authentic Bavarian Pilsner malt
- **SINAMAR®** Liquid All-Malt beer coloring extract now available in 4 oz. bottles for the homebrewer!

Distributed in the United States by Crosby & Baker,
from wholesale (strictly!) warehouses in:

- | | |
|---------------------------|--------------------------|
| • Westport, Massachusetts | • Baltimore, Maryland |
| • Atlanta, Georgia | • Sacramento, California |
| • Salt Lake City, Utah | |

Websites for more information Specs & other great stuff:

www.WeyermannMalt.com www.Crosby-Baker.com Email: Info@Crosby-Baker.com

CROSBY & BAKER LTD

Call us for great products and prices: 1.800.999.2440

A castle...
A throne...
A crown...
What more could a King desire?
With the new dual finish bottle from
E.Z. Cap, you can have it all.

32 oz. (1 ltr) and
16 oz. (500 ml.)
in Amber,
Cobalt and
Flint

It's Majestic.



Available from
your local
E.Z. Cap
distributors

www.ezcap.net
(403)282-5972



50 POUND SACK

HOPS AND GRAIN BY THE ASSLOAD



Grain by the Bag ONLY!!

All your favorite Maltsters

Hops by the Pound

30 Varieties to choose from

ALWAYS FREE SHIPPING!!!

U.S. MAINLAND ONLY (AK AND HI CONTACT US FOR QUOTE)

www.50PoundSack.com

the bases. "I figured strawberries are kind of a romantic thing, you know, strawberries dipped in chocolate." So he whipped up a strawberry-infused chocolate beer. His recipe produced a relatively light-bodied brew. And, perhaps not surprisingly, the judges were split on this one. Some said it was pleasingly sweet, while others found the berry blast too strong. Strawberry was immediately obvious in the nose but mellowed on the palate.

Mike allowed, "The brew left no doubt it was a strawberry beer. The beer had a huge strawberry aroma at about 3 weeks." But after another month in the bottle Mike reported, "Wow, what a difference! The power of the strawberry fell nicely into the background."

PALEALES President, Kevin Trayner considered several aphrodisiac ingredients, including saffron and oysters, before deciding to play to his own preference for hot, spicy foods. Ancho chile powder was the aphrodisiac in his Hot Chocolate Porter.

A prior attempt to brew a jalapeño lager had taught Kevin a hard lesson. "I



put three peppers in the fermenter for a week and guess what, three is too many." This time out he was more conservative but wishes he'd used more of the hot stuff. "I would add a little more pepper next time, or consider "dry hopping" with dried or roasted whole peppers." The emphasis here was on the chocolate malt sweetness, with a minimal pepper presence.

Spared a pepper blast, our palates were able to focus on all the tasty brews in the competition.

As for the aphrodisiacs, they worked their magic. The PALEALES members were romanced by these beers. Dawn Coluccio put it best, "What's not to love about Valentine's Day? A good homebrew to share with family and friends . . . brings people together and that feels good."

So for your next homebrew recipe or competition, add a dash of romance with an aphrodisiac ingredient because at this time of year, love is in air . . . and also in the beer. **BYO**

Richard Bolster wrote about pretzels in the September 2011 issue of BYO.

**BREW IT.
BOTTLE IT.
LABEL IT.**

myownlabels
COM

custom beer labels • coasters • bottle carriers • and more

Absolutely Everything To Make Great Beer At Home!

**The all new MoreBeer!
catalog. Request a
copy of the largest
home brewing catalog
in the industry today!**



Why MoreBeer!...

- 1 Unique, innovative products**
- 2 Low prices & Free Shipping!
(Compare for yourself!)**
- 3 We are crazy, passionate
homebrewers just like you!**



Homebrewer Owned & Operated Since 1995 • MoreBeer.com • 1-800-600-0033

Improve your HOMEBREWS

THE PATH TO PERFECTION

Story by **Chris Colby**

A

fter brewing for awhile, many homebrewers reflect on their beer and wish to improve upon it. However, the path to better beer is not always obvious. This article is written for homebrewers who wish to increase their brewing skills, produce better beer and are willing to make an effort towards that end. There are essentially two steps to improving your homebrew — identifying avenues for improvement and making the necessary changes. Put more simply, you find the problem and fix it. Then you repeat the process.

Every homebrewer has a unique combination of equipment, water, other ingredients, recipes and skills. Solid advice that is helpful to one homebrewer may be useless for another. For some generic advice that may apply to you, see “10 Steps to Better Beer” in the September 2005 issue of *BYO* and, if

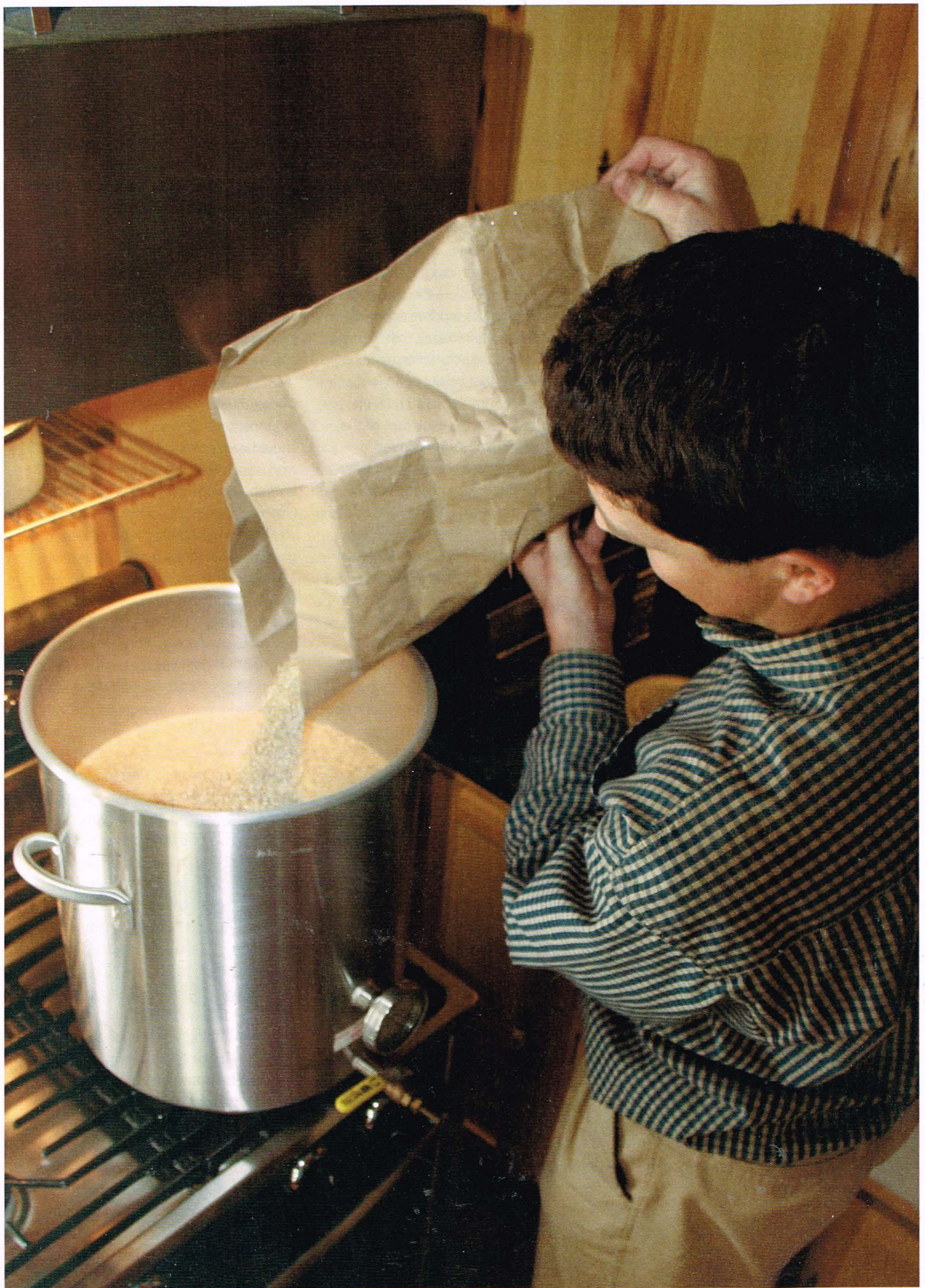
you are an extract brewer, “10 Steps to Better Extract Brewing” in the October 2005 issue. Both of these articles are available online at byo.com.

The first step on the path to improving your brewing is to brew some beer. Start your quest by choosing a beer you enjoy, that you have brewed successfully before and are willing to brew several times while you hone your skills. Brew this beer and take good notes (see the sidebar on keeping a brewing notebook on page 46). Once the beer is ready, try to get some useful feedback on it.

Gather Information and Identify Problems

An excellent source of information on your beer would be an accomplished brewer who is willing to honestly assess it. If you are lucky enough to live somewhere with an active homebrew club, he or she may be at the next meeting. If you join a local club and get to know the most accomplished brewers, getting help is usually as easy as asking. Most homebrewers are excited to talk about brewing and offer advice. Plus, this brewer will likely understand local issues that apply to you, such as treatment plans for your local water for various kinds of beer.

If your town has a commercial brewery, the brewer there could potentially be helpful as well. If the brewery offers tours, take one and see if the tour guide is the brewer (or one of the brewers). Tell him or her you’re a homebrewer and are look-



MANAGING THE MICROBES — BEYOND CLEANING AND SANITATION



Thoroughly cleaning and sanitizing your brewing equipment is an overwhelmingly important step in brewing quality beer. Any other choice you make in brewing will be overshadowed by off odors and flavors if your beer is contaminated. However, it's also simultaneously the least exciting part of brewing and yet the part that requires the most labor on a homebrew scale. One thing you can do to maximize the benefits of your hard work in this area is to view it as part of a larger program of managing the microbes in your brewery. These microbes include all the various unwanted yeast and bacteria that could contaminate your beer as well as the one microbe you want to grow healthily in your wort — brewers yeast.

Cleaning and sanitizing your equipment minimizes one major pathway of contamination, but you should also be aware of others and seek to make things difficult for contaminants that do get in your wort. You cannot completely eliminate contaminants from your wort or beer. No brewery (home or commercial) operates under sterile conditions. The best you can do is brew in a way that minimizes the degree of contamination and its effects.

On brew day, everything in your brewery should be clean. Everything that is going to touch wort should also be sanitized. Although wort or beer can be contaminated from many sources — microbes from the air, unwanted microbes in the pitching yeast, contact with the brewer, etc. — the surfaces that touch wort are a prime source of contamination. If an object that is going to touch wort contacts something that isn't sanitized, that object is no longer sanitary. For example, if you pick up your racking cane near the inlet of the cane, you can transfer unwanted microbes from your hand to your beer.

Working quickly at key times in your brew day minimizes the extent of contamination. At the end of the boil, your wort is effectively sterile. (There are microorganisms that can withstand boiling temperatures, but they don't grow quickly in wort.) When you chill wort, it soon enters a temperature range in which microbes that land in the wort can take hold. Cooling the wort as quickly as is feasible, and keeping the vulnerable wort covered as you chill, will keep the levels of airborne contaminants to a reasonable level. Chilling the wort quickly down to fermentation temperature also means that contaminants won't have an extended time to grow quickly in warm wort.

All chilled wort is contaminated, but pitching an adequate amount of yeast limits the potential of the contaminants to negatively affect your beer. Brewers yeast produces alcohol, and alcohol kills many unwanted microorganisms at low concentrations (just a few percent). Likewise, as beer ferments, the pH drops and low pH conditions are hostile towards most microorganisms. (The brewing contaminants we know best — *Brettanomyces*, *Lactobacillus* and *Pediococcus* — are unusual in that they produce copious amounts of alcohol, acid or both, and so they are tolerant to these conditions.)

All brewers should take the time to assess the degree of contamination in

their chilled wort. To do this, you need to perform a forced wort test. On brew day, take a clean glass jar (such as the kind maraschino cherries, and an wide variety of other foods, come in) and submerge it and the lid in boiling water for 5 minutes. As you are filling the fermenter, fill the sanitized jar about half way with chilled, unpitched wort. Place the cover on the jar loosely and place it somewhere warm (ideally, about 80 °F/27 °C) and away from strong light. Check the jar every 24 hours for signs of fermentation. At 48 hours, the wort should be clear and smell like fresh wort. If not, your beer will likely suffer from the contamination it is harboring (even if it doesn't quickly turn sour). If your cleaning and sanitation is really good, the wort may remain clear until 72 hours. This is a simple test and an easy way to assess if you really are producing quality wort or if you need to pay more attention to your sanitation.

Another pathway for contamination is microbes that are pitched along with the brewers yeast. This can come into play if you make a yeast starter. When making or stepping up a yeast starter, pay extra attention to cleaning and sanitation and always aim to get the yeast strongly fermenting as quickly as possible. As a rule of thumb, never step up a simple starter (not aerated or continuously stirred) more than 10-fold. In other words, 1 volume of fermented wort to a maximum of 10 volumes of fresh wort. (Note: if you pitch a 2 qt./2 L starter to 5 gallons (19 L) of beer, this is roughly a 1:10 pitching rate.)

Once fermentation starts to slow, the biggest thing you can do to minimize the effects of contamination is to keep the beer away from oxygen. This will slow the growth of aerobic, acid-tolerant microbes such as *Acetobacter*.

If you focus on minimizing the number of organisms that contaminate your wort, and subsequently minimizing the impact of those that do, your beer will taste fresh and be stable for relatively long periods of time.

ing for some feedback. The worst he can say is no. If he does agree, bring a bottle of your best beer (don't ask him to slog through multiple brews, or an absolutely awful beer). Tell him what kind of beer you intended and then let him taste it and give you his opinion. Be ready to answer questions about your procedures, but the brewer probably won't need to know all the minute details — he brews and tastes beer every day and will likely be able to give helpful feedback after one sip.

Homebrew contests can be another source of information, but the feedback you get will vary in quality. In the best case scenario, the judge will identify problems with your beer and suggest solutions. Sometimes, however, all the judge will do is point out the problem. This is still useful because you can easily find solutions to a problem once it is identified. In the worst case scenario, the feedback will be useless. For example, if the judge simply writes "not to style" on your score-

sheet, you won't know what, exactly, the problem is. (Also, if you are looking for basic brewing advice, the style-centric feedback you get on a BJCP scoresheet may be of limited use.) For the best feedback, submit the same beer to a few different homebrew contests. When you get the scoresheets back, ignore the highest and lowest scores and focus on suggestions made by multiple judges.

Your best source of information on your beer, however, is you. Only you know all the details of how your beer was brewed. If you aren't already knowledgeable about critiquing beers, you should become so. Probably the best way to do this is to start volunteering to be a judge at local homebrew contests. Your local homebrewing club, if there is one, will likely be a great help as well. Learning to speak the language of describing beer characteristics and beer faults will allow you identify problems in your beer and find solutions, either in the homebrewing

literature or by speaking to fellow brewers using descriptive terms they will understand. (See the article "Evaluating Beers," by Gordon Strong, in the March-April 2010 issue of *BYO* to get started.)

In the best case scenario, you'll be able to get several independent assessments of your beer. From there, it's up to you to interpret the criticisms.

There are at least two mistakes you can make when doing this. The most common mistake is ignoring good advice because it's not what you want to hear. For example, a homebrewer who just got a fancy new brew rig may want hear about tweaking his mash temperatures, not keeping his fermentation temperatures steady and in the proper range. And more commonly, brewers will brush aside any suggestion that calls into question their cleaning and sanitation. (Even if your beer is not noticeably sour or phenolic, paying greater attention to cleaning and sanitation can pay big dividends. See the

WATERPROOF, DURABLE LONG-LASTING PLASTIC BEER CASES FOR 12oz. AND 22oz. BOTTLES

16oz. GROLSCH/SWING-TOP BOTTLES ALSO
FIT IN THE 22OZ CASE

(DISCLAIMER: FLAIED BOTTOM 16OZ. GROLSCH BOTTLES DO NOT FIT)



FOR ORDERS OF 4 PACKS OR MORE USE PROMO
CODE: BYO2 AND RECEIVE AN ADDITIONAL 5% OFF
AVAILABLE AT

★ **C&W** ★
CRATE CO

WWW.CWCRAVE.COM

616-245-2728

INFO@CWCRAVE.COM



"I have brewed about 20 mini
mashes from other suppliers and this
beer is the best I have ever brewed."

- Pat K.



"Enough kits to keep you brewing
everyday for 3 years..."

- Matt M.

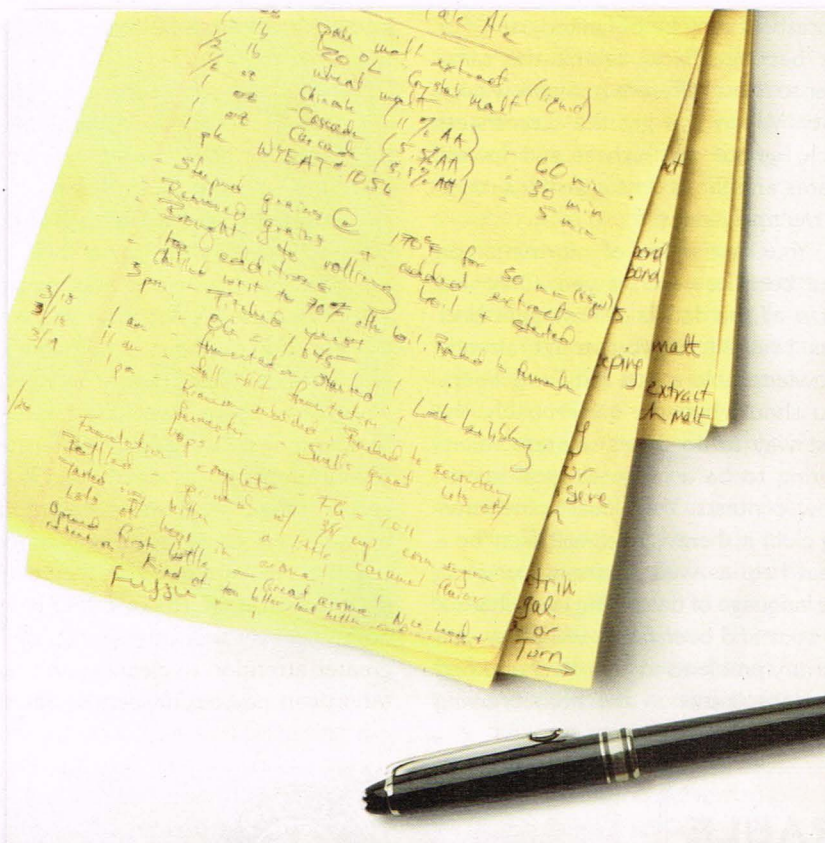


"I've ordered elsewhere, but not
since I ordered from AHS."

- Mike S.

austinhomewbrew.com
Make Your Own Damn Beer™

BREWING NOTEBOOK — YOUR GUIDE TO YOUR BREWERY



There are many tools that help you become a better brewer. One of the most valuable things in your brewing "toolkit" should be your brewing notebook. Your notebook should be a repository of what you did and how it turned out. It should contain the answers for many simple questions, like "How much strike water will I need for a 5-gallon (19 L) batch of pale ale?" or "How long will it take me to heat that volume to strike temperature on my burner?"

I'm not the sort of person who does things just because it's considered good form. On my desk at home, I consider a pile of papers a perfectly fine system of organization, as long as I know where everything is in the pile. I'll only organize anything if the time I spend organizing is more than repaid by time saved later. And, I take the same approach with my brewing notebook — I want to minimize the time and effort I put into keeping it, but have it yield maximum benefits for me. Here's how I keep my notebook:

The day before brew day, I write out my list of ingredients and a step by step explanation of my procedures. I include what measurements I plan to take (temperature readings, volume checks, pH, refractometer readings, etc.) on brew day and what the expected readings are. I write down all target values (OG, FG, etc.) I'm hoping to achieve in the final wort and beer, plus a statement of the purpose of the brew day (if there is one beyond the obvious purpose of making beer). For example, if I'm testing out a new wort chiller, I'd write that down. Writing down the plan beforehand serves two purposes — it reduces the amount of writing required on brew day and it serves as a checklist, so I don't forget planned aspects of the brew day.

Writing down the plan is a good start, but it's only the beginning. On brew day, I record what actually happened. The simplest way to do this is to put a check mark by every procedural step that went as planned (or the

observed number when a measurement is called for). A slightly improved version of this is to write the time next to each step when it is finished. If something doesn't go as planned, I write what happened in the margins or as a footnote. If I see an opportunity to improve on the brew day, I make a note of that. For example, if I stood around waiting for my sparge water to reach the correct temperature, I would note to start heating my sparge water with "X" minutes left in the mash. Also, I'll make any relevant notes pertaining to the purpose of the brew day. For example, if I'm testing a new wort chiller, I'll record the start and finish time of chilling and the final wort temperature. After a few brew days of taking good notes, you'll have recorded all the little things you need to manage a brew day on your system and be able to plan future brew days to go more smoothly and predictably.

Although your brewing notebook can help you plan your brew day, the biggest benefit comes when you tie your brew day notes to your tasting notes. I leave a blank page after each brew day, so I can write tasting notes as the beer ages. Once the beer is ready, I'll sit down with it — and maybe a "ringer," a commercial beer that's similar to what I brewed — and taste it critically. If I'm brewing the same beer over again, I'll pour a sample of the previous batch for comparison. If the brew day had a purpose, I'll tie that into my tasting notes. For example, did the new wort chiller cool the wort so quickly that the bitterness from the late hop additions was affected? When you're troubleshooting your beers, tasting a previous batch and a newer batch side by side can help you quickly decide if your changes are making your beer better, worse or having no effect. Depending on the beer, sometimes I'll record multiple tastings at various stages of aging.

Keeping a detailed brewing notebook is indispensable to becoming a better brewer — it quickly becomes your guide to your own brewery and beer.



**MONSTER
BREWING
HARDWARE**

Monster Mills by Monster Brewing Hardware are made in the USA on modern CNC equipment with state of the art accuracy for discriminating home brewers.

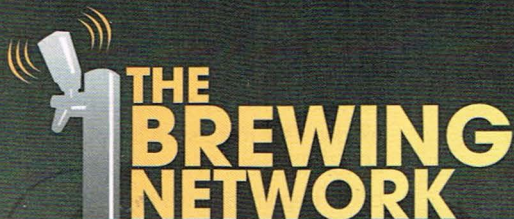
Why settle for second best?



WWW.MONSTERBREWINGHARDWARE.COM

"IT'S ALWAYS BETTER TO HAVE A BIGGER TOOL THAN YOU NEED."
- MONSTER MACHINIST

LIVE BEER RADIO FOR BREWERS AND THEIR CRAFT



The BN's Newest Show!



**THE
HOME
BREWED
CHEF**

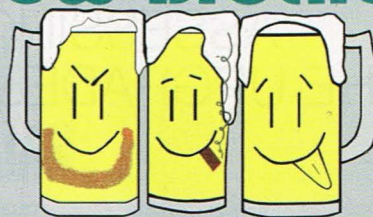
with Sean Z. Paxton

The Brewing Network is proud to present the show for beer lovers and foodie's alike! *The Home Brewed Chef with Sean Z. Paxton* is the only show of its kind focusing on cooking and pairing with craft beer.

LISTEN TO BEER RADIO ONLINE, ANYTIME. OR DOWNLOAD THE SHOWS AND TOPICS YOU WANT AND TAKE THEM WITH YOU AS MP3'S OR PODCASTS.

[HTTP://WWW.THEBREWINGNETWORK.COM](http://WWW.THEBREWINGNETWORK.COM)

Brew Brothers



Homebrew Products

PAY LESS, BREW MORE!

Everything for your brewing and mead/wine making needs
Experience the largest selection of malt, hops & yeast

Shop & compare...free shipping isn't free!

Use code **BYO1201**

at checkout for a 10% Discount on your order

One per customer, please...expires 2/29/12

WWW.BREWBROTHERS.BIZ

info@brewbrothers.biz

Toll Free (888) 528-8443

"Come join the family!"

**ANNAPOLIS
HOME BREW**

\$7.95 Flat-Rate Shipping!

Orders to 'lower 48' only
See our website for details

**GREAT
BEER KITS**

Tested & proven exclusive AHB recipes.
Top-quality ingredients - we don't skimp!
Fresh kits - measured & packed for you.
70 available - Extract, Partial, & All-Grain



Wide range of top-notch kits in stock.
All available with Flat Rate shipping!
Seasonal & Limited Edition wine kits.
Many options on beginner equipment.

**GREAT
WINE KITS**

Open 7 Days - Secure Online Ordering

800-279-7556

www.annapolishomebrew.com

ASSESSING YOUR EQUIPMENT — THE UPGRADES THAT MAKE A DIFFERENCE

One of homebrewing's many appeals is that you can start out with minimal equipment — a bucket, some tubing and a bottle capper — and make your own beer. The longer you homebrew, the more you are likely to upgrade your brewing setup. And sometimes these upgrades do more than make brewing more convenient or allow you to brew larger batches — some upgrades allow you to brew better beer.

Typically, the first major equipment upgrade a brewer makes is to a brewpot large enough to conduct a full-wort boil in. Upgrading from a stove-top sized brewpot (up to 4 gallons/15 L) to a kettle large enough for a full-wort boil of a 5-gallon batch (7-gallons/26 L or larger) also requires the brewer to get a wort chiller and likely a more powerful heat source. By far the most popular solution is to get a "turkey fryer"-type propane burner for the heat. Often, a brewer's switch to full-wort boils is accompanied by his switch to all-grain, in which case he'll also need a combination mash/lauter vessel.

One of the primary benefits of stepping up to a full-wort boil is the effect it has on wort color. Boiling high-gravity worts, which are later diluted to working strength in the fermenter, leads to wort colors that are darker than comparable worts boiled at working strength. A secondary benefit is that less wort sugars are lost in the break material and hop debris at the bottom of the kettle. Whether you brew with malt extract or are stepping up to all-grain methods, boiling your full wort at working strength — if done properly — will improve your brews.

The phrase "if done properly" is important. Getting a larger kettle, but settling on a weak boil followed by a slow cooling method, such as cooling the pot in your sink, that takes too long (longer than, say, an hour) can actually lead to poorer quality beer. You need a heat source capable of reaching a

nice, rolling boil in order to get an adequate hot break. A vigorous boil also expels unwanted volatiles, such as DMS when brewing using lightly-kilned base malts. After the boil, reasonably quick cooling not only makes your brew day more manageable, it reduces the time frame during which your wort is susceptible to contamination by wort-spoiling bacteria. Quick cooling also reduces DMS in your wort by dropping the temperature below the threshold where the precursor to DMS (SMM) is chemically reactive. A copper immersion chiller is the most popular option for wort chilling on the homebrew scale, but counterflow chillers and plate chillers are becoming more widely used.

If your finances or space don't allow for expanding to a larger brewpot, you can get the same benefits by scaling down your recipe volumes. Almost any home stove can bring 2 or 3 gallons (7.6–11 L) of wort to a vigorous boil. Boiling this volume of working strength wort followed by quickly cooling the brewpot in your sink can yield the same high-quality wort as the 5-gallon full-wort set-up. (And, if you really can't bear to brew less than 5 gallons (19 L) at a time, you can simply make your wort in two 2.5-gallon (9.5-L) increments. Cool, aerate and pitch the first 2.5 gallons (9.5 L), then add the second batch of (cooled) wort when it's ready, no later than 24 hours after the first is added. You won't need to aerate this wort. This is more work, but the quality of the beer won't suffer. (Many commercial breweries use fermenters that require two or three batches of wort to fill.)

A very important upgrade for many brewers is the move to temperature-controlled fermentations. If you live where the ambient temperature is rarely within a suitable range for fermentation, you need a way to hold your brews at an acceptable, constant

temperature while they ferment. Low-tech approaches, such as the "wet T-shirt" method work well when you need to cool the beer a few degrees — up to a maximum of about 10 °F (~5 °C) for 5 gallons (19 L) of fermenting beer, depending on the humidity and airflow past the fermenter. A far more robust approach however, is to buy a large chest freezer and an external thermostat (sold at most homebrew stores). A chest freezer fermentation chamber lets you ferment both ales and lagers and can also hold kegs for serving (not at the same time, of course). Cylindrical conical fermenters with built in glycol chillers are also available. These cost substantially more than a chest freezer, but take up far less space.

Finally, assembling a brewing lab can help advanced brewers really fine tune their brews. As a first step, getting a decent pH meter is a big help. Later, getting a microscope, hemacytometer and methylene blue stain so you can count yeast is a good option. If you have some money to spend, dissolved oxygen (DO) meters are becoming more affordable. In the "bang for your buck" department, the best investment a homebrewer can make is in two glass jars with metal lids. In one jar, you can perform a forced wort test (described in the sanitation sidebar on page 44). In the other, you can perform a forced fermentation test. In a forced fermentation test, you take a sample of chilled, aerated wort — large enough to fill your hydrometer test cylinder — pitch it with a gross excess of yeast and set the lid on the jar loosely. Ferment this sample warm (around 80 °F/27 °C) and take the final specific gravity (FG). This will tell you ahead of time what your beer's FG should be. With this knowledge, you will be able to tell the difference between a stuck fermentation and a beer made from a wort that exhibited a low fermentability.

sidebar on page 44 for more.) The odds are actually fairly good that your greatest brewing fault lies in the part of brewing that you are least interested in and consequently are making the least effort in regards to.

The opposite mistake is to accept every bit of advice uncritically. Even knowledgeable brewers and good homebrew judges can make mistakes. If you are sure a certain piece of criticism really doesn't apply, just make a note of it and move on.

At the same time you are getting feedback on your beer, it also pays to gather as much information as you can about the kind of beer you are brewing, and even related styles. Learning about brewing should be an ongoing process for the brewer serious about his craft. Do not, however, quit brewing until you think you have mastered everything there is to know. Learning about brewing is a lifelong process and the practice of how you brew also matters.

Brew It Again

Once you've got some feedback on your beer, or even just done enough research to give you some ideas, it's time to brew that same beer again. (And hopefully, you've saved a few bottles from your previous batch for comparison.) How to approach the first tweaking of your beer depends on your situation. If you are new and the feedback you've gotten or the research you've done leads you to believe you have been making multiple mistakes, you should plan to address all of your shortcomings in your next brew. Sometimes, especially when trying out new equipment, you need to make several changes simultaneously. For example, if you step up to full wort boils of 5 gallons (19 L) or more, you'll also need to learn to use a wort chiller at the same time. (See the sidebar on page 48 for equipment upgrades that may improve your brews.) If you have it on good authority that you have made multiple mistakes, see if you can correct them all in your next brew.

On the other hand, if you've been brewing for awhile and your beer tastes pretty good, the surest path to improvement is to explore possible

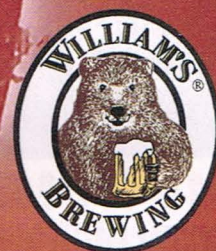
B IS FOR BELGIAN

William's Belgian Pale Malt Extract

Do you want to brew an authentic Belgian ale without mashing? Our exclusive Belgian Pale Malt Extract is mashed locally from 90% Belgian pilsner malt and 10% Belgian wheat malt — an ideal base for many Belgian styles.

For more exclusive fresh ingredients, unique equipment, and everything else for your next batch, visit our web site.

williamsbrewing.com
1-800-759-6025



Up the creek?



AHA can help.

BREW BETTER BEER

Tap into the knowledge of 27,000+
members on the AHA Forum.

HomebrewersAssociation.org



American
Homebrewers
Association

American Homebrewers Association
A Division of the Brewers Association
www.BrewersAssociation.org



No Fine Print
Shipping
Order all you want.
Pay \$9.99

High Gravity

Homebrewing & Winemaking Supplies

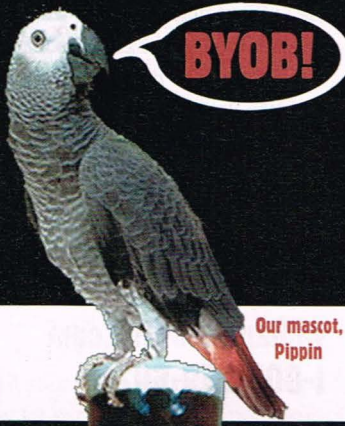
Build Your Own Brewing System

Make your system electric
Outperform any gas system
at a lower energy cost



Build Your Own Beer

All the ingredients to create your own beer on one convenient page.



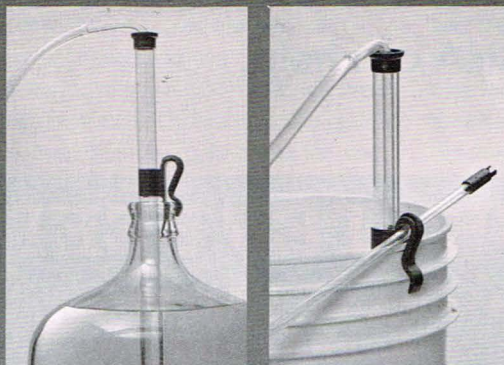
Our mascot,
Pippin

918-461-2605

www.highgravitybrew.com

Introducing:

Auto-Siphon Camp



Comes in 2 sizes:

- 3/8" Regular and Mini Auto-Siphons
- 1/2" Large Auto-Siphons
- Clamps to Buckets, Carboys, Gallon Jugs
- Holds Auto-Siphon securely above sediment
- Park your Fermtech 3/8" bottle filler - The Siphon Valve

 **Fermtech** Ltd.
www.fermtech.ca MADE IN CANADA

Ask your favourite
retailer for this product

changes one at a time. If you change more than one variable in your brewing equation, it can be hard to know what is to blame if a problem arises. For example, if you tried both a different way of propagating your yeast and a new ingredient in your beer and an off-flavor showed up in that batch, you wouldn't know if the problem was with the yeast or the new ingredient. Early on, you may need one brew session in which you address multiple shortcomings — after that, change only one thing at a time.

Sometimes changing one aspect of your brewing forces you to make other changes. For example, if you decide to change the hop bill on your IPA from mostly high-alpha bittering hops to a higher percentage of lower alpha aroma hops, you will end up with more debris at the bottom of your kettle and you'll have to adjust your procedures to yield the same amount of wort as before.

During your first rebrewing, take good notes on brew day, making particular note of the thing (or things) you've changed. Also, describe what effect you expect the changes to bring about. For example, if you think swapping the high-alpha hops for more aroma hops will yield a more pleasing hop aroma, say so explicitly.

When the new batch is ready, taste it critically — ideally alongside a sample from the previous batch. Describe the beer in your brewing notebook, and note if the changes you made had the desired effect. Also, describe any unintended consequences you detected.

If you take your improved beer back to your homebrew club or to the brewer who tasted it before, you'll likely get more detailed feedback. If a brewer thinks you are listening to his advice and acting on it, he is much more likely to take the time and effort to give you constructive criticism.

And Keep Brewing It

Your plan for the second rebrewing and beyond is always going to be the same — gather information and rebrew the same beer, changing only one variable at a time. You'll notice that the first few "turns of the crank" will result in dramatically improved beer. (If it doesn't,

something has broken down along the way, most likely you have been dismissing good advice.)

In the early stages of improving your beer, always have a purpose to each brew day. Your purpose may be to try a recipe alteration, a new technique or a new piece of equipment. Your purpose may be as mundane as compensating for the effects of a previous change; for example, adjusting your volume to take into account the extra hop debris from the previous example. Whatever it is, write down the purpose in your brewing notebook on brew day and comment on it when you taste your beer. Don't just idly brew the same beer over and over again, hoping it improves on its own.

Eventually, you will reach a point at which you're stumped with regards to how to improve the beer. This can be a good time to rebrew the beer and see if you can replicate the results of the previous batch. If you're happy with your beer and you can brew it repeatably, you can branch out and conquer another beer style.

If you are stumped, but still not satisfied with the quality of your beer, you may need to challenge yourself to move outside of your comfort zone and learn or try something completely different. For example, some brewers are chemistry-phobic and may have avoided learning about water chemistry. Yet, this may be just the thing they need to move their beer forward. As the old saying goes, "No pain, no gain."

Keep It Fun

You don't have to put all your other brewing plans on hold to follow this path. You might, for example, brew your beer just once or twice a year, perhaps before key homebrew competitions, and just slowly improve upon it over the years, all the while trying out other recipes that catch your interest.

If you think you'll get bored brewing the same beer over and over, consider that the valuable lessons you learn and the excellent beer you'll have on hand will be your compensation for your commitment. **BYO**

Chris Colby is Editor of BYO.



Brew-Magic™ by SABCO



Fermenters and Storage Vessels



Chill-Wizard System



Frames



SABCO produces an entire line of 'Pro-Level' brewing equipment.

Ready to take your brewing skills to the 'next-higher' level?

Our equipment is designed by professionals for pro-level, high quality brewing. However, it remains easily affordable to advanced home brewers. We simply suggest that you consider buying equipment that you can 'grow with'!

Visit BREW-MAGIC.COM for seasonal specials that are sure to make you drool!

Visit BREW-MAGIC.COM

for seasonal specials that are sure to make you drool!

Proud Member of:

SABCO

BREW-MAGIC.COM

419-531-5347



Brewing



Brew-Kettles



Quality Wine and Ale Supply

11 Year Anniversary
2000 - 2011

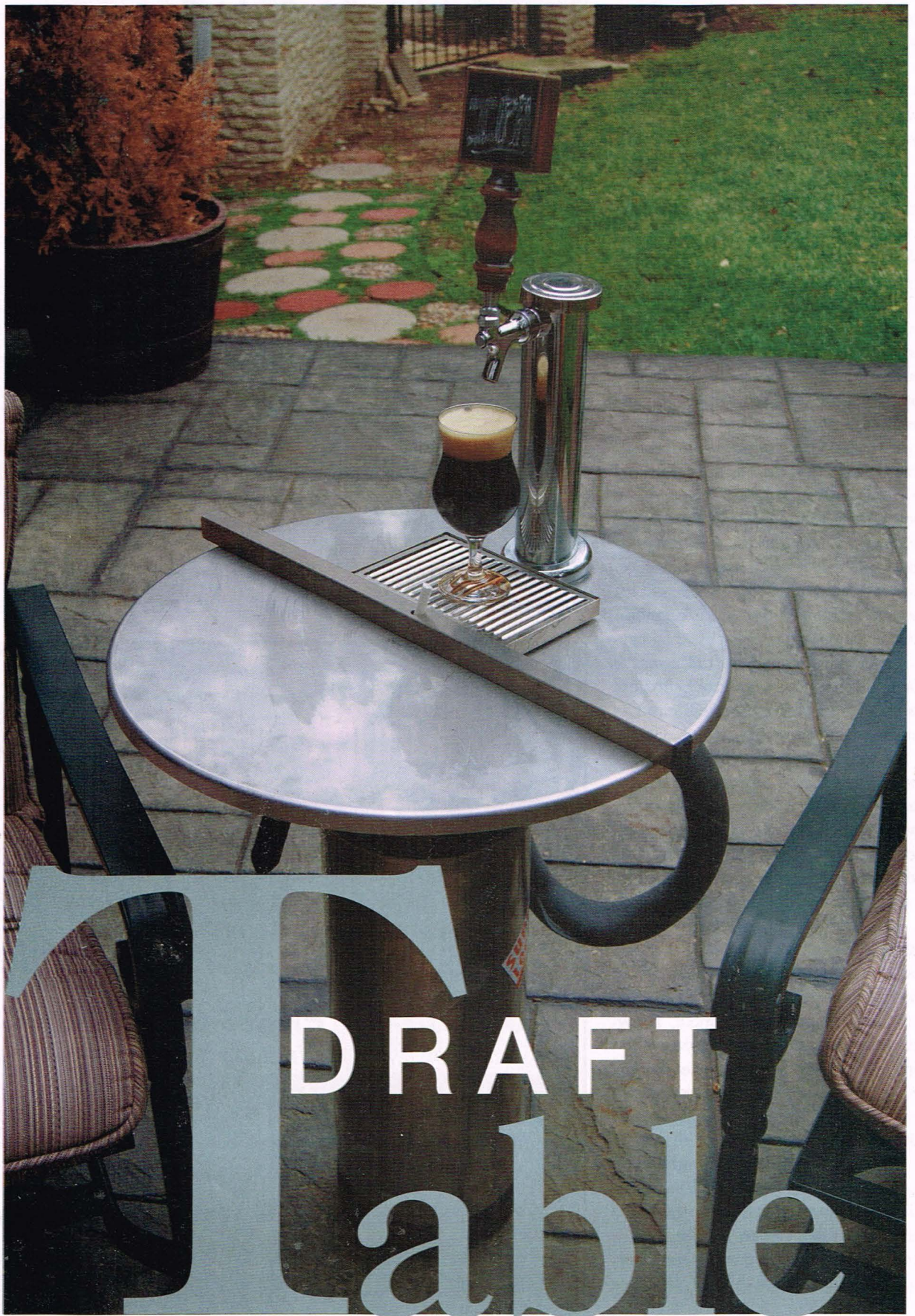
Wine and Beer Making Supplies for Home Brewers and Vintners

A proud sponsor of the Indiana State Fair Brewers Cup

Retailer of the Year - '05, '06, '07, '08, '09, '10 & 2011
WineMaker International Amateur Wine Competition

Beer Making Supplies, Kits and Equipment
Quality Products - Expert Advice - Fast Shipping
www.HomeBrewIt.com

Retail: 108 S. Elkhart Ave., Elkhart, IN 46516
Office: 530 E. Lexington Ave. #115, Elkhart IN 46516 ~ (574) 295-9975



DRAFT Table

DISPENSE HOMEBREW DIRECTLY FROM A TABLE TOWER

The beers had been made and I was ready for our annual holiday homebrew tasting party, which traditionally consists of three to four different brews and a few dozen friends. This year would be different. After building the Ultimate Homebrewer's Bar back in the November 2011 issue of *BYO*, I somehow convinced myself to do more even with a baby on the way and after recently moving into a new home. This year we would have upwards of fifty invitations going out and seven beers on tap for the party. I had room for six beers on tap in my kegerators, but I had no place for the seventh. Enter the draft keg table to save the day.

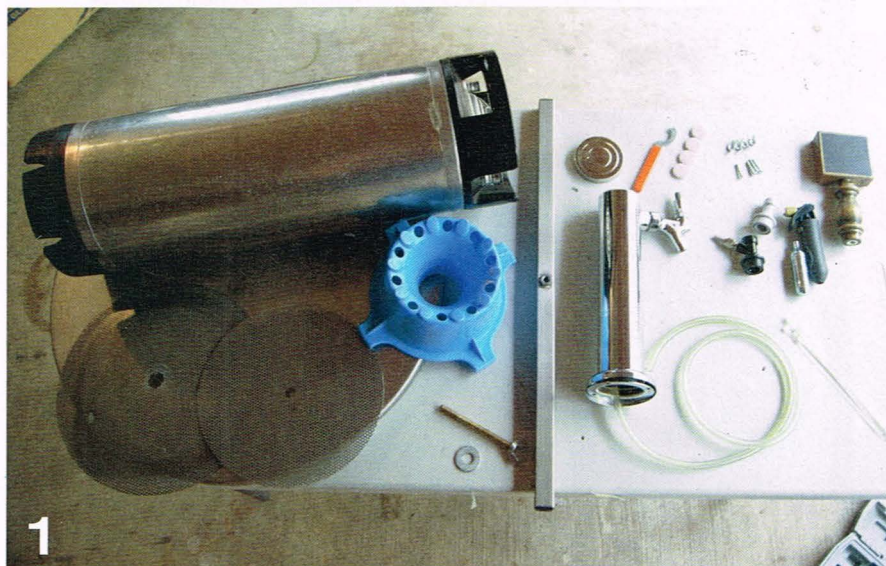
The keg table would solve another issue, which was seating. With the possibility of fifty plus beer drinkers arriving, I needed more spots for people to hang out. The functional dispensing table would create a unique place for a few friends to sit and enjoy some homebrews. Whoever was sitting at the table also got to play bartender for newbies trying to figure out what that weird tower table thing in the corner was. A beer would be poured and a classic beerversation would ignite.

Temperatures would be tip toeing around 50 °F (10 °C) during the party, so I thought I could take advantage of nature's refrigeration and put a keg outside with a top and draft tower. This all sounds good in theory, but how do you make it functional, easy to move and easy to reuse? Plus, kegs go quickly, so I needed to have an easy way to lift off the top and click in a new keg when needed. Read on to see my solution and perhaps gather ideas for your own draft creation.

parts and equipment list

- 5-gallon (19-L) Cornelius keg
- Carboy drying rack
- Stainless steel round top
- Perforated steel (false bottom)
- Draft tower, faucet and tap handle
- Draft tower fastening nuts and bolts
- Zip ties
- Crossbar with wing nut screw and washer
- Portable CO₂ keg charger
- MFL gas and liquid quick disconnects (threaded)
- 1/4" x 5/16" standard swivel nut set
- Faucet wrench
- Power drill
- Step bit
- Dremel with grinding stone bit
- Snip scissors





1. GATHER THE HARDWARE

If you keg your beer, you likely have many of the required parts already. You can improvise for some of the other parts, such as the material used for the table top. I used a ball lock Cornelius keg and MFL quick disconnect fittings along with a portable CO₂ keg charger. I had a few perforated steel rounds from some old cooler mash tuns and I cut them up and used them as large “washers.” The carboy drying rack was slightly modified, but would still be functional as a drying rack if I ever disassembled the table.



2. GET FITTED

I tightly screwed the CO₂ keg charger onto the gas MFL fitting and clicked the gas fitting into the ball lock homebrew keg. On the opposite side of the keg, I assembled the beer line MFL quick disconnect and the 1/4" x 5/8" standard swivel nut set. I clicked in the beer MFL and placed the carboy drying rack over the top of the keg. I used some snip scissors and cut out 1/2-in. (1.27 cm) notches to make the rack sit flush on the keg top. The carboy rack base had L-shaped feet and was a perfect fit. It was like they were meant for each other.



3. MAKE SOME HOLES

The flat fermenter lid I used for the table top came off of a 26-gallon (98-L) conical that was upgraded to a newer dome shaped lid. The lid already had a punched hole on the side, so I measured the tower mounting holes around it. I measured the center of the lid to 11 1/2 in. (29.2 cm) and made my marks. I readied the step bit in the power drill and sprayed it with some WD40 for added lube. It took some time to drill down through the steel and it got extremely hot, so be careful if you are doing this type of drilling. (It's a good idea to wear protective gloves during this step.) After I drilled my holes I smoothed down the rough edges with my Dremel and grinding stone.

4. ASSEMBLE THE TOP

After drilling all of the needed holes, I slipped the beer line down the pre-

punched hole and lined up the tower base on the drilled holes in the lid. I used screws and wing nuts, so I could easily remove the tower in the future. With the tower secure, I moved on to the middleware, which would connect the keg and table top together. I cut out a rough piece of perforated steel to use as a large washer on the bottom of the carboy rack. I placed the fermenter crossbar on the tabletop and from the bottom, with the wing nut screw and washer I secured the rack to the table top. I slide some zip ties up through the holes of the rack for the next step.

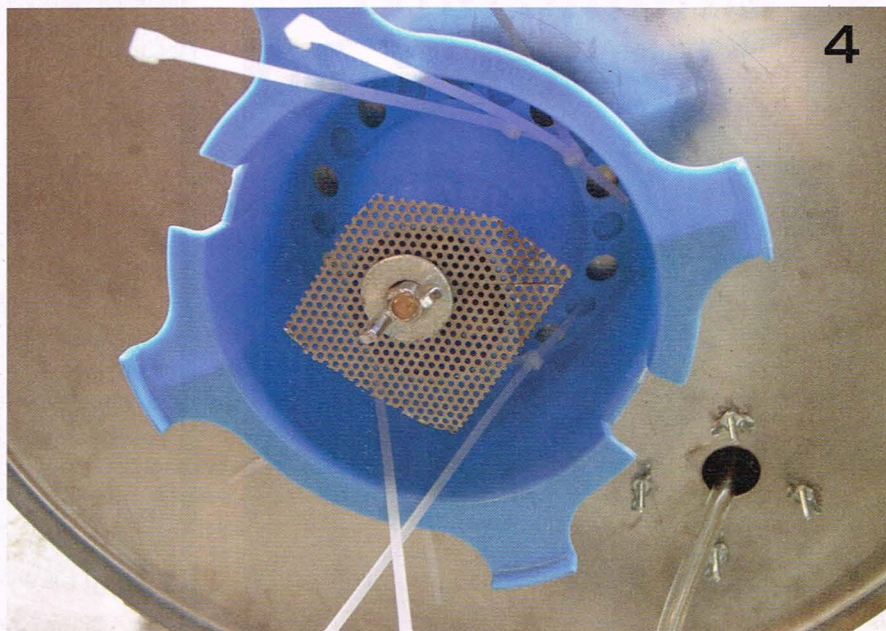
5. STABILITY & MOBILITY

I set the tabletop in place on top of the keg and wove the zip ties through the handle holes of the homebrew keg. I cinched the zip ties down as tight as they would go. The table was solid. (I chose to use zip ties because you can quickly cut them off when you are done with the keg. You can also consider quick release clamps.) When the keg is empty, the keg table becomes top heavy, but still is surprisingly stable. When the keg is full, you have a nice, evenly-balanced table that does not require additional leg support. I was able to quickly move the keg table to the garage, front porch, back porch and home bar area with no problems.

6. INSULATE AND INTAKE

For the final touches, I added a stainless steel drip tray, chalkboard homebrew tap handle and insulated the beer line with some HVAC foam. Though I was building the keg table for colder outdoor weather dispensing, I was also thinking about using this indoors for dispensing cask ales at warmer temperatures. You could slip the table base (keg) into a trashcan full of ice water to keep it cool. Or you could insulate the keg with a keg cozy. Finally, make sure you line the CO₂ keg charger up to be on the front side of the table. This will allow your homebrew tasters the opportunity to charge up the keg themselves adding to the fun of the table. 

Christian Lavender is a homebrewer in Austin, Texas and founder of Kegeators.com and HomeBrewing.com.



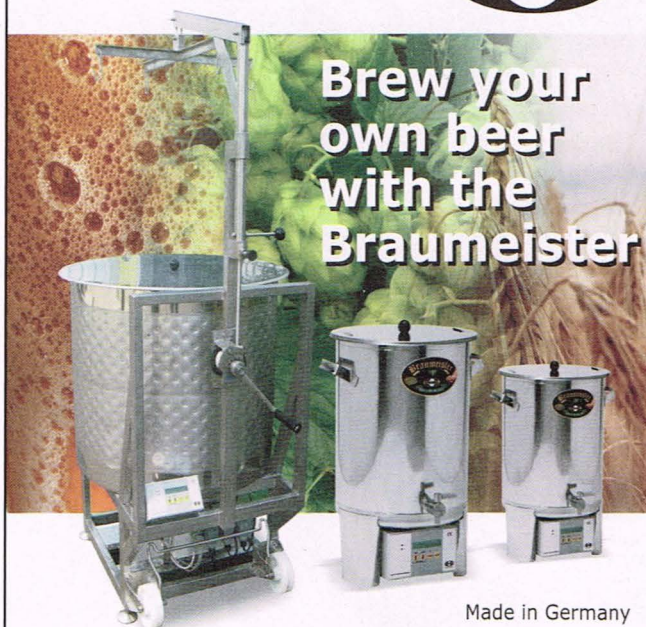
“When the keg is full, you have a nice, evenly-balanced table that does not require additional leg support.”



SPEIDELS
Braumeister

SPEIDEL

**Brew your
own beer
with the
Braumeister**



Made in Germany

More information and sales partner on
www.speidels-braumeister.de

Homebrew Heaven



SHAMROCK STOUT



Blacker than the inside of a cow with the eyes closed and the tail down!

Put a Wee Bit O' Irish in your Pint!

BREW YOUR STOUT NOW FOR ST. PATRICK'S DAY

CHECK OUT OUR CHEESEMAKING SUPPLIES

#1 IN THE PACIFIC NORTHWEST

FOR EVERYTHING YOU NEED TO MAKE QUALITY,
HAND-CRAFTED BEER, WINE AND SODA POPS

- GIFT CERTIFICATES -

HOME BREW HEAVEN.com (800) 850-BREW (2739)

25 GREAT HOMEBREW PROJECTS

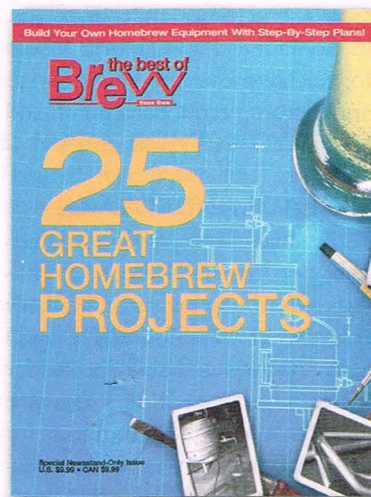
in one great special issue!

25 project plans include:

NEW!

Cooler Mash Tun • Continuous Sparging System
Countertop All-Grain System
Electric Heat Stick • Convert Brew Pot to Kettle
Convert Keg to Kettle
Counterpressure Bottle Filler
Portable Kegerator
Rebuild a Keg & Spunding Valve
Counterflow Wort Chiller
Recirculating Wort Chiller • Carboy Spray Wand
Keg & Carboy Cleaner • Tap Handles • Home Kegerator
Nitro Kegerator • Glycol Fermenter • Inline Aerator
Yeast Stir Plate • Inline Thermometer
Pump Toolbox Combination • Water Filter
Randall-Style Hop Filter • French Press Hopback • Hop Dryer

* Attention homebrew supply shop owners —
call us today at 802-362-3981 to discuss volume discounts to
resell the BYO 25 Great Homebrew Projects issue in your shop



The Ultimate Do-It-Yourself guide for
homebrewers! Includes the best projects
stories to run in *BYO* magazine over the past
16 years! All projects include a parts & tools
list as well as detailed instructions on the build
and pictures to help guide you through the
project. All this for just \$9.99 retail!

**This special newsstand-only
issue is available at better
homebrew retailers or order today
online at**

brewyourownstore.com

Also available by calling 802-362-3981

Back In Time

techniques

Recreating Historical Recipes

by Terry Foster



Michael Jackson described Guinness Foreign Extra Stout as a classic beer. So imagine that I brewed a version of the predecessor of Foreign Extra Stout, West India Porter, and that I was enchanted by the result, as often happens when I recreate old beers. Well, I was not enchanted, I was disappointed! The first time I tried to recreate this classic the result had some good points, but if I were to brew it commercially on a 10-barrel scale, I needed to adapt it to make it acceptable to modern taste. In this installment of "Techniques," I will tell you the story of what I did to bring this beer into modern times. I brewed this as an all-grain beer, but the principles apply just as well to extract beers.

This project all started when I read Bill Yenne's book "Guinness," in which he quoted an 1801 recipe for the very first West India Porter. What piqued my interest was that Yenne said black malt was used in this brew, when it is generally held that black malt was not available until 1817 when it was invented by Daniel Wheeler. If Yenne was correct it would mean Guinness used it first, and received history was wrong. So, I set up a visit with the brewery archivist and hopped on a plane to Dublin.

The next day there I was at the Guinness archives, all agog to see this recipe for myself. I was doubly excited because up to now all of my brewing history research on the other side of the pond has been in England, mostly at places such as The National Brewing Library, The British Library and The London Metropolitan Archive. I did not have to wait long to have the archivist put the 1801/1802 Guinness brewing book into my hands, which contained the recipe for West India Porter written in beautiful copperplate, probably by one of Arthur Guinness' sons.

So what did that recipe tell me? First of all, there was no black malt

used in the original recipe, only pale and brown malts. What Yenne had read as "75 parts of black malt" was actually 75 bushels of malt used in total, made up of 55 bushels of pale and 20 bushels of brown malt. I confirmed this by checking the malt bills on recipes before and after the West India Porter in the brewing book. Second, the only other ingredients of note were 4 cwt 2 qu. (504 lb./229 kg) of "Own English hops," and the final yield was 148 barrels of porter at an OG of 22.5 brewer's lbs. (SG 1.063/15.4 °P). There was no mention of sparging the mash, but four separate mashes were carried out, and the four worts were combined into two batches for the boil. As was the custom at that time, mash temperatures were not recorded, only the temperature of the strike water. From the latter the first mash was probably only around 145 °F (60 °C), and the others were somewhat higher.

Brewing the beer

Back home in the USA, the next step was to actually try to replicate this porter in my 5-gallon (19-L) brewery. This meant some calculating after having made certain assumptions. Bushels are a volume measure and brown malt was 20–25% less dense than pale. I took 20% so that the malt bill would be 77.5:22.5 pale:brown. I calculated how much I needed using the standard *BYO* extract efficiency of 65%. The hops presented more of a problem, since I had no idea as to what their alpha-acid content might be. I assumed that the alpha-acids would be low in such an old variety, and that the hops had been warm stored for perhaps as much as a year, and settled on the conservative figure of 2% alpha. The amount Guinness used translates to about 6 ounces for 5 US gallons, but I had to use a modern hop variety, namely Liberty at 3.5% alpha and so had to halve this amount.

“Yenne said black malt was used in this brew, when it is generally held that black malt was not available until 1817 when it was invented by Daniel Wheeler.”



Photo courtesy of Guinness Brewery

techniques

Taking all this together, I worked out this recipe:

West India Porter (test batch) (5 gallons, 19 L, all-grain)

OG = 1.063 (15.4 °P)

FG = 1.015 (3.8 °P)

ABV = 6.3% SRM = 40–50 IBU = 39

Ingredients

10.4 lb. (4.7 kg) Rahr 2-row pale malt

3.0 lb. (1.4 kg) Crisp brown malt

3 oz. (85 g) Liberty hops pellets (10.5 AAU at 3.5% alpha-acid; 39 IBU at 25% utilization)

White Labs WLP002 (English Ale) yeast

Step by Step

Mash grain at 148–150 °F (64–66 °C) for 60 minutes, run off and sparge to collect 5.5–6 gallons (21–23 L). Add hops to wort and boil 90 minutes, cool and add the yeast (preferably as a 1-qt or 1-L starter). Let ferment one week, then rack to secondary fermenter, and leave for one to two weeks before racking into keg or bottle. (Note that I used a yeast strain which I had available rather than an Irish Ale strain. However, WLP002 is rated as suitable for stouts and porters, and the present Guinness yeast may not be very similar to that used in 1801.)

How was it?

As soon as it was properly conditioned, I poured myself a glass of this beer and took a look, a sniff and a sip. The color was lighter than you would expect from Guinness, being dark brown rather than black, but I had expected that from my color calculations. There was not much in the aroma, but the taste was initially pleasing, with some nice malty, nutty liquorice notes up front. But then everything went flat, and there was nothing else to balance the sweetness of the malt, so the end result was just, well, flabby. Perhaps this was why Guinness later went to using black malt; or perhaps my estimate of hop alpha-acid was too conservative, and the original had more hop bitterness to balance the malt? But also it is likely that this beer was stored in vat for some time (perhaps a year or more) before shipping, and probably developed acid flavors in storage. There is certainly evidence from later in the 19th century that Foreign Extra Stout contained significant levels of lactic acid.

I took the beer into BrūRm@BAR in New Haven, Connecticut and offered it to Jeff Browning, the brewer, and two of his voluntary-but-experienced assistants. Sure enough, without any prompting from me their verdict chimed exactly with mine — it's promising, but not there yet. But Jeff was intrigued enough that he wanted to do a version of it on his 10-barrel setup.

BREWER'S EDGE® OXYGEN INJECTOR

Add Oxygen For:

- Faster Yeast Growth
- More Complete Fermentation



Available now at fine home brewing retailers.

Distributed to retailers by:

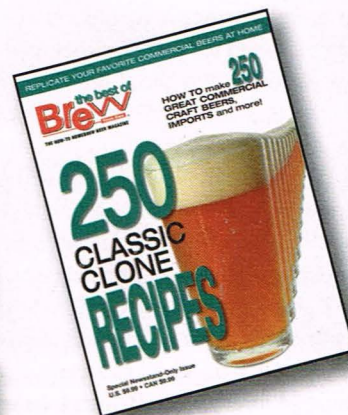
Brewmaster Inc. 800-288-8922 brewmasterinc.com

250

CLONE RECIPES IN ONE GREAT SPECIAL ISSUE!

FEATURES
132 pages of
recipes & know-how
to brew 250 commercial
craft and import beers

the best of
Brew
THE NEW-TO-BREWERS DRINK MAGAZINE
250
CLASSIC
CLONE
RECIPES



Replicate your favorite commercial beers featuring the best clone recipes from the last fifteen years of BYO.

- Intro on how to clone brew commercial beers
 - 250 recipes provided for all-grain and extract brewers - includes 150 recipes from the now out-of-print "150 Classic Clone Recipes" plus 100 more clone recipes!
 - Cross indexed so you can easily find your favorite recipes by brewery or style
- At just \$9.99 (\$9.99 CAN) retail, you won't find a more valuable recipe collection to brew beers like the pros make!

This special newsstand-only issue is available at better homebrew retailers or order today by calling 802-362-3981
Also available online at brewyourownstore.com

* Attention homebrew supply shop owners - call us today at 802-362-3981 to discuss volume discounts to resell the BYO 250 Classic Clone Recipes issue in your shop

What we did

First, we asked, "did we want to change the malt bill?" And the answer was yes, so the next question was "how?" The obvious answer was to use some black malt, but we felt that black malt would drown out the caramel/liquorice flavor of the brown malt and take the beer too far away from the original. A better approach was to use a little Victory® malt (about 7% of the total), to bring in some nutty and light toasty flavor, and to add a corresponding amount of chocolate malt. The latter we felt would give the beer some roasty notes, but without adding any harshness. We also increased the proportion of brown malt to about 29% of the total, to make sure its flavor would not be drowned out by our additions, which meant the pale malt had to be reduced to 57% of the total grist. We did not want to take this any lower, because we wanted to ensure we got full starch conversion in the mash. Therefore our OG was going to be around 1.073, but since foreign extra stout was generally brewed around this gravity, we felt that we were not straying too far from the original. We also went with Maris Otter instead of regular 2-row to give the beer a slightly fuller flavor without adding sweetness.

But we also felt we wanted some more hops in there, both as bittering, and to give some flavor and aroma. So we opted for Columbus at the start of the boil, with a smaller addition of Columbus for the last 30 minutes, and a gener-

ous amount of both Willamette and East Kent Goldings at the finish. We aimed at 48 IBU, and chose the hops on the basis that a pronounced citrus aroma was not suitable. We wanted a spicy, floral, but subtle hop character in the beer.

These flavors would balance and complement the brown malt, not swamp it. Oh, and of course, we used our house yeast, White Labs WLP002. The end result of our tweaking was an excellent, well-balanced and full-flavored brown porter which I shall not hesitate to brew again. A 200-year-old brew brought to perfection by a little tweaking in the light of modern knowledge and taste!

West India Porter

(5 gallons/19 L, all-grain)

OG = 1.073 (17.7 °P) FG = 1.018 (4.6 °P)

ABV = 7.2% SRM = 50-60 IBU = 48

Ingredients

9.0 lb. (4.1 kg) Maris Otter pale malt

4.6 lb. (2.1 kg) Crisp brown malt

1 lb. (0.45 kg) Briess Victory® malt

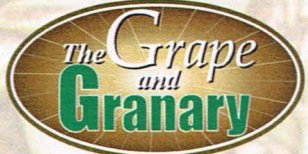
1 lb. (0.45 kg) Crisp chocolate malt

11 AAU Columbus pellet hops

(0.9 oz./25 g at 12.3% alpha acids) (70 mins.)

4.3 AAU Columbus pellet hops

(0.35 oz./10 g at 12.3% alpha acids) (40 mins.)



THE GRAPE AND GRANARY

**YOUR HOMETOWN BREW SHOP
ON THE WEB**

FEATURING
EXTENSIVE SELECTION
FAST SHIPPING/ EXPERT ADVICE
WE CATER TO NEW BREWERS!

Visit our online store or call to request
a catalog. You'll be glad you did!

800-695-9870

WWW.THEGRAPE.NET

AKRON OHIO USA



Ruby Street Brewing

- Accessible safe height
- Unique storage feature
- 10" pneumatic tires
- Pump, fittings & tubing included
- All SS kettles & fittings
- No tools required for assembly





Exceptional Form



Intuitive Design



Incredible Function

www.RubyStreetBrewing.com

Visit our website for a dealer near you!

Ruby Street Brewing, LLC PO Box 271722 Ft Collins, CO 80527



techniques

1 oz. (28 g) Willamette pellet hops (0 min.)
1 oz. (28 g) East Kent Goldings pellet hops (0 mins.)
White Labs WLP002 (English Ale) yeast

Step by Step

Mash grain at 148-150 °F (64-66 °C) for 60 minutes, run off and sparge to collect 5.5-6 gallons (21-23 L). Add first addition of Columbus hops to wort and boil 70 minutes. Add the second addition of Columbus 30 minutes before the boil is finished, and add the Willamette and Goldings at knock-out. Chill the wort and add the yeast (preferably as a 1-qt or 1-L starter). Let ferment one week, then rack to secondary fermenter and leave for one to two weeks before racking into keg or bottle.

West India Porter

(5 gallons/19 L, extract plus partial mash)

OG = 1.070 (17.1 °P) FG = 1.018 (4.6 °P)

ABV = 7.2% SRM = 50-60 IBU = 48

It is difficult to match this beer using malt extract because we need that brown malt flavor in there, however, this will come reasonably close to it.

Ingredients

9 lb. (4.1 kg) Munich liquid malt extract*
12 oz. (0.34 kg) Crisp brown malt

12 oz. (0.34 kg) 2-row pale malt
2 oz. (56 g) Briess or Weyermann de-husked black malt
11 AAU Columbus pellet hops (0.9 oz./25 g at 12.3% alpha acids) (45 mins.)
4.3 AAU Columbus pellet hops (0.35 oz./10 g at 12.3% alpha acids) (15 mins.)
1 oz (28 g) Willamette pellet hops (0 min.)
1 oz (28 g) East Kent Goldings pellet hops (0 min.)
White Labs WLP002 English Ale yeast

Step by Step

(*Look for an extract made from 50% pale malt and 50% Munich malt.) Add grains to 1 gallon (3.8 L) water, bring to about 150 °F (66 °C), and hold at this temperature for 30-45 minutes, then strain off grains, rinsing them with 1 gallon (3.8 L) hot water. Add water to about 3 gallons (11 L), and bring to a boil. Turn off heat, and add malt extract, stirring well to ensure the extracts dissolve properly. Bring to a boil, add the first dose of Columbus hops, and boil 45 minutes, adding second dose of Columbus for last 15 minutes, and Willamette and Goldings at end of boil. Strain, or siphon off from the hops, and add cold water sufficient to obtain the starting gravity of 1.070. Cool to around 70 °F (21 °C), pitch yeast (preferably as 1 qt starter). Let ferment one week, then rack to secondary fermenter, and leave for 1-2 weeks before racking into keg or bottle. 

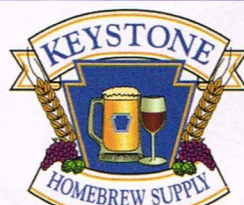


Our custom recipe application, **BrewBuilder™**, allows you to create, edit, share & buy recipes right from one convenient page.

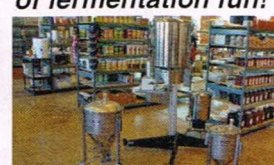
Create one of your own recipes or customize one of **OVER 1,100 HOMEBREW RECIPES** - and then buy it with the click of a button!

Create & buy a **BrewBuilder™** recipe and **SAVE 10%** when you enter: **BBBYO**

Brewmasters
• **WAREHOUSE** •
brewmasterswarehouse.com



24,000 square feet of fermentation fun!



IT'S
Humongous selection of equipment, supplies & clever gizmos
Ultra-fresh ingredients including Wyeast & White Labs
Great service where your needs always come first
Expert advice from award-winning brewers & BJCP judges
That's what she said.

DO YOU HATE TO WAIT?
1 day UPS shipping in the Mid-Atlantic from Connecticut to Virginia



NEW Montgomeryville, PA store

Montgomeryville, PA 215-855-0100
Bethlehem, PA 610-997-0911
www.KeystoneHomebrew.com

Insulation and Heat

Stabilize your mash temperatures

advanced brewing

by Chris Bible



Energy is used extensively throughout the malting and brewing process. Energy from fuel is required in order to operate the equipment that is used to plant, harvest and process grains and hops. Heat energy is used to kiln barley and turn it into the various types of roasted malt. Heat energy is used to heat water in order to mash and sparge the malt. Heat energy is also used to heat and boil the wort.

Clearly brewers need lots of heat energy in order to brew great beer.

A common way that brewers produce heat energy in a homebrewery is by the combustion of a hydrocarbon fuel such as propane or methane. Combustion of hydrocarbon fuel produces heat, and the rate of heat production can be managed using burners and valves to regulate the flow of fuel and air.

Unfortunately, heat is often used very inefficiently in homebreweries. Any process that uses energy in the real world will, of course, be much less than 100% efficient, but one great way to improve the efficiency of heat use within a homebrewery is to insulate the brewing vessels.

How insulation works

Insulation works by increasing the resistance to heat “flow” between areas that are at different temperatures. At a molecular level, heat energy within a substance is manifested by the intensity of vibration or movement of molecules. The more heat energy that is present, the faster the molecules are vibrating (in a solid or liquid phase substance) or moving about (in a gas phase substance).

Heat can be transferred from one substance to another by conduction, convection or radiation.

Heat transfer by conduction occurs when there is physical contact between the molecules of two or more substances that are at different temperatures. Physical collision of the

molecules within the substances occurs, and energy is transferred by the hotter, faster-vibrating molecules colliding with the colder, slower moving molecules.

Heat transfer by convection happens in much the same way as with conduction, but in the case of convection there is no direct contact between the hot and cold substance. Instead a third substance is involved as the heat transfer go-between. A good example of convective heat transfer is the heating of food using a convection oven. In a convection oven, air is blown across a hot heating element and picks up heat energy from the element. The hot air then contacts the cooler food and transfers heat energy to the food.

Heat transfer by radiation occurs when an object becomes hot enough to emit significant amounts of electromagnetic energy in the infrared or visible-light range of the electromagnetic spectrum, and this energy then hits and is absorbed by a cooler object. A great example of this is an electric stove-top heating element that is glowing red-hot.

Substances that are good thermal insulators have a molecular structure that either has very strongly-bound atoms and electrons within the molecular structure, or have molecules bound together in such a way that the macro-structure of the substance has lots of low-density, empty space.

Strongly bound atoms within a substance have a greater resistance to vibration, and therefore will not heat up as quickly or as much when bombarded by fast vibrating, hot molecules. Ceramics and plastics are two good examples of this kind of thermal insulator.

Substances that have molecules bound together in such a way that the macro-structure of the substance contains lots of empty space act as insulators by trapping air within their structure. Air and other gas-phase

“Minimizing heat loss from brewing vessels, especially from the mash tun, may allow the homebrewer to produce better beer.”

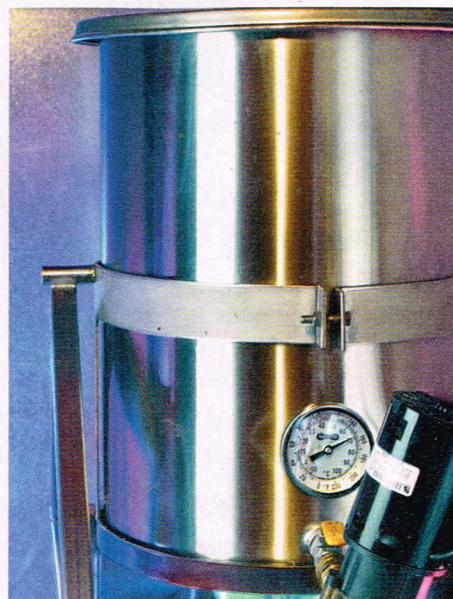


Photo by Charles A. Parker/Images Plus

substances are excellent thermal insulators and are much more resistant to heat flow than most liquids or solids. Examples of this kind of insulator are the fiberglass wool insulation in your home, the jacket that you wear on a cool evening (trapping a layer of air between you and the night air), and the foam-rubber "beer cozy" that you might slip over a bottle of beer on a hot summer day.

Insulation in the homebrewery

Heat loss from any heated vessel within the homebrewery can be reduced by using insulation. Reducing heat loss is desirable for two reasons:

1. Less heat loss means less fuel is needed to brew. This is a "green" benefit both to the environment and to your pocket because less fuel use results in lower fuel costs.
2. Reducing heat loss from a mash tun will allow better, more uniform control of the temperature profile within the mash. Better control of mash temperatures can lead to better beer.

Conductive heat transfer rate is described by Fourier's law, which can be written in several equivalent ways:

$$q = (kA (t_1 - t_2))/L = (A(t_1 - t_2))/R = UA(t_1 - t_2)$$

Where:

q = rate of heat conducted through a plane, BTU/hr

k = thermal conductivity of wall material, BTU-in/hr-ft²-°F

A = area of plane, ft²

L = thickness of wall, inches

$(t_1 - t_2)$ = temperature difference across the wall, °F

$R = L/k$ = unit of thermal resistance. This is the "R- factor" seen on insulation

$U = 1/R$ = overall heat transfer coefficient

To illustrate the benefit of insulation on a homebrewing vessel, let's assume that you have a 7.5-gallon (28-L) capacity wort-boiling vessel with a 2" (5 cm) thick blanket of fiberglass insulation around the curved, outer surface of the vessel. The approximate R-value for the fiberglass blanket insulation is $\approx 3.33/\text{inch} \times 2 \text{ inches} = 6.66$. Figure 1 (on page 63) shows the setup.

Using Fourier's law, we see that the heat loss by conduction through the insulated wall is:

$$q = (A(t_1 - t_2))/R = [(2042 \text{ in}^2)(212^\circ\text{F} - 70^\circ\text{F})]/(6.66 \text{ BTU/in}^2\text{-}^\circ\text{F-hr}) = 43,539 \text{ BTU/hr}$$

This seems like a very large amount of heat loss until you consider the amount of heat loss that occurs without any insulation. Figure 2 (on page 64) shows the effect of insula-



- Outstanding Customer Service
- Huge Product Selection In 3600 Sq. Ft. Store
- Experienced Award Winning Staff & Recipes
- Brewing Classes In A Dedicated Training Facility
- Same Day Shipping On Most Orders

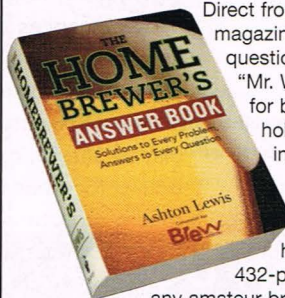


View all of our products online
or call us toll free (877) 450-2337
www.Brew-Depot.com

10595 Old Alabama Rd. Connector Alpharetta, GA
30022 Monday-Friday: 10-6 Saturday: 9-5

GOT BREWING QUESTIONS?

The Homebrewer's Answer Book



Direct from the pages of *Brew Your Own* magazine, this comprehensive collection of questions and answers from our popular "Mr. Wizard" department offers advice for both the novice and the advanced hobby homebrewer – and everyone in between!

Covering nearly every situation a homebrewer could encounter, this 432-page guide is the perfect reference for any amateur brewer. Fully indexed and organized by themes. Find answers to your questions and fixes to your problems fast.

Get
Yours
Today!

Available at better brewing supply retailers and bookstores

Order your copy now for just \$14.95
online at
brewyourownstore.com
or by calling 802-362-3981

tion thickness on conductive heat loss for a vessel with the dimensions and assumptions given above.

Note that the rate of heat loss from a vessel with 0.5 inches (1.3 cm) of insulation is almost four times as great as the loss from a vessel with 2 inches (5 cm) of insulation. Note also that Fourier's equation is only approximately describing heat loss from the vessel by conduction. In reality, heat loss is also happening from convection and, to a smaller extent, from radiative transfer.

Conclusions

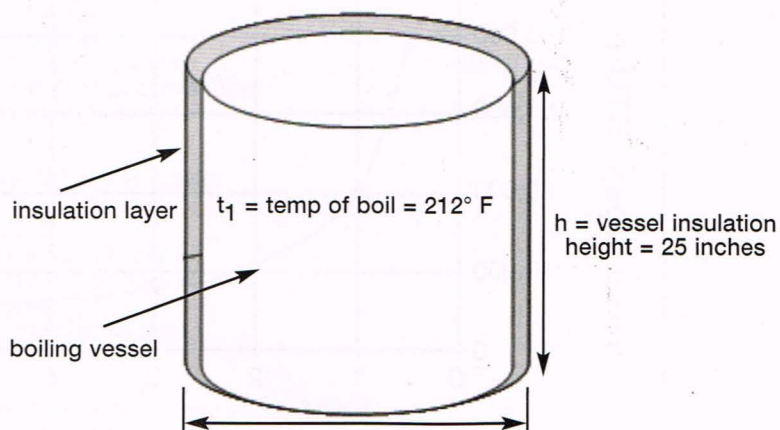
It is important to try to minimize heat loss within a brewery. For commercial breweries, the energy used to brew beer is a significant part of the overall cost to produce the beer. Minimizing heat losses in a commercial brewery are very important for the overall economic viability and profitability of the brewery.

As homebrewers we are, perhaps, less concerned with the economics of minimizing energy consumption in our breweries, but very concerned with the quality of our beer. Minimizing heat loss from brewing vessels, especially from the mash tun, may allow the homebrewer to produce better beer.

By minimizing heat losses from the mash tun, a brewer is able to maintain better control of the temperature of the mash and improve the uniformity of temperature

Figure 1: Insulated Boiling Vessel Setup

t_2 = ambient air temperature = 70° F



d = diameter of outermost face of insulation = 26 inches
(vessel diameter - 22 inches, insulation thickness = 2 inches)

A = insulation surface area = πdh

Hobby Beverage Equipment Co

www.minibrew.com

Fermenters Mash Tun & Hot Liquor Tank



6.5 gal



8 & 15 gal



15 gal Mash
Lauter Tun



100 gal

john@minibrew.com - 951 676 2337 - free catalog

Good Bye

2011

Good Buy

Adventures in Homebrewing

23869 Van Born, Taylor MI 48180
6071 Jackson RD, Ann Arbor, MI 48103
313 277 BREW (2739)

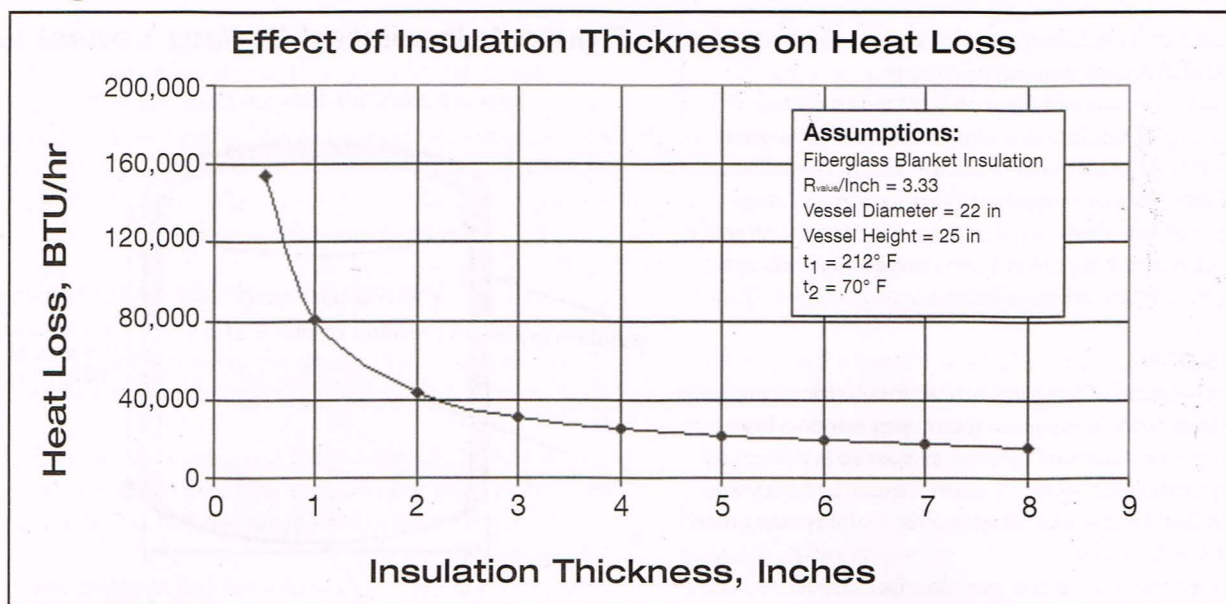
www.Homebrewing.org

TWO AWESOME LOCATIONS

ONE AMAZING WEBSITE

2012

Figure 2: Effect of Insulation Thickness on Conductive Heat Loss



throughout the mash bed. This is especially true when you consider that many homebrew mashes are not stirred, so temperature gradients can develop as the sides of the mash cool faster than the interior. The enzymes doing their work in the mash tun are very temperature sensitive. Having a grain bed that is at a uniform temperature

ensures that the enzymes are working their magic throughout the mash in a way that is aligned with the brewer's goals. Focus on minimizing heat loss from the mash tun and you will brew better beer. **BYO**

Chris Bible is BYO's "Advanced Brewing" columnist.

**home
brewer's
outpost**
homebrewers.com

- ✓ 100s of Beer and Wine Kits
- ✓ Video Tutorials
- ✓ Guaranteed Satisfaction
- ✓ Guaranteed Support

800.450.9535

ORDER ONE TODAY!

TONS of HOPPY GOODNESS in one SPECIAL ISSUE!

the best of Brew
Your Own
HOP LOVER'S GUIDE

We've collected and updated the best hops information from the past 12 years of BYO and included updated charts with the specs for 85 hop varieties including new varieties and suggested substitutions for hard-to-find hops. We've also detailed different hopping methods, hop growing info, hop-related build-it projects and 36 hoppy recipes. A few of the reasons you will love this new reference...

- Hopping methods for extract & all-grain brewers to get the most out of their hops
- Comprehensive charts for selecting the best hops or a substitute for a hard-to-find variety
- Backyard hop growing instructions

At just \$6.99 retail, you won't find a hop information source as complete at such a value!

This special newsstand only issue is available at better homebrew retailers or order today by calling 802-362-3981 also available online at brewyourownstore.com

Keep it Cool (or Hot)

projects

Build a fermentation temperature controller

by Jay Cummings



Keeping your beer at steady temperatures is crucial for a better fermentation. If the temperature drops too low, the yeast may go dormant and fermentation can stop entirely. If it gets too warm, the finished beer will likely have undesirable flavors, such as excessive fruitiness from esters, a “hot” finish due to fusel alcohols produced at high temps, and various other unwanted flavors.

Perhaps more important than avoiding off flavors, adding a temperature controller to your fermentation gear will allow you to explore beer styles with more precise fermentation temperature requirements. A controller with a heating belt or heat pad will allow you to brew Belgians in the colder months, and with a refrigerator or chest freezer you could do lagers year round (or nail your ale temps precisely). A controller could also be used with any of the various fermentation chiller box projects that use a fan to keep the air circulating.

My basement closet is the area I use for fermenting, and it can get quite cold in the winter months. And conversely in the summer it gets well

above ideal ale fermenting temperatures. A lot of homebrewers are in the same boat as me in terms of not having a 100% dedicated brewing space, so being able to control temperatures in less than ideal conditions is very handy. If you are looking to control your ferment temperatures, this mini temp control box project should be just the ticket. For about \$45 and a little elbow grease, you can build a snazzy temperature controller with a backlit LED readout.

This controller has a limit of 10 amps (1100watts @ 110volts), so do not use it to control any equipment that requires more power than 10 amps. As with any DIY project, use caution, and never attempt to perform any type of electrical project if you don't have experience with wiring — no matter how small the project. Ask a licensed electrician to wire the project for you, instead. Also refer to the wiring diagram on page 67 for more details.

For more information about fermentation temperature control, visit www.byo.com/component/resource/article/1923.

“Adding a temperature controller to your fermentation gear will allow you to explore beer styles with more precise fermentation temperature requirements.”

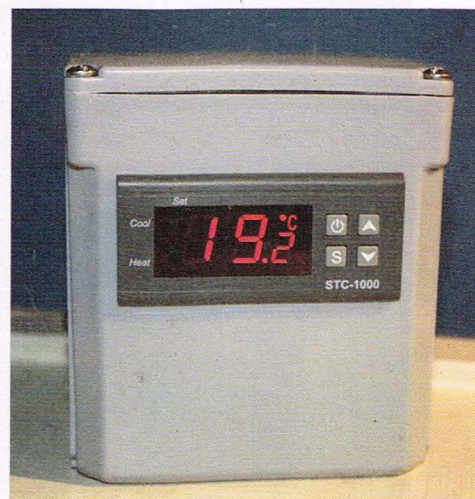
Tools and Materials

Materials

- 1 STC-1000 Two stage 110v temperature controller
- 4-inch x 4-inch x 4-inch electric junction box
- 15 feet of 16-gauge extension cord
- 3 feet of 16-gauge black wire
- 1 Decora gray 15-amp outlet
- (1) 10 amp panel mount fuse holder with fuse
- 1 Bag 6-32 1/8-inch machine screws
- 2 Wire nuts
- 2 Female Crimp-on spade connectors
- (1) 1/2-inch 2-screw cable connector

Tools

- Sharpie marker or pen capable of marking on plastic
- Needle nose pliers, tape measure, wire strippers, wire crimper, soldering iron (optional)
- Jigsaw or Dremel tool with a cutting wheel that can handle thick plastic
- Cordless drill with a 1/8-inch and 1/2-inch bit
- 1/8-inch drill bit or hole-saw
- Phillips Screwdriver
- Small (jewelry style) flat head screwdriver



ENGLISH BROWN ALE, MILD

OG= 1.046 FG= 1.012 ABV= 4.5% IBU= 21 COLOR(L)= 23

Description: Session style English brown ale. Recipe for 5 US gallons (19 L).

Quantity	Ingredients	Comment
8 lbs.	Briess Pale Ale Malt	
1 lb.	Briess Caracrytal® Wheat Malt	
½ lb.	Briess Caramel Malt 90L	
2 oz.	Briess Chocolate Malt	
1 oz.	East Kent Golding (5% AA hop)	(boil 60 min.)
1 vial	White Labs WLP013 London Ale Yeast	
1 capsule	Servomyces Yeast Nutrient	(boil 10 min.)

Instructions:

1. Mash grains at 154-158° F for 45 minutes.
2. Heat to 170° F.
3. Lauter.
4. Boil with bittering hops for 50 minutes.
5. Add Servomyces, boil final 10 minutes.
6. Cool to 68° F, oxygenate wort.
7. Pitch 1 vial WLP013 London Ale Yeast.

Fermentation: Primary: 2 Weeks at 68° F • Secondary: 2 Weeks

DÜSSELDORF ALTBIER

OG= 1.051 FG= 1.013 ABV= 5.0% IBU= 40 COLOR(L)= 14

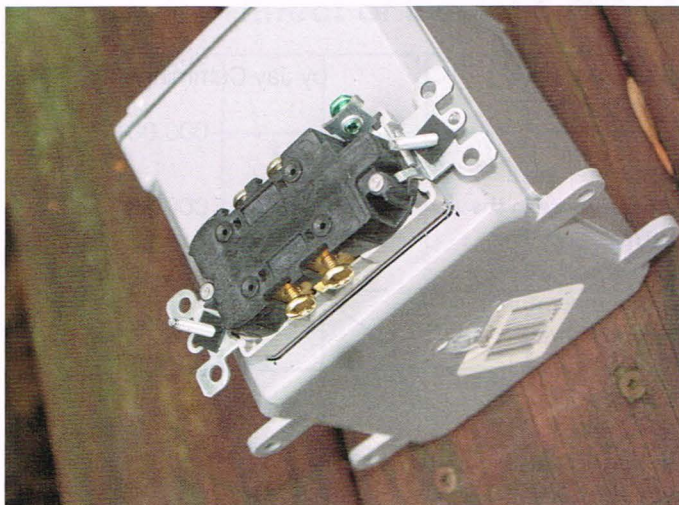
Description: Malty top-fermented beer cold aged for lager-like character.
Recipe for 5 US gallons (19 L).

Quantity	Ingredients	Comment
3 ½ lbs.	Briess Pilsen Malt	
3 ½ lbs.	Briess Ashburne® Mild Malt	
3 ½ lbs.	Briess Aromatic Malt	
2 oz.	Spalt (5% AA hop)	(boil 60 min.)
½ oz.	Spalt (5% AA hop)	(boil 20 min.)
1 vial	White Labs WLP036 Düsseldorf Alt yeast	
1 capsule	Servomyces Yeast Nutrient	(boil 10 min.)

Instructions:

1. Mash grains at 154-158° F for 45 minutes.
2. Heat to 170° F.
3. Lauter.
4. Boil with bittering hops for 40 minutes.
5. Boil additional ½ oz. Spalt for 10 minutes.
6. Add Servomyces, boil final 10 minutes.
7. Cool to 66° F, oxygenate wort.
8. Pitch 1 vial WLP036 Düsseldorf Alt Yeast

Fermentation: Primary: 2 Weeks at 66° F • Secondary: 1-2 Months at 33-40 ° F
Bottle Condition with ¼ vial WLP036 Düsseldorf Alt Yeast



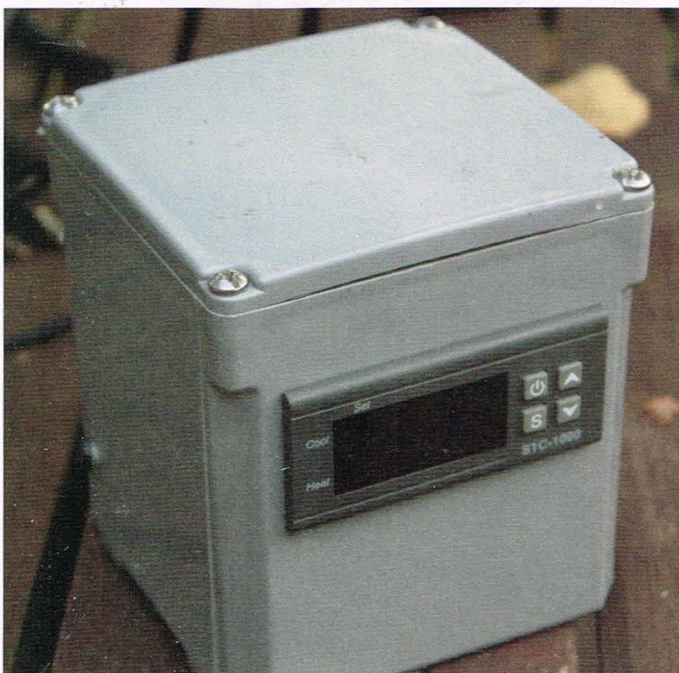
1. PREP WORK

Remove the top of the junction box and set the top and four screws aside. Now hold the outlet with the flat (plug side) to the junction box, centered side-to-side and about $\frac{1}{8}$ -inch above bottom of box. Carefully trace the outlet with a Sharpie or similar pen. Next drill a $\frac{1}{8}$ -inch hole in each corner of your outline; these are starter holes for your jigsaw blade. If you will be using a Dremel or other rotary tool for cutting, you won't need starter holes. Use a jigsaw (or Dremel) to cut out the outline of outlet. I found that the side of a large flat head screwdriver can help "cut" the plastic burr off after your cut out is done. A quick pass of a propane torch will melt the burrs away as well.



2. FIT THE OUTLET

The next step is the trickiest part of this build. You'll notice the outlet does not quite fit into the side of the box, so you'll have to improvise a bit. First take the pre-mounted screws out of the tabs. Then use the needle-nose pliers to carefully bend the tabs of the outlet to make sort of a "L" shape. Once you have the tabs bent, try to dry fit the outlet into the opening you just cut. You may need to adjust the bends or trim your opening at this point. The middle threaded hole on the tab should be flat with the side walls if looking in from the top. If the outlet fits, remove the outlet then break and remove the bridge connecting the two brass screws on the "hot" side. This keeps each side of the outlet working separately.



3. DRILL AND CUT

Now drill one $\frac{1}{8}$ -inch hole centered side-to-side and 1-inch from bottom, install the $\frac{1}{8}$ -inch cable connector with the clamp end outside the box. Drill a $\frac{1}{8}$ -inch hole next to the $\frac{1}{8}$ -inch hole, for the temperature probe wire. Drill a $\frac{1}{8}$ -inch hole on the other side of the $\frac{1}{8}$ -inch hole, install the fuse holder. Next measure the back of the STC-1000 temperature controller unit and write down the measurements. Make sure to be very accurate with these measurements. Draw a rectangle of the measured size on the OPPOSITE side as your outlet (this will be the front on the controller when finished). The bottom of the rectangle should be at least 2.25 inches from the bottom of junction box. Next, slide the orange clips off the side of the temperature controller. Cut out your rectangle and de-burr the cutout as needed. Slide the STC in the cutout (dry-fit). Trim if needed.

4. PREPARE TO WIRE

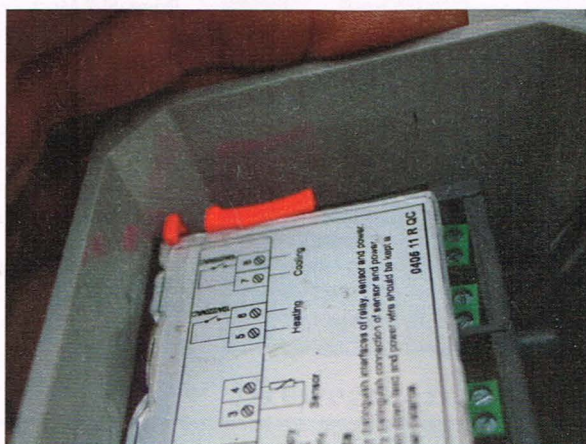
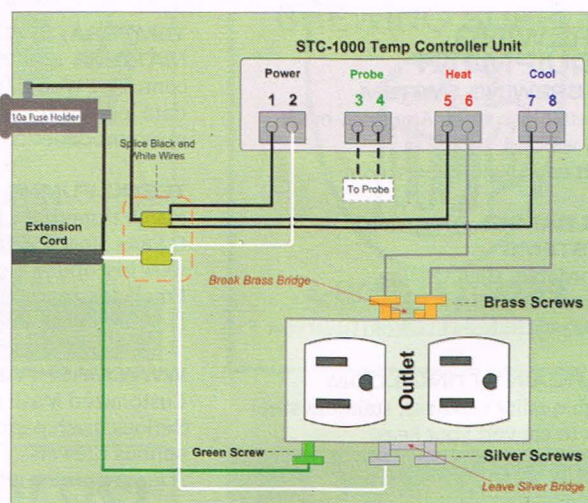
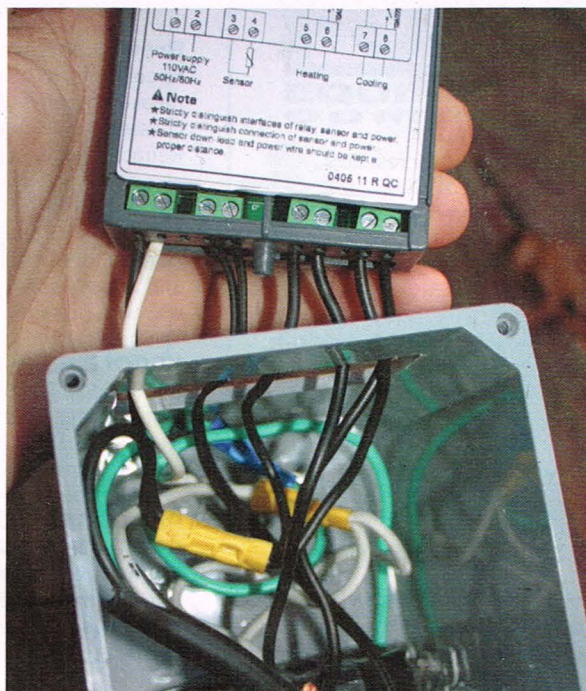
Cut about 18 inches off the extension cord (the female end) and strip off the outer jacket. Now cut these wires in half, this will leave you with 6 lengths of 9-inch wires. Cut the 3 feet of black wire into 4 lengths of 9-inch wires. Strip 6 inches of the outer jacket off the cut end of extension cord. Use the wire strippers to strip 1/2-inch of insulation off each end of all the wires. Drill two 1/8-inch holes (these are the holes for the outlet screws). This takes a little "eyeing up" to get it right. My holes happened to be about an inch from the bottom of the junction box, and I got close by sighting the tab hole from the top and marking the hole. The holes being 1/8-inch gives the screws a little wiggle room. Insert and tighten the 6-32 screws. One of the outlet terminals will be wired for controlling a refrigerator (cooling) and the other is wired for operating a heating belt or pad. Loosen the clamp on the cable connector, put the stripped end of the extension cord through the connector, leave the clamp loose for now.

5. WIRING IT UP

The extension cord has three leads: black (hot), white (neutral) and green (ground). For the black lead, install one of the female spade connectors or solder the wire directly to the end terminal of the fuse holder. Install the other spade connector on one of the black lengths of wire and connect it to the mid terminal of the fuse holder. Take the other end of this wire and 3 of the black wires, connect together with a wire nut; then connect the other end of the three black wires to terminals 1, 5 and 7 on the STC unit. The extension cord's white lead (neutral) will connect with the two lengths of white wires with a wire nut; one of these leads attach to the silver-colored screw terminal on the outlet, the other white lead will connect to terminal 2 on the STC. The extension cord's green lead (ground) should be connected to the outlet's green screw terminal (it is actually green). Use two lengths of black wire to connect terminals 6 and 8 on the temperature controller to the brass-colored screw terminals on the outlet. Terminal 6 is the heating side of the controller, and terminal 8 is the cooling side. So make a note of which terminal is connected to which receptacle on the outlet. If you forget to note which is which, you can open up the junction box and follow the leads back to the controller unit itself (it is labeled with a wiring diagram sticker). Connect the temperature probe wire to terminals 3 and 4 on the STC unit. Then tighten the clamp on the cable connector (make sure the jacket of the extension cord extends 1 inch inside the box.)

Slide the temperature control into the junction box and slide the orange mounting tabs (removed earlier) on to the sides. Click the orange tabs towards the front of the controller unit to lock it in place. Replace junction box lid with the four included screws. Program the STC to your desired settings, and you are ready to brew! **BYO**

Jay Cummings founded the NJ HOPZ homebrew club, and created the Final Gravity Podcast.



APPAREL

BEER GEEK TEES

Get 10% off with
Coupon: BYOMAG
Wholesale pricing for resellers.
BrewerShirts.com

BEERSHIRTZ - FREE SHIPPING!

www.beershirtz.com

CUSTOM BREWERY APPAREL

Award winning screen printing.
T-shirts, sweatshirts, workshirts,
hats & more. TheHopMan.com

GET YOUR BYO GEAR!

BYO logo shirts, sweats, hats
& lots more.
www.cafepress.com/brewyourown

BAR SUPPLIES

BUILDING A BAR?

Call the Kegman. Pro Equipment,
Wholesale Pricing.
973-512-2028
www.kegman.net

BREWING EQUIPMENT

#1 BREWING SYSTEM

All stainless steel, American-made,
TIG welded.
Visit us at synergybrew.com

1-3 BARREL BREWING SYSTEMS

Affordable, High Quality,
Custom Built Brewing Systems.
www.psychobrewLLC.com

BARGAINFITTINGS.COM

High quality weldless, stainless steel
kits to convert your kegs,
kettles and coolers.

Be Kind...Air Kills Beer®
www.MrFizz.com
CO₂ PicnicTap Rocks!

BEER WORT CHILLERS

High efficiency plate
heat exchangers. Great prices.
www.dudadiesel.com
256-417-4337

BREW SMARTER with STIRSTARTER Yeast

Stir Plates. \$42 Includes
Shipping and Stir Bar.
www.stirstarters.com

BrewHardware.com

Specializing in brewing
measurement gadgets: Sight
Glasses, Thermometers,
Refractometers and More!

BREWHEMOTH - SIZE MATTERS

22 gallon fermenter
and accessories.
www.brewhemoth.com

KEGGLE BREWING

Corny Kegs, Tap Systems and
Parts, Refrigerator Conversion Kits,
Keggles and Weldless Fittings.
www.KeggleBrewing.com

RANCO TEMPERATURE CONTROLLERS and accessories.

Single stage pre-wired \$74.99
Stopper thermowell \$21.99
www.ETCsupply.com
888-840-1442

STOUT TANKS & KETTLES

Stainless conical fermenters,
mashtuns, & HLTs. 5-150 gallons.
conical-fermenter.com

**TEMPERATURE CONTROL
MATTERS** BCS-462 programmable
controller. Web based user interface,
data logging, timers.
www.embeddedcontrolconcepts.com

TESCO PUMPS

March Homebrew Pumps
& Parts Since 1977.
www.tescopumps.com
Email: tescoincnc@aol.com
(714) 357-3400

WWW.MASHPADDLE.COM

Customized Mash Paddles.
Serious mash paddles for
serious brewers.
A great brewing gift item!

EDUCATION

FREE HOW TO BREW Guide
Reveals 7 Most Common Mistakes
Home Brewers Make. Visit:
BrewBeerAndDrinkIt.com/byo

FOOD-BEER PAIRING LIKE BEER & CHOCOLATE?

Have them both! Hop infused
Chocolates, for craft beer
enthusiasts.
www.HopCandyInc.com

HOMEBREW SUPPLIES

BREWERSDISCOUNT.NET

Lowest Prices, Exact Shipping
No Handling charges, Warehouse
backed. Over 2,000 Items.

CUSTOM BEER LABELS

Easily create unique beer labels!
10% off. Promo code: BEER10
www.BottleYourBrand.com

DRAFTSMAN BREWING COMPANY

You'll love our prices!
Call today for our FREE
homebrew supply catalog.
1-888-440-BEER
www.draftsman.com

HOMEBREWING EQUIPMENT:

Over 2,400 items! Hard to find
parts. Great prices.
www.chicompany.net

HOP GROWING NEED QUALITY HOPS?

Grow some!
Many varieties Female Rhizomes
www.NorthwestHops.com
Drunk Around the World

INGREDIENTS

VALLEY MALT

New England's Micro-Malthouse
All organic and locally grown.
www.valleymalt.com
(413) 349-9098

SOFTWARE

BEERSMITH BREWING SOFTWARE

Take the guesswork out of brewing!
Free 21 day trial!
www.beersmith.com

BREW PAL HELPS

with recipe formulation and calcula-
tions on brew day. iPhone/iPod.
www.brewpal.info

For details on
running a
classified call
Dave at
802-362-3981
ext. 107

GREAT
Gifts For You or
Your Brewing
Buddies



**SHOW THE WORLD YOU'RE
A HOMEBREWER!**

Order at
www.brewyourownstore.com
or call 802-362-3981 ext. 106



northernbrewer.com/brewingtv

- Order Today at
brewyourownstore.com**

FOXXX
EQUIPMENT
company



Visit foxxequipment.com
to find a Home Brew Shop near you!

Just Brew It !!

BREWING SUPPLY



1-800-441-2739

www.larrysbrewsupply.com

Click here
for better
beer



- ▶ **Burners & Accessories**
- ▶ **Dip Tubes**
- ▶ **DIY Stir Plate Kits**
- ▶ **RIMS Tube**
- ▶ **Sanke Fermenter Kits**
- ▶ **Stir Plates**
- ▶ **Temperature Probe Ends**
- ▶ **Temperature Sensors**
- ▶ **Thermowells**
- ▶ **Threaded Fittings**
- ▶ **Tri Clover Fittings**
- ▶ **Tubing/Hoses**

Brewershardware.com

reader service

for direct links to all of our advertisers' websites, go to www.byo.com/resources/readerservice

50 Pound Sack40	www.50PoundSack.com
Adventures in Homebrewing63	313-277-2739 www.homebrewing.org
American Brewers Guild Brewing School33	1-800-636-1331 www.abgbrew.com info@abgbrew.com
American Homebrewers Association28 & 49	www.HomebrewersAssociation.org
Annapolis Home Brew47	1-800-279-7556 www.annapolishomebrew.com email@annapolishomebrew.com
Austin Homebrew Supply45	1-800-890-BREW (2739) www.austinhhomebrew.com info@austinhhomebrew.com
Best of Brew Your Own 25 Great Homebrew Projects56	
250 Classic Clone Recipes58	
Hop Lover's Guide64	802-362-3981 www.brewyourownstore.com
Blichmann Engineering, LLC7	www.blichmannengineering.com john@blichmannengineering.com
Brew Brothers Homebrew Products, LLC47	888-528-8443 www.brewbrothers.biz info@brewbrothers.biz
Brew Depot - Home of Beer Necessities62	1-877-450-2337 www.Brew-Depot.com
Brew Your Own Back Issue Binders69	802-362-3981 www.brewyourownstore.com
Brew Your Own Back Issues24-25	802-362-3981 www.brewyourownstore.com backissues@byo.com
Brew Your Own Label Contest14	802-362-3981 www.byo.com
Brew Your Own Merchandise69	1-877-809-1659 www.cafepress.com/brewyourown
Brew Your Own Work Shirt69	802-362-3981 www.brewyourownstore.com
Brewer's Edge58	1-800-288-8922 www.brewmasterinc.com
Brewer's Hardware69	www.brewershardware.com
The Brewhemoth29	314-659-4300 www.brewhemoth.com thebrewhemoth@essexind.com
The Brewing Network47	www.thebrewingnetwork.com
Brewing TV69	www.brewingtv.com
Brewmasters Warehouse60	1-877-973-0072 www.brewmasterswarehouse.com info@brewmasterswarehouse.com
Briess Malt and Ingredients Co.31 & Recipe Cards	920-849-7711 www.brewingwithbriess.com info@briess.com

C&W Crate Company45	616-245-2728 www.cwcrate.com info@cwcrate.com
Crosby & Baker38	508-636-5154 www.crosby-baker.com info@crosby-baker.com
Dallas Home Brew a division of The Wine Maker's Toy Store33	1-866-417-1114 www.finevinewines.com geocorn@finevinewines.com
E.Z. Cap40	403-282-5972 www.ezcap.net ezcap@ezcap.net
Essencia Distributors Ltd.17	1-888-977-0027 www.essenciana.com sales@essenciana.com
Fermtech Ltd.50	519-570-2163 www.fermtch.ca derek@fermtch.ca
Five Star Chemicals & Supply Inc.11	1-800-782-7019 www.fivestarchemicals.com support@fivestarchemicals.com
Fox Equipment Company69	1-800-821-2254 www.foxequipment.com kcsales@foxequipment.com
Grape and Granary59	1-800-695-9870 www.grapeandgranary.com info@grapeandgranary.com
High Gravity50	918-461-2605 www.highgravitybrew.com store@highgravitybrew.com
Hobby Beverage Equipment63	951-676-2337 www.minibrew.com john@minibrew.com
Home Brewery (MO)33	1-800-321-2739 (BREW) www.homebrewery.com brewery@homebrewery.com
Homebrew Heaven56	1-800-850-2739 or 425-355-8865 www.homebrewheaven.com brewheaven@aol.com
Homebrewer's Answer Book62	802-362-3981 www.brewyourownstore.com
Homebrewers Outpost & Mail Order Co.64	1-800-450-9535 www.homebrewers.com
HomeBrewStuff.com39	1-888-584-8881 or 541-830-0100 www.HomeBrewStuff.com info@HomeBrewStuff.com
Kegs.com Ltd. dba SABCO51	419-531-5347 www.brew-magic.com office@kegs.com
Keystone Homebrew Supply60	215-855-0100 www.keystonehomebrew.com info@keystonehomebrew.com
Lallemand Inc.18	www.LallemandBrewing.com homebrewing@lallemand.com
Larry's Brewing Supply69	1-800-441-2739 www.larrysbrewsupply.com customerservice@larrysbrewsupply.com

Midwest Homebrewing & Winemaking SuppliesCover III	1-888-449-2739 www.midwestsupplies.com info@midwestsupplies.com
Monster Brewing Hardware LLC47	678-350-1731 www.monsterbrewinghardware.com ffrancis@monsterbrewinghardware.com
MoreBeer!41	1-800-600-0033 www.morebeer.com sales@morebeer.com
Muntions Malted Ingredients3	425-372-3082 www.muntions.com brian.perkey@muntions.com
My Own Labels41	www.myownlabels.com info@myownlabels.com
NorCal Brewing Solutions10	530-243-BEER (2337) www.norcalbrewingsolutions.com sales@norcalbrewingsolutions.com
Northern Brewer, LLCCover II	1-800-681-2739 www.northernbrewer.com info@northernbrewer.com
Northwestern Extract Company28	262-781-6670 www.nwextract.com flavors@nwextract.com
Polar Ware Company23	1-800-237-3655 www.polarware.com customerservice@polarware.com
Quality Wine and Ale Supply51	574-295-9975 www.HomeBrewIt.com info@HomeBrewIt.com
Rebel Brewer22	615-859-2188 www.rebelbrewer.com info@rebelbrewer.com
Ruby Street Brewing, LLC59	www.rubystreetbrewing.com
Seven Bridges Co-op Organic Homebrewing Supplies33	1-800-768-4409 www.breworganic.com 7bridges@breworganic.com
Sierra Nevada Brewing Company21	www.sierranevada.com
Speidel Tank - und Behälterbau GmbH56	www.speidels-braumeister.de
White Labs Pure Yeast & Fermentation16 & Recipe Cards	1-888-5-YEAST-5 www.whitelabs.com info@whitelabs.com
William's Brewing49	1-800-759-6025 www.williamsbrewing.com service@williamsbrewing.com
WineMaker International Amateur Wine Competition6	802-362-3981 www.winemakermag.com/competition competition@winemakermag.com
Wyeast Laboratories, Inc. - 100% Pure Liquid CulturesCover IV	541-354-1335 www.wyeastlab.com customerservice@wyeastlab.com

ALABAMA

Deep South Brewing Supply

1283 Newell Pkwy
Montgomery 36110
(334) 260-0148
www.DeepSouthBrew.com
email: cf@sharpnet.com
Serving Central Alabama and Beyond.

Werner's Trading Company

1115 Fourth St. SW
Cullman
1-800-965-8796
www.wernerstradingco.com
The Unusual Store.

The Wine Smith

6800 A Moffett Rd. (US Hwy. 98)
Mobile 36618
(251) 645-5554
e-mail: winesmith@bellsouth.net
www.thewinesmith.biz
Serving Central Gulf Coast
Homebrewers

ARIZONA

Brew Your Own Brew and Wine

525 East Baseline Rd., Ste 108
Gilbert 85233
(480) 497-0011
www.brewyourownbrew.com
Where the art of homebrewing starts.

Brew Your Own Brew and Wine

2564 N. Campbell Ave., Suite 106
Tucson 85719
(520) 322-5049 or 1-888-322-5049
www.brewyourownbrew.com
Where the art of homebrewing starts.

Brewers Connection

1435 E. University Drive, #B103
Tempe 85821
(480) 449-3720
ami@brewersconnection.com
www.brewersconnection.com
Arizona's oldest homebrew store.
Full service 7 days a week!

Brewers Connection

4500 E. Speedway Blvd. #38
Tucson 85711
(520) 881-0255
www.brewersconnection.com
Arizona's oldest homebrew store.
Full service 7 days a week!

Homebrewers Outpost & Mail Order Co.

801 S. Milton Rd., Suite 2
Flagstaff 86001
1-800-450-9535
www.homebrewers.com
Free Shipping in Arizona on orders over \$50.

Hops & Tannins

4220 W. Summit Walk Ct., Ste 1201
Anthem 85086
(623) 551-9857
www.hopsandtannins.com
Offering up a full line of brewing equipment & supplies, draft equipment, craft brews and specialty wines for a one-stop beer & wine shop.

Mile Hi Brewing Supplies

231A N. Cortez St.
Prescott 86301
(928) 237-9029
www.milehibrewingsupplies.com
We have the best selection of beer and winemaking equipment and supplies and an unmatched commitment to customer service!

What Ale's Ya

6363 West Bell Road
Glendale
(623) 486-8016
www.whatalesya.com
Great selection of beer & wine making supplies.

ARKANSAS

Fermentables

3915 Crutcher St.
North Little Rock 72118
(501) 758-6261
www.fermentables.com
Complete homebrew & winemakers supply

The Home Brewery

455 E. Township St.
Fayetteville
1-800-618-9474
homebrewery@arkansasusa.com
www.thehomebrewery.com
For all your beer & wine making needs.

CALIFORNIA

Addison Homebrew Provisions

1328 E. Orangethorpe Ave.
Fullerton 92831
(714) 752-8446
www.homebrewprovisions.com
Beer, Wine & Mead.

All About Brewing

700 N. Johnson Ave., Suite G
El Cajon 92020
(619) 447-BREW
jmallaboutbrewing@att.net
www.AllAboutBrewing.com
San Diego County's newest full-service home brew and wine supply store. Ongoing free beer brewing demonstrations, both malt extract and all-grain.

Bear Valley Hydroponics & Homebrewing

17455 Bear Valley Rd.
Hesperia 92345
(760) 949-3400
fax: (760) 948-6725
www.bvhydro.com
info@bvhydro.com
Excellent customer service and selection whether you grow or brew your own or both. Open 7 days a week.

The Beverage People

840 Piner Road, #14
Santa Rosa
1-800-544-1867
www.thebeveragepeople.com
Fast Shipping, Great Service, Cheesemaking too!

Brew Ferment Distill

3527 Broadway, Suite A
Sacramento 95817
(916) 476-5034
tim@brewfermentdistill.com
www.brewfermentdistill.com
"Promoting the Slow Drink Movement, One Bottle at a Time." Stop in for all your brewing needs.

Culver City Home Brewing Supply

4358 1/2 Sepulveda Blvd.
Culver City 90230
(310) 397-3453
www.brewsupply.com
Full supply of extracts, malts & hops. Personal service you can't get online.

Doc's Cellar

855 Capitolio Way, Ste. #2
San Luis Obispo
(805) 781-9974
www.docscellar.com

Fermentation Solutions

2507 Winchester Blvd.
Campbell 95008
(408) 871-1400
www.fermentationsolutions.com
Full line of ingredients and equipment for beer, wine, cheese, mead, soda, vinegar and more!

The Good Brewer

2960 Pacific Ave.
Livermore 94550
(925) 373-0333
www.goodbrewer.com
Shop us on-line and get 25% off your first purchase!! Enter coupon code: BYO01 at check-out. Want the 3 C's?? We got 'em! Check us out! We have a great selection of both whole and pellet hops, Plus all the hardware and ingredients you need to make beer at home.

Home Brew Shop

1570 Nord Ave.
Chico 95926
(530) 342-3768
e-mail: homebrushop@yahoo.com
www.chicohomebrewshop.com
Years of experience, advice always free!

Hop Tech Home Brewing Supplies

6398 Dougherty Rd. Ste #7
Dublin 94568
1-800-DRY-HOPS
www.hoptech.com
Owned by people who are passionate about beer! Visit our on-line store or stop by to find only fresh ingredients & top-quality equipment. We carry a large selection for beer & wine making.

MoreBeer!

995 Detroit Ave., Unit G
Concord 94518
(925) 771-7107 fax: (925) 671-4978
concordshowroom@moreflavor.com
www.morebeer.com
Showrooms also in Los Altos and Riverside.

Murrieta Homebrew Emporium

38750 Sky Canyon Dr., Ste A
Murrieta 92563
(951) 600-0008
toll-free: 888-502-BEER
www.murrietahomebrew.com
Riverside County's Newest Full Serve Homebrew and Wine Making Supply Store! Taking orders online now! Free shipping on orders over \$100. Free monthly demonstrations.

NorCal Brewing Solutions

1101 Parkview Ave.
Redding 96001
(530) 243-BEER (2337)
www.norcalbrewingsolutions.com
Full line of beer supplies and custom made equipment including the world famous "Jaybird" family of hop stoppers and false bottoms.

Original Home Brew Outlet

5528 Auburn Blvd., #1
Sacramento
(916) 348-6322
Check us out on the Web at
www.ehomebrew.com

O'Shea Brewing Company

28142 Camino Capistrano
Laguna Niguel
(949) 364-4440
www.osheabrewing.com
Southern California's Oldest & Largest Homebrew Store! Large inventory of hard to find bottled & kegged beer.

Stein Fillers

4160 Norse Way
Long Beach 90808
(562) 425-0588
www.steinfillers.com
brew@steinfillers.com
Your complete Homebrew Store, serving the community since 1994. Home of the Long Beach Homebrewers.

COLORADO

Beer and Wine at Home

1325 W. 121st. Ave.
Westminster
(720) 872-9463
www.beerathome.com

Beer at Home

4393 South Broadway
Englewood
(303) 789-3676 or 1-800-789-3677
www.beerathome.com
Since 1994, Denver Area's Oldest Homebrew Shop. Come See Why.

The Brew Hut

15120 East Hampden Ave.
Aurora
1-800-730-9336
www.thebrewhut.com
Beer, Wine, Mead, Soda, Cheese, Draft & CO₂ refills — WE HAVE IT ALL!

Hop To It Homebrew

2900 Valmont Rd., Unit D-2
Boulder 80301
(303) 444-8888 fax: (303) 444-1752
www.hoptoithomebrew.com
Because Making It Is Almost As Fun As Drinking It!

Hops and Berries

125 Remington St.
Fort Collins 80524
(970) 493-2484
www.hopsandberries.com
Shop at our store in Old Town Fort Collins or on the web for all your homebrew and winemaking needs. Next door to Equinox Brewing!

Lil' Ole' Winemaker

516 Main Street
Grand Junction 81501
(970) 242-3754
Serving Colorado & Utah brewers since 1978

Stomp Them Grapes! LLC

4731 Lipan St.
Denver 80211
(303) 433-6552
www.stompthemgrapes.com
We've moved! Now 4,000 additional sq. ft. for MORE ingredients, MORE equipment, MORE kegging supplies & MORE classes to serve you even better!

CONNECTICUT

Beer & Wine Makers Warehouse

290 Murphy Road
Hartford 06114
(860) 247-BWMW (2969)
e-mail: bwmwct@cs.com
www.bwmwct.com
Area's largest selection of beer & winemaking supplies. Visit our 3000 sq ft facility with demo area, grain crushing and free beer & wine making classes with equipment kits.

Brew & Wine Hobby

Now Full Service!
Area's widest selection of beer making supplies, kits & equipment
98C Pitkin Street
East Hartford 06108
(860) 528-0592 or
Out of State: 1-800-352-4238
info@brew-wine.com
www.brew-wine.com
Always fresh ingredients in stock! We now have a Pick Your Own grain room!

Maltose Express

246 Main St. (Route 25)
Monroe 06468
In CT: (203) 452-7332
Out of State: 1-800-MALTOSE
www.maltose.com
Connecticut's largest homebrew & winemaking supply store. Buy supplies from the authors of "CLONEBREWS 2nd edition" and "BEER CAPTURED"! Top-quality service since 1990.

Rob's Home Brew Supply

1 New London Rd, Unit #9
Junction Rte 82 & 85
Salem 06420 (860) 859-3990
robshomebrew@sbcglobal.net
www.robshomebrew.com

Stomp N Crush

140 Killingworth Turnpike (Rt 81)
Clinton 06413 (860) 552-4634
www.stompcrush.com
email: info@stompcrush.com
Southern CT's only homebrew supply store, carrying a full line of Beer & Wine making supplies and kits.

DELAWARE

How Do You Brew?

Shoppes at Louviers
203 Louviers Drive
Newark 19711
(302) 738-7009 fax: (302) 738-5651
joe@howdoyoubrew.com
www.howdoyoubrew.com
Quality Supplies and Ingredients for the Home Brewer including: Beer, Wine, Mead, Soft Drink and Kegging. One of the Mid-Atlantic's largest and best-stocked Brew Stores!

Xtreme Brewing

18501 Stamper Dr. (Rte 9)
Lewes
(302) 684-8936
fax: (302) 934-1701
www.xtremebrewing.com
contact@xtremebrewing.com
Make your own great beer or wine.

FLORIDA

AJ's Beer City & Homebrew Supplies

221 Center St.
Jupiter 33458
(561) 575-2337
www.ajsbeercitybuzz.com
South Florida's Newest Homebrew Supply Store!

Beer and Winemaker's Pantry

9200 66th St. North
Pinellas Park 33782
(727) 546-9117
www.beerandwinemaking.com
Complete line of Wine & Beer making supplies and ingredients. Huge selection, Mail orders, Great service. Since 1973.

BrewBox Miami

8831 SW 129th Street
Miami 33176
(305) 762-2859
www.brewboxmiami.com
A full-service homebrew supply shop, offering free classes every Saturday morning. We also carry a full range of hops, grains, extracts and yeast, as well as homebrewing equipment.

BX Beer Depot

2964 2nd Ave. N.
Lake Worth 33461
(561) 965-9494
www.bxbeerdepot.com
South Florida's Full Service Home Brew Shop. We supply craft beer, kegging equipment, fill CO₂ on site, homebrew supplies & ingredients, classes every month and also have an online store with next day delivery in Florida.

Just BREW It

wine and beer making supplies
2670-1 Rosselle St.
Jacksonville 32204
(904) 381-1983
www.justbrewitjax.com
Your can DO it!

Southern Homebrew

634 N. Dixie Freeway
New Smyrna Beach 32168
(386) 409-9100
info@SouthernHomebrew.com
www.SouthernHomebrew.com
Largest store in Florida! Complete inventory of beer & wine making supplies at money saving prices.

GEORGIA

Barley & Vine

1445 Rock Quarry Rd., Ste #204
Stockbridge 30281
(770) 507-5998
www.BarleyNVine.com
AIM: BarleyandVine@aol.com
Award winning brewers serving all of your brewing needs with the best stocked store in Atlanta! Visit our shoppe OR order your brewing supplies online. Friendly, knowledgeable staff will help you with your first batch or help design your next perfect brew. Located 1/2 mile off I-75, exit 224, just minutes from the ATL airport.

Brew Depot - Home of Beer Necessities

10595 Old Alabama Rd. Connector
Alpharetta 30022
(770) 645-1777 fax: (678) 585-0837
877-450-BEER (Toll Free)
e-mail: beerne@aol.com
www.BeerNecessities.com
Georgia's Largest Brewing Supply Store. Providing supplies for all of your Beer & Wine needs. Complete line of draft dispensing equipment, CO₂ and hard to find keg parts. Award winning Brewer on staff with Beginning and Advanced Brew Classes available. Call or email to enroll. www.Brew-Depot.com

Brewmasters Warehouse

2145 Roswell Rd., Suite 320
Marietta 30062
(877) 973-0072 fax: (800) 854-1958
info@brewmasterswarehouse.com
www.brewmasterswarehouse.com
Low Prices & Flat Rate Shipping!

Just Brew It!

1924 Hwy 85
Jonesboro 30238
1-888-719-4645
www.aardvarkbrewing.com
Atlanta's favorite homebrew shop since 1993. Great prices with the most complete line of ingredients and kegging supplies in the region. Just 8 miles south of the perimeter on Georgia hwy 85.

Savannah Home Brew Shop

2102 Skidaway Rd. (at 37th St.)
Savannah 31404 (912) 201-9880
email: savhomebrew@hotmail.com
savannahbrewers.com
Full service store offering one on one service. Call or email orders in advance for quicker service. Call/email for store hours. Check us out on facebook.

Wine Craft of Atlanta

5920 Roswell Rd., C-205
Atlanta 30328
(404) 252-5606
www.winecraftatl.com
winecraftatl@bellsouth.net

HAWAII

HomeBrew in Paradise
2646-B Kiliha St.
Honolulu 96819
(808) 834-BREW
mike@homebrewinparadise.com
www.homebrewinparadise.com
The Best Homebrew Supply Store in Hawaii

IDAHO

HomeBrewStuff.com
9165 W. Chinden Blvd., Ste 103
Garden City 83714
(208) 375-2559
www.homebrewstuff.com
"All the Stuff to Brew, For Less!"
Visit us on the web or at our new Retail Store!

ILLINOIS

Bev Art Brewer & Winemaker Supply
10033 S. Western Ave.
Chicago
(773) 233-7579
email: bevart@bevart.com
www.bev-art.com
Mead supplies, grains, liquid yeast and beer making classes on premise.

Brew & Grow (Bolingbrook)
181 W. Crossroads Pkwy., Ste A
Bolingbrook 60440
(630) 771-1410
www.brewandgrow.com
Visit our store for a great selection of brewing equipment and supplies. The largest inventory of organics, hydroponics and plant lighting in Illinois.

Brew & Grow (Chicago)
3625 N. Kedzie Ave.
Chicago 60618
(773) 463-7430
www.brewandgrow.com
Visit our store for a great selection of brewing equipment and supplies. The largest inventory of organics, hydroponics and plant lighting in Illinois.

Brew & Grow (Chicago West Loop)
19 S. Morgan St.
Chicago 60607
(312) 243-0005
www.brewandgrow.com
Visit our store for a great selection of brewing equipment and supplies. The largest inventory of organics, hydroponics and plant lighting in Illinois.

Brew & Grow (Crystal Lake)
176 W. Terra Cotta Ave., Ste. A
Crystal Lake 60014
(815) 301-4950
www.brewandgrow.com
Visit our store for a great selection of brewing equipment and supplies. The largest inventory of organics, hydroponics and plant lighting in Illinois.

Brew & Grow (Rockford)
3224 S. Alpine Rd.
Rockford 61109
(815) 874-5700
www.brewandgrow.com
Visit our store for a great selection of brewing equipment and supplies. The largest inventory of organics, hydroponics and plant lighting in Illinois.

Brew & Grow (Roselle)
359 W. Irving Park Rd.
Roselle 60172
(630) 894-4885
www.brewandgrow.com
Visit our store for a great selection of brewing equipment and supplies. The largest inventory of organics, hydroponics and plant lighting in Illinois.

Chicagoland Winemakers Inc.
689 West North Ave.
Elmhurst 60126
Phone: 1-800-226-BREW
info@chicagolandwinemakers.com
www.chicagolandwinemakers.com
Full line of beer & wine making supplies.

Crystal Lake Health Food Store
25 E. Crystal Lake Ave.
Crystal Lake
(815) 459-7942
Upstairs brew shop - Complete selection incl. Honey, Maple Syrup & unusual grains & herbs.

Home Brew Shop LTD
225 West Main Street
St. Charles 60174
(630) 377-1338
www.homebrewshopltd.com
Full line of Kegging equipment, Varietal Honey

Perfect Brewing Supply
619 E. Park Ave.
Libertyville 60048
(847) 816-7055
info@perfectbrewingsupply.com
www.perfectbrewingsupply.com
Providing equipment and ingredients for all of your homebrewing needs, a full line of draft beer equipment and expert staff to answer your questions.

Somethings Brewn'
401 E. Main Street
Galesburg 61401 (309) 341-4118
www.somethingsbrewn.com
Midwestern Illinois' most complete beer and winemaking shop.

Weber Organic Homebrew Supply
Naperville 60565
email: service@weberorganic.com
www.weberorganic.com
Specializing in organic and sustainably grown brewing ingredients. Visit us online.

INDIANA

The Brewer's Art Supply
1425 N. Wells Street
Fort Wayne 46808
(260) 426-7399
brewersartsupply@gmail.com
www.brewingart.com
Friendly, Reliable service in house and on-line.

Butler Winery Inc.
1022 N. College Ave.
Bloomington 47404
(812) 339-7233
e-mail: vineyard@butlerwinery.com
Southern Indiana's largest selection of homebrewing and winemaking supplies. Excellent customer service. Open daily or if you prefer, shop online at: butlerwinery.com

Great Fermentations of Indiana
5127 E. 65th St.
Indianapolis 46220
(317) 257-WINE (9463)
Toll-Free 1-888-463-2739
www.greatfermentations.com
Extensive lines of yeast, hops, grain and draft supplies.

Kennywood Brewing Supply & Winemaking
3 North Court Street
Crown Point 46307
(219) 662-1800
kennywood@comcast.net
www.kennywoodbrew.com
A Minute Ride from I-65, take exit 249 turn West to Main St. Knowledgeable Staff to serve you. Come visit us, we talk beer. Open Tu-Fr 11:30am - 7pm, Sat 9am-4pm.

Quality Wine and Ale Supply
Store: 108 S. Elkhart Ave.
Mail: 530 E. Lexington Ave. #115
Elkhart 46516
Phone (574) 295-9975
E-mail: info@homebrewit.com
Online: www.homebrewit.com
Quality wine & beer making supplies for home brewers and vintners. Secure online ordering. Fast shipping. Expert advice. Fully stocked retail store.

Superior Ag Co-op
5015 N. St. Joseph Ave.
Evansville 47720
1-800-398-9214 or
(812) 423-6481
CoopCountryCorner@insightBB.com
Beer & Wine. Brew supplier for Southern Indiana.

IOWA

Beer Crazy
3908 N.W. Urbandale Dr./100 St.
Des Moines 50322
(515) 331-0587
www.gobeercrazy.com
We carry specialty beer, and a full-line of beer & winemaking supplies!

Bluff Street Brew Haus
372 Bluff Street
Dubuque
(563) 582-5420
jerry@bluffbrewhaus.com
www.bluffbrewhaus.com
Complete line of wine & beermaking supplies.

KANSAS

Bacchus & Barleycorn Ltd.
6633 Nieman Road
Shawnee 66203
(913) 962-2501
www.bacchus-barleycorn.com
Your one stop home fermentation shop!

Homebrew Pro Shoppe, Inc.
2061 E. Santa Fe
Olathe
(913) 768-1090 or
Toll Free: 1-866-BYO-BREW
Secure online ordering: www.homebrewproshoppe.com

KENTUCKY

My Old Kentucky Homebrew
1437 Story Ave.
Louisville 40204
(502) 589-3434
www.myoldkentuckyhomebrew.com
Beer & Wine supplies done right. Stop by and see for yourself.

Winemakers & Beermakers Supply
9475 Westport Rd.
Louisville 40241
(502) 425-1692
www.winebeersupply.com
Complete Beermaking & Winemaking Supplies. Premium Malt from Briess & Muntons. Superior Grade of Wine Juices. Family Owned Store Since 1972.

LOUISIANA**Brewstock**

3800 Dryades St.
New Orleans 70115
(504) 208-2788
www.brewstock.com
e-mail: aaron@brewstock.com
The Largest Selection of Homebrewing Supplies in Louisiana!

MAINE**Maine Brewing Supply**

542 Forest Ave.
Portland
(207) 791-BREW (2739)
www.BrewBrewBrew.com
From beginner to expert, we are your one stop shop for all your brewing supplies. Friendly and informative personal service. Conveniently located next to The Great Lost Bear.

Natural Living Center

209 Longview Dr.
Bangor 04401
(207) 990-2646 or
toll-free: 1-800-933-4229
e-mail: nlcbangor@yahoo.com
www.naturallivingcenter.net

MARYLAND**Annapolis Home Brew**

836 Ritchie Hwy., Suite 19
Severna Park 21146
(800) 279-7556 fax: (410) 975-0931
www.annapolishomebrew.com
Friendly and informative personal service; Online ordering.

The Flying Barrel

1781 North Market St.
Frederick
(301) 663-4491 fax: (301) 663-6195
www.flyingbarrel.com
Maryland's 1st Brew-On-Premise; winemaking and homebrewing supplies!

Maryland Homebrew

6770 Oak Hall Lane, #108
Columbia 21045
1-888-BREWNOW
www.mdhb.com
6,750 square feet of all your beer, wine & cheesemaking needs. We ship UPS daily.

MASSACHUSETTS**Beer & Wine Hobby**

155 New Boston St., Unit T
Woburn 01801
1-800-523-5423
e-mail: shop@beer-wine.com
Web site: www.beer-wine.com
Brew on YOUR Premise™
One stop shopping for the most discriminating beginner & advanced beer & wine hobbyist.

Modern Homebrew Emporium

2304 Massachusetts Ave.
Cambridge 02140
(617) 498-0400
fax: (617) 498-0444
www.modernbrewer.com
The freshest supplies and equipment to make beer, wine, cheese and tea, as well as bottles, honey, herbs and spices, books, labels, kegging equipment and much more. Open 7 days a week. Since 1991.

NFG Homebrew Supplies

72 Summer St.
Leominster
(978) 840-1955
Toll Free: 1-866-559-1955
www.nfghomebrew.com
nfghomebrew@verizon.net
Great prices! Personalized service! Secure on-line ordering.

South Weymouth Homebrew Emporium

58 Randolph Street
South Weymouth
1-800-462-7397
www.beerbrew.com
Visit 7,000 square feet of space devoted to the freshest supplies and equipment to make beer, wine, cheese, and tea, as well as bottles, honey, herbs and spices, books, labels, kegging equipment and much more. Open 7 days a week.

Strange Brew Beer & Winemaking Supplies

416 Boston Post Rd. E. (Rt. 20)
Marlboro
1-888-BREWING
e-mail: dash@Home-Brew.com
Website: www.Home-Brew.com
We put the dash back in Home-Brew!

West Boylston Homebrew Emporium

Causeway Mall, Rt. 12
West Boylston
(508) 835-3374
www.wbhomebrew.com
The freshest supplies and equipment to make beer, wine, cheese and tea, as well as bottles, honey, herbs and spices, books, labels, kegging equipment and much more. Open 7 days a week. Since 1999.

The Witches Brew, Inc.

12 Maple Ave.
Foxborough 02035
(508) 543-0433
steve@thewitchesbrew.com
www.thewitchesbrew.com
You've Got the Notion, We've Got the Potion

MICHIGAN**Adventures in Homebrewing**

6071 Jackson Rd.
Ann Arbor 48103
(313) 277-BREW (2739)
Full Line of Kegging Supplies!
Visit us at
www.homebrewing.org

Adventures in Homebrewing

23869 Van Born Rd.
Taylor 48180
(313) 277-BREW (2739)
Full Line of Kegging Supplies!
Visit us at
www.homebrewing.org

Bell's General Store

355 E. Kalamazoo Ave.
Kalamazoo 49007
(269) 382-5712
fax: (269) 382-5748
www.bellsbeer.com
Visit us next door to Bell's Eccentric Café or online at
www.bellsbeer.com

Brewers Edge Homebrew Supply, LLC

650 Riley Street, Suite E
Holland 49424
(616) 805-UBRU (8278)
(616) 283-6423 (cell)
www.brewersedgehomebrew.com
email: brewersedge@gmail.com
Your Local Homebrewing & Winemaking Supply Shop...get the Edge!

BrewGadgets

Store: 328 S. Lincoln Ave.
Mail: PO Box 125
Lakeview 48850
Online: www.BrewGadgets.com
E-mail: edw@BrewGadgets.com
Call us on our Dime @
(866) 591-8247
Quality beer and wine making supplies. Secure online ordering and retail store. Great! Prices and personalized service.

Brewingworld

5919 Chicago Rd.
Warren 48092
(586) 264-2351
Brew on Premise, Microbrewery, Homebrewing & Winemaking Supplies
www.brewingworld.com
www.kbrewery.com

Cap 'n' Cork Homebrew Supplies

16812 - 21 Mile Road
Macomb Twp.
(586) 286-5202 fax: (586) 286-5133
info@capncorkhomebrew.com
www.capncorkhomebrew.com
Wyeast, White Labs, Hops & Bulk Grains!

Hopman's Beer & Winemaking Supplies

4690 W. Walton Blvd.
Waterford 48329
(248) 674-4677
www.hopmanssupply.com
All your needs from brew to bottle and then some.

The Red Salamander

902 E. Saginaw Hwy.
Grand Ledge 48837
(517) 627-2012
www.theredsalamander.com
New bigger store!

Siciliano's Market

2840 Lake Michigan Dr. N.W.
Grand Rapids 49504
(616) 453-9674 fax: (616) 453-9687
e-mail: sici@sbcglobal.net
www.sicilianosmkt.com
The largest selection of beer and wine making supplies in west Michigan. Now selling beer & wine making supplies online.

thingsBEER

1093 Highview Dr.
Webberville 48892
1-866-521-2337 fax: (517) 521-3229
thingsbeer@michiganbrewing.com
www.thingsbeer.com
Your Full-Service Homebrew Shop With A Home Town Feel!

MINNESOTA**Midwest Homebrewing & Winemaking Supplies**

5825 Excelsior Blvd.
St. Louis Park 55416
1-888-449-2739
www.MidwestSupplies.com
The Ultimate Resource for Homebrewing & Winemaking

Northern Brewer

6021 Lyndale Ave. South
Minneapolis 55419
1-800-681-2739
www.northernbrewer.com
Call or write for a FREE CATALOG!

Northern Brewer

1150 Grand Ave.
St. Paul 55105
1-800-681-2739
www.northernbrewer.com
Call or write for a FREE CATALOG!

Still-H₂O, Inc.

14375 N. 60th St.
Stillwater 55082
(651) 351-2822
www.still-h2o.com
Our grains, hops and yeast are on a mission to make your beer better! Wine and soda making ingredients and supplies available too. Locally owned/Family operated.

MISSOURI

The Home Brewery
1967 W. Boat St. (P.O. Box 730)
Ozark 65721
1-800-321-BREW (2739)
brewery@homebrewery.com
www.homebrewery.com
Over 25 years of great products and great customer service. One Stop Shopping for all your Beer, Wine, Soda and Cheese Making Supplies.

Homebrew Supply of Southeast Missouri, LLC
3463 State Hwy FF
Jackson 63755
(573) 579-9398
www.homebrewsupply.biz
homebrewsupply@gmail.com
Hour: W-F 5:00pm - 6:30pm
Saturday 9:00am - 3:00pm
or By Appointment.

St Louis Wine & Beermaking LLC
231 Lamp & Lantern Village
St. Louis 63017
1-888-622-WINE (9463)
www.wineandbeer-making.com
Making the Buzz in St. Louis

NEBRASKA

Fermenter's Supply & Equipment
8410 'K' Plaza, Suite #10
Omaha 68127
(402) 593-9171
e-mail: FSE@tconl.com
www.fermenterssupply.com
Beer & winemaking supplies since 1971. Same day shipping on most orders.

Kirk's Do-It-Yourself Brew
1150 Cornhusker Hwy.
Lincoln 68521
(402) 476-7414 fax: (402) 476-9242
www.kirksbrew.com
e-mail: kirk@kirksbrew.com
Serving Beer and Winemakers since 1993!

NEW HAMPSHIRE

Fermentation Station
72 Main St.
Meredith 03253
(603) 279-4028
badabingnh@yahoo.com
www.2ferment.net
The Lake Region's Largest Homebrew Supply Shop!

Granite Cask
6 King's Square, Unit A
Whitefield 03598
(603) 837-2224 fax: (603) 837-2230
www.granitecask.com
email: brew@granitecask.com
Personal service, homebrewing classes, custom kits always available.

Kettle to Keg
123 Main Street
Pembroke 03275
(603) 485-2054
www.kettletokeg.com
NH's largest selection of homebrewing, winemaking and soda ingredients, supplies & equipment. Located conveniently between Concord and Manchester.

Smoke N Barley
485 Laconia Rd.
Tilton 03276
(603) 524-5004
fax: (603) 524-2854
SmokeNBarley.com
smokenbarley@metrocaster.net
Mention This Listing For 10% Off Any Brewing Supplies Purchase.

Yeastern Homebrew Supply
455 Central Ave.
Dover 03820
(603) 343-2956
www.yeasternhomebrewsupply.com
info@yeasternhomebrewsupply.com
Southeastern NH's source for all your homebrewing needs.

NEW JERSEY

The Brewer's Apprentice
856 Route 33
Freehold 07728
(732) 863-9411
www.brewapp.com
Online Homebrew Shopping.

Cask & Kettle Homebrew
904-B Main St.
Boonton 07005
(973) 917-4340
www.ckhomebrew.com
email: info@ckhomebrew.com
New Jersey's #1 place for the homebrew hobbyist. Local convenience at online prices. Plenty of extra parking and entrance in rear of building.

Corrado's Wine & Beer Making Center
600 Getty Ave.
Clifton 07011
(973) 340-0848
www.corradosmarket.com

Tap It Homebrew Supply Shop
144 Philadelphia Ave.
Egg Harbor 08215
(609) 593-3697
www.tapithomebrew.com
contact@tapithomebrew.com
From beginners to experienced all-grain brewers, Southeastern NJ's only homebrew, wine & soda making supply shop!

NEW MEXICO

Santa Fe Homebrew Supply
6820 Cerrillos Rd., #4
Santa Fe 87507
(505) 473-2268
email: info@santafehomebrew.com
www.santafehomebrew.com
www.nmbrew.com
Northern New Mexico's local source for home brewing and wine making supplies.

Southwest Grape & Grain
9450-D Candelaria NE
Albuquerque 87112
(505) 332-BREW (2739)
www.southwestgrapeandgrain.com
For all your homebrew needs. Open 7 Days a Week.

Victor's Grape Arbor
2436 San Mateo Pl. N.E.
Albuquerque 87110
(505) 883-0000
fax: (505) 881-4230
www.victorsgrapearbor.com
email: victors@nmia.com
Serving your brewing needs since 1974. Call for a Free Catalog!

NEW YORK

American Homesteader
6167 State Hwy 12
Norwich 13815
(607) 334-9941
americanhomesteader@frontier.com
www.AmericanHomesteader.net
Very large line of beer and wine making supplies. We stock some of the more unusual supplies and equipment as well. We take phone mail orders and have online sales coming soon. Hours are 10-6 Mon-Sat.

Brewshop @ Cornell's True Value
310 White Plains Rd.
Eastchester 10709
(914) 961-2400
fax: (914) 961-8443
www.brewshop.com
email: john3@cornells.com
Westchester's complete beer & wine making shop. We stock grain, yeast, kits, bottles, hops, caps, corks and more. Grain mill on premise.

Doc's Homebrew Supplies
451 Court Street
Binghamton 13904
(607) 722-2476
www.docsbrew.com
Full-service beer & wine making shop serving NY's Southern Tier & PA's Northern Tier since 1991. Extensive line of kits, extracts, grains, supplies and equipment.

Homebrew Emporium
470 N. Greenbush Rd.
Rensselaer 12144
(800) 462-7397
www.beerbrew.com
The freshest supplies and equipment to make beer, wine, cheese and tea, as well as bottles, honey, herbs and spices, books, labels, kegging equipment and much more. Open 7 days a week. Since 1988.

Mistucky Creek Co.
331 Rt 94 S.
Warwick 10990
(845) 988-HOPS
fax: (845) 987-2127
www.mistuckycreek.com
email: mistuckycreek@yahoo.com
Come visit us @ Mistucky Creek. Homebrew & Wine making supplies & equipment. Check out our Country Gift store too!

Niagara Tradition Homebrewing Supplies
1296 Sheridan Drive
Buffalo 14217
(800) 283-4418
fax: (716) 877-6274
On-line ordering. Next-day service. Huge Inventory.
www.nthomebrew.com

Pantano's Wine Grapes & Homebrew
249 Rte 32 S.
New Paltz 12561
(845) 255-5201
(845) 706-5152 (cell)
pantanowineandbeer@yahoo.com
Find Us On Facebook. Carrying a full line of homebrewing equipment & ingredients for all your brewing needs. Here to serve Hudson Valley's homebrewers.

Party Creations
345 Rokeby Rd.
Red Hook 12571
(845) 758-0661
www.partycreations.net
Everything for making beer and wine.

Saratoga Zymurgist
112 Excelsior Ave.
Saratoga Springs 12866
(518) 580-9785
email: oosb@verizon.net
www.SaratogaZ.com
Now serving Adirondack Park, lower Vermont and Saratoga Springs area with supplies for beer and wine making. "Home to all your fermentation needs"

NORTH CAROLINA

Alternative Beverage

1500 River Dr., Ste. 104
Belmont 28012
Advice Line: (704) 825-8400
Order Line: 1-800-365-2739
www.ebrew.com
37 years serving all home brewers' & winemakers' needs!
Come visit for a real Homebrew Super Store experience!

American Brewmaster

3021-5 Stonybrook Dr.
Raleigh 27604
919) 850-0095
www.americanbrewmaster.com
abrew@americanbrewmaster.com
Expert staff. Friendly service. We make brewing FUN! Serving the best ingredients since 1983. Now open Brewmasters Bar & Grill on W. Martin St.

Asheville Brewers Supply

712-B Merrimon Ave
Asheville 28804
(828) 285-0515
www.ashevillebrewers.com
The South's Finest Since 1994!

Beer & Wine Hobbies, Int'l

4450 South Blvd.
Charlotte 28209
Advice Line: (704) 825-8400
Order Line: 1-800-365-2739
www.ebrew.com
Large inventory, homebrewed beer making systems, quality equipment, fresh ingredients, expert advice, fast service and all at reasonable prices.

Beer & Wine Hobbies, Int'l

168-S Norman Station Blvd.
 Mooresville 28117
Voice Line: (704) 527-2337
Fax Line: (704) 522-6427
www.ebrew.com
Large inventory, over 150 recipe packages, home brewing and wine making systems, quality equipment, fresh ingredients, expert advice, and reasonable prices.

Brewers Discount

Greenville 27837
(252) 758-5967
sales@brewersdiscount.net
www.brewersdiscount.net
Lowest prices on the web!

OHIO

The Grape and Granary

915 Home Ave.
Akron 44310
(800) 695-9870
www.grapeandgranary.com
Complete Brewing & Winemaking Store.

The Hops Shack

1687 Marion Rd.
Bucyrus 44820
(419) 617-7770
www.hopsshack.com
Your One-Stop Hops Shop!

Listermann Mfg. Co.

1621 Dana Ave.
Cincinnati 45207
(513) 731-1130
fax: (513) 731-3938
www.listermann.com
Beer, wine and cheesemaking equipment and supplies.

Main Squeeze

229 Xenia Ave.
Yellow Springs 45387
(937) 767-1607
www.mainsqueezeonline.com
Award Winning Brewers helping all Brewers!

Miami Valley BrewTensils

2617 South Smithville Rd.
Dayton 45420
(937) 252-4724
www.brewtensils.com
email: darren@schwartzbeer.com
Next door to Belmont Party Supply. Redesignated online store @ www.brewtensils.com. All your beer, wine & cheese supplies.

Paradise Brewing Supplies

7766 Beechmont Ave.
Cincinnati
(513) 232-7271
www.paradisebrewingsupplies.com
Internet sales coming soon!
Mention this ad & get a free ounce of hops!

The Pumphouse

336 Elm Street
Struthers 44471
(800) 947-8677 or
(330) 755-3642
Beer & winemaking supplies + more.

Shrivers Pharmacy

406 Brighton Blvd.
Zanesville 43701
1-800-845-0560
fax: (740) 452-1874
shriversbeerwinesupplies@yahoo.com
www.shriversbeerwinesupply.com
Large selection of beer & winemaking supplies.

Titgemeier's Inc.

701 Western Ave.
Toledo 43609
(419) 243-3731
fax: (419) 243-2097
e-mail: titgemeiers@hotmail.com
www.titgemeiers.com
An empty fermenter is a lost opportunity - Order Today!

OKLAHOMA

The Brew Shop

3624 N. Pennsylvania Ave.
Oklahoma City 73112
(405) 528-5193
brewshop@juno.com
www.thebrewshopokc.com
Oklahoma City's premier supplier of home brewing and wine making supplies. Serving homebrewers for over 15 years! We ship nationwide.

High Gravity

7164 S. Memorial Drive
Tulsa 74133
(918) 461-2605
store@highgravitybrew.com
www.highgravitybrew.com
Build your own beer from one convenient page! No Fine Print \$9.99 flat rate shipping on everything in our store.

Learn to Brew, LLC

2307 South Interstate 35 Frontage Rd.
Moore 73160
(405) 793-BEER (2337)
info@learntobrew.com
www.learntobrew.com
Learn To Brew is run by a professionally trained brewer and offers a complete line of beer, wine, and draft dispense products and equipment and also offers beer and wine classes for all levels.

OREGON

Above the Rest Homebrewing Supplies

11945 SW Pacific Hwy, Ste. #235
Tigard 97223
(503) 968-2736
fax: (503) 639-8265
atr.homebrewing@gmail.com
www.abovetheresthomebrewing.net
Serving Beer & Wine Makers since 1993

Brew Brothers Homebrew Products, LLC

2020 NW Alcock Dr., Ste 104
Hillsboro (Aloha area) 97124
Toll-free: (888) 528-8443
info@brewbrothers.biz
www.brewbrothers.biz
Pay less, brew more!
Hugest selection of grain, anywhere. "Come join the family!!!"

F.H. Steinbart Co.

234 SE 12th Ave
Portland 97214
(503) 232-8793
fax: (503) 238-1649
e-mail: info@fhsteinbart.com
www.fhsteinbart.com
Brewing and Wine making supplies since 1918!

Falling Sky Brewshop (formerly Valley Vintner & Brewer)

30 East 13th Ave.
Eugene 97401
(541) 484-3322
www.brewabeer.com
email: ordering@brewabeer.com
Oregon's premier, full-service homebrew shop, featuring unmatched selection of whole hops and organically grown ingredients.

Grains Beans & Things

820 Crater Lake Ave., Suite 113
Medford 97504
(541) 499-6777
www.grains-n-beans.com
email: sales@grains-n-beans.com
Largest homebrew and winemaking supplier in Southern Oregon. We feature Wine, Beer, Mead, Soda and Cheese making supplies and equipment. Home coffee roasting supplies and green coffee beans from around the world. Best of all - Great Customer Service!

The Hoppy Brewer

328 North Main
Gresham 97030
(503) 328-8474
fax: (503) 328-9142
krauski@hotmail.com
OregonsHoppyPlace.com
Homebrewing Supplies, Draft Equipment, Bottle Beers, Filled Growlers.

Mainbrew

23596 NW Clara Lane
Hillsboro 97124
(503) 648-4254
www.mainbrew.com
Since 1991 providing excellent customer service and serving only top quality ingredients!

PENNSYLVANIA

Bald Eagle Brewing Co.

315 Chestnut St.
Mifflinburg 17844
(570) 966-3156
fax: (570) 966-6827
tsweet@baldeaglebrewingco.com
www.baldeaglebrewingco.com
Novice, we will help. Experienced, we have what you need. Very competitive prices, customer service oriented. Daily hours closed Sunday.

Beer Solutions

507 Blackman St.
Wilkes-Barre 18702
(570) 825-5509
email: sacz@ptd.net
www.beersolutionsinc.com
Complete line of supplies. We specialize in kegging equipment with kegs, parts & we fill CO₂ & Nitrogen tanks. 3 Blocks from Rt. I-81.

Country Wines

3333 Babcock Blvd., Suite 2
Pittsburgh 15237
(412) 366-0151 or
Orders toll free (866) 880-7404
www.countrywines.com
Manufacturer of Super Ferment® complete yeast nutrient/energizer, Yeast Bank®, and the Country Wines Acid test kit. Wholesale inquiries invited. Visit us or order online.

Homebrew4Less.com

890 Lincoln Way West (RT 30)
Chambersburg 17202
(717) 504-8534
www.Homebrew4Less.com
Full line of homebrew and wine supplies and equipment.

Keystone Homebrew Supply

599 Main St.
Bethlehem 18018
(610) 997-0911
sales@keystonehomebrew.com
www.keystonehomebrew.com
Your source for everything beer and wine!

Keystone Homebrew Supply

435 Doylestown Rd.
Montgomeryville 18936
(215) 855-0100
sales@keystonehomebrew.com
24,000 sq. ft. of Fermentation Fun
www.keystonehomebrew.com

Lancaster Homebrew

1944 Lincoln Highway E
Lancaster 17602
(717) 517-8785
www.lancasterhomebrew.com
info@lancasterhomebrew.com
Your source for all your beer brewing and wine making needs!

Mr. Steve's Homebrew Supplies

3043 Columbia Ave.
Lancaster 17603
(717) 397-4818
www.mrsteves.com
email: mrsteve@mrsteves.com
Celebrating 17 years of friendly knowledgeable service!

Mr. Steve's Homebrew Supplies

2944 Whiteford Rd., Suite 5
York 17402
(717) 751-2255 or
1-800-815-9599
www.mrsteves.com
email: mrsteve@mrsteves.com
Celebrating 17 years of friendly knowledgeable service!

Porter House Brew Shop, LLC

1284 Perry Highway
Portersville 16051
(just north of Pittsburgh)
(724) 368-9771
www.porterhousebrewshop.com
Offering home-town customer service and quality products at a fair price. Large selection of home brewing, winemaking and kegging supplies. Now offering Winexpert Kits!

Ruffled Wine & Brewing Supplies

616 Allegheny River Blvd.
Oakmont 15139
(412) 828-7412
www.ruffledhomebrewing.com
Carrying a full line of quality kits, grains, hops, yeast & equipment. Also serving all your winemaking needs. Stop by or check us out online. Gift Cards Available!

Scotzin Brothers

65 N. Fifth St.
Lemoyne 17043
(717) 737-0483 or 1-800-791-1464
www.scotzinbros.com
Wed. & Sat. 10-5pm
Central PA's Largest IN-STORE Inventory!

South Hills Brewing - Greentree

2212 Noblestown Rd.
Pittsburgh 15205
(412) 937-0773
www.southhillsbrewing.com
Growing again to serve you better. Now stocking Spagnols wine kits and an expanded line of beer equipment. Visit our 3000 square foot showroom, or order online.

South Hills Brewing - Monroeville

2526 Mossdale Blvd.
Monroeville 15146
(412) 374-1240
www.southhillsbrewing.com
Located within minutes of Interstate 376, Rt 22, and the Pennsylvania Turnpike to serve our customers east of Pittsburgh. Visit us or order online.

Universal Carbonic Gas Co.

614 Gregg Ave.
Reading 19611
(610) 372-2565 fax: (610) 372-9690
email: readingdraft@verizon.net
Manufacturer, bottler & distributor of Reading Draft Premium sodas since 1921. Full line retailer of wine & beer kits (275+ in stock), supplies and equipment for pressing, kegging and tapping. Dry Ice on hand. We fill CO₂ cylinders on the spot and hydrotest as necessary.

Weak Knee Home Brew Supply

North End Shopping Center,
1300 N. Charlotte St.
Pottstown 19464
(610) 327-1450
fax: (610) 327-1451
www.weakkneehomebrew.com
BEER and WINE making supplies, varieties of HONEY, GRAPES & JUICES in season; KEGGERS, equipment & service; monthly classes and our unique TASTING BAR.

Windy Hill Wine Making

10998 Perry Highway
Meadville 16335
(814) 337-6871
www.windyhillwine.net
Northwest PA's beer and wine making store.
Hours: Tues - Fri 9am-6pm
Sat 9am-4pm, Closed Sun & Mon

Wine & Beer Emporium

100 Ridge Rd. #27
Chadds Ford 19317
(610) 558-BEER (2337)
winebeeremporium@aol.com
www.winebeeremporium.com
We carry a complete line of beer & winemaking supplies, honeys, cigars and more! Call for directions, please don't follow your GPS or online directions.

Wine & Beer Makers Outlet

202 South 3rd St. (Rt. 309)
Coopersburg 18036
(484) 863-1070
www.wineandbeermakersoutlet.com
info@wineandbeermakersoutlet.com
Great Beer • Great Wine • Outlet Prices

Wine, Barley & Hops Homebrew Supply

248 Bustleton Pike
Feasterville 19053
(215) 322-4780
info@winebarleyandhops.com
www.winebarleyandhops.com
Your source for premium beer & winemaking supplies, plus knowledgeable advice.

RHODE ISLAND

Blackstone Valley Brewing Supplies

407 Park Ave.
Woonsocket
(401) 765-3830
www.blackstonevalleybrewing.com
Quality Products and Personalized Service!

SOUTH CAROLINA

Bet-Mar Liquid Hobby Shop

736-F Saint Andrews Rd.
Columbia 29210
(803) 798-2033 or 1-800-882-7713
www.liquidhobby.com
Providing unmatched Value, Service & Quality to you for over 42 years!

SOUTH DAKOTA

GoodSpirits Fine Wine & Liquor

3300 S. Minnesota Ave.
Sioux Falls 57105
(605) 339-1500
www.gsfcw.com
Largest selection in South Dakota for the home brewer and wine-maker. We are located in the Taylor's Pantry Building on the corner of 41st & Minnesota Ave.

TENNESSEE

All Seasons Gardening & Brewing Supply

924 8th Ave. South
Nashville 37203
1-800-790-2188 fax: (615) 214-5468
local: (615) 214-5465
www.allseasonsnashville.com
Visit Our Store or Shop Online. Nashville's Largest Homebrew Supplier!

TEXAS

Austin Homebrew Supply

9129 Metric Blvd.
Austin 78758
1-800-890-BREW or (512) 300-BREW
www.austinhomewbrew.com
Huge online catalog!

Dallas Home Brew a division of The Wine Maker's Toy Store

1300 North Interstate 35E, Ste 106
Carrollton 75006
(866) 417-1114
www.finevinewines.com
Dallas' newest full service home brew supply store.

DeFalco's Home Wine and Beer Supplies

8715 Stella Link
Houston 77025
(713) 668-9440 fax: (713) 668-8856
www.defalcos.com
Check us out on-line!

Home Brew Party

15150 Nacogdoches Rd., Ste 130
San Antonio 78247
(210) 650-9070
info@homebrewparty.com
www.homebrewparty.com
Beer and wine making classes and supplies.

Homebrew Headquarters

300 N. Coit Rd., Suite 134
Richardson 75080
(972) 234-4411 or
1-800-966-4144
www.homebrewhq.com
Proudly serving the Dallas area
for 30+ years!

Keg Cowboy

2017 1/2 South Shepherd
Houston 77019
(281) 888-0507
www.kegcowboy.com
Covering all your draft and keg-
ging needs and wants. We also
now carry homebrew supplies,
CO₂ gas and organic ingredients.
Visit our website or stop by our
showroom in Houston.

Pappy's HomeBrew

3334 Old Goliad Rd.
Victoria 77905
(361) 576-1077
www.PappysHomebrew.com
Register for Monthly Drawing.

Stubby's Texas Brewing Inc.

5200 Airport Freeway, Ste. B
Haltom City 76117
(682) 647-1267
www.texasbrewinginc.com
info@texasbrewinginc.com
Your local home brew store with
on-line store prices.

UTAH

The Beer Nut

1200 S. State
Salt Lake City 84111
(888) 825-4697
fax: (801) 531-8605
www.beernut.com
"Make Beer not Bombs"™

VERMONT

Brewfest Beverage Co.

199 Main St.
Ludlow 05149
(802) 228-4261
www.brewfestbeverage.com
Supplying equipment & ingredi-
ents for all your homebrewing
needs. Largest selection of craft
beer in the area. Growlers poured
daily! "We're hoppy to serve
you!"

VIRGINIA

Blue Ridge Hydroponics & Home Brewing Co.

5327 D Williamson Rd.
Roanoke 24012
(540) 265-2483
www.blueridgehydroponics.com
Hours: Mon-Sat 11am - 6pm and
Sunday 10am - 2pm.

Fermentation Trap, Inc.

6420 Seminole Trail
Seminole Place Plaza #12
Barboursville 22923
(434) 985-2192
fax: (434) 985-2212
questions@fermentationtrap.com
www.fermentationtrap.com

HomeBrewUSA

96 West Mercury Blvd.
Hampton 23669
(757) 788-8001
www.homebrewusa.com
Largest Selection of Beer & Wine
Making Supplies & Equipment in
Southeastern Virginia!

HomeBrewUSA

5802 E. Virginia Beach Blvd., #115
JANAF Shopping Plaza
Norfolk 23502
1-888-459-BREW or
(757) 459-2739
www.homebrewusa.com
Largest Selection of Beer & Wine
Making Supplies & Equipment in
Southeastern Virginia!

Jay's Brewing Supplies

12644 Chapel Rd., Ste 113
Clifton 20124
(703) 543-2663
www.jaysbrewing.com
email: info@jaysbrewing.com
No matter if you're a novice or
advanced brewer, we have what
you need. Setting the standard
for brewing supplies & ingredi-
ents at competitive prices.

myLHBS

(myLocalHomebrewShop)

6201 Leesburg Pike #3
Falls Church
(703) 241-3874
www.myLHBS.com
All the basics plus unique and
hard-to-find Belgian and other
specialty ingredients.

WeekEnd Brewer - Home Beer & Wine Supply

4205 West Hundred Road
Chester/Richmond area 23831
1-800-320-1456 or
(804) 796-9760
beerinfo@weekendbrewer.com
www.weekendbrewer.com
LARGEST variety of malts & hops
in the area!

Wild Wolf Brewing Company

2773A Rockfish Valley Hwy.
Nellysford 22958
(434) 361-0088
askthewolf@wildwolfbeer.com
WildWolfBeer.com
Very well stocked Homebrew
Shop and Nanobrewery. All grain
demos every Saturday. Open
DAILY 10-7.

WASHINGTON

Bader Beer & Wine Supply, Inc.

711 Grand Blvd.
Vancouver, WA 98661
1-800-596-3610
Sign up for our free e-newsletter
at www.baderbrewing.com

The Beer Essentials

2624 South 112th St., #E-1
Lakewood 98499
(253) 581-4288
www.thebeeressentials.com
Mail order and secure on-line
ordering available. Complete line
of brewing and kegging supplies.

The Cellar Homebrew

Make your own beer & wine
14320 Greenwood Ave. N.
Seattle 98133
1-800-342-1871
FAST Reliable Service, 40 Years!
Secure ordering online
www.cellar-homebrew.com

Homebrew Heaven

9109 Evergreen Way
Everett 98204
1-800-850-BREW (2739)
fax: (425) 290-8336
brewheaven@aol.com
www.homebrewheaven.com
Voted Best Online Web Site
for Ordering

Ice Harbor

Homebrew Supply

206 N. Benton St. #C
Kennewick 99353
(509) 582-5340
www.iceharbor.com
Brewing and Wine-Making
Supplies.

Larry's Brewing Supply

7405 S. 212th St., #103
Kent
1-800-441-2739
www.larrysbrewsupply.com
Products for Home and
Craft Brewers!

Mountain Homebrew & Wine Supply

8530 122nd Ave. NE, B-2
Kirkland 98033
(425) 803-3996
info@mountainhomebrew.com
www.mountainhomebrew.com
The Northwest's premier home
brewing & winemaking store!

Northwest Brewers Supply

1006 6th Street
Anacortes 98221
(800) 460-7095
www.nwbrewers.com
All Your Brewing Needs
Since 1987

Sound Homebrew Supply

6505 5th Place S.
Seattle 98108
(855) 407-4156
info@soundhomebrew.com
soundhomebrew.com
Knowledgeable Staff.
Great Selection.

WISCONSIN

Brew & Grow (Madison)

3317 Agriculture Dr.
Madison 53716
(608) 226-8910
www.brewandgrow.com
Visit our store for a great selec-
tion of brewing equipment and
supplies. The largest inventory of
organics, hydroponics and plant
lighting in Wisconsin.

Brew & Grow (Waukesha)

2246 Bluemound Rd.
Waukesha 53186
(262) 717-0666
www.brewandgrow.com
Visit our store for a great selec-
tion of brewing equipment and
supplies. The largest inventory of
organics, hydroponics and plant
lighting in Wisconsin.

House of Homebrew

410 Dousman St.
Green Bay 54303
(920) 435-1007
staff@houseofhomebrew.com
www.houseofhomebrew.com
Beer, Wine, Cider, Mead, Soda,
Coffee, Tea, Cheese Making.

Northern Brewer

1306 S. 108th St.
West Allis 53214
1-800-681-2739
www.northernbrewer.com
Call or Write for a FREE
CATALOG!

Point Brew Supply & O'so Brewing Co.

3038 Village Park Drive
I-39/Exit 153
Plover 54467
(715) 342-9535
marc@pointbrewsupply.com
www.pointbrewsupply.com
www.osobrewing.com
"The Feel Good Store with a team
of Professional Brewers on Staff"

The Purple Foot

3167 South 92nd St.
Milwaukee 53227
(414) 327-2130
fax: (414) 327-6682
wineandbeer@purplefootusa.com
www.purplefootusa.com
Top quality wine and beer supply -
Call for a FREE catalog!

**WindRiver
Brewing Co., Inc**
861 10th Ave.
Barron 54812
1-800-266-4677
www.windriverbrew.com
*FREE catalog. Fast
nationwide shipping.*

Wine & Hop Shop
1931 Monroe Street
Madison 53711
1-800-657-5199
www.wineandhop.com
*Southern Wisconsin's largest
selection of beer & winemaking
supplies. 10 varieties of winemak-
ing grapes from Mitchell Vineyard.*

AUSTRALIA

VICTORIA

**Grain and
Grape Pty LTD.**
5/280 Whitehall St.
Yarraville 3013
(03) 9687 0061
www.grainandgrape.com.au
*Equipment, ingredients and
advice for the beginner & expert.
Full mail order service.*

CANADA

BRITISH COLUMBIA

**Bosagrape
Winery Supplies**
6908 Palm Ave.
Burnaby V5E 4E5
(604) 473-9463
www.bosagrape.com
*Not only for wineries! Best
selection of Beer & Wine Making
Ingredients, Supplies & Equipment.*

**Hop Dawgs
Homebrewing Supplies**
Vernon (250) 275-4911
www.hopdawgs.ca
*Fast mail order service for,
Brewing Equipment.
Kegging Equipment.
Malts, Hops, Yeasts.*

ONTARIO

**Canadian Homebrew
Supplies**
10 Wilkinson Rd., Unit 1
Brampton L6T 5B1
(905) 450-0191
chs-store@bellnet.ca
www.homebrew-supplies.ca
*Drink a Beer, Waste an Hour.
Brew a Beer, Waste a Lifetime!
For all your homebrew supply
needs and wants.*

**Innovation
Homebrewing Supply**
Your Canadian online
discount supplier!
Windsor, ON
(519) 997-5175
info@ihomebrewing.ca
www.ihomebrewing.ca
*Offering Premium Ingredients,
personal service and B&S Custom
Brewing Equipment.*

NORWAY

Bryggeland
Gjerdrumsgata 20
Lillestrøm
Tel: (+47) 63 80 38 00
www.Bryggeland.no
*Alt man trenger for å lage øl og vin.
"Fra råvare til nytelse"
Butikker i Oslo og Lillestrøm.*

Petit Agentur AS
7977 Hoylandet
Phone: (0047) 7432-1400
Web: petit-agentur.no
Mail: post@petit-agentur.no
*Home made beer made fun!
Your best source for everything
you need to brew your own Beer.*

SWEDEN

**Humlegårdens
Ekolager AB**
Fabriksvägen 5 B
SE-18632 Vallentuna
(+46) 8 514 501 20
fax: (+46) 8 514 501 21
Email: info@humle.se
Website: shop.humle.se
*50+ book titles, 50+ malt types,
60+ hop varieties, 100+ yeast
strains. Fast order handling and
shipping to 25 countries in Europe.*

SHOP OWNERS:
Reach 135,000
active homebrewers
in print and 53,000
online every month!



List your store in the
Homebrew Directory
- call Dave @
802-362-3981 ext. 107

SAVE TIME!

24/7 Customer Service is only a Click Away

- Change your Address
- Check your Subscription Status
- Renew, Pay a Bill, or Give a Gift
- Replace Missing Issues

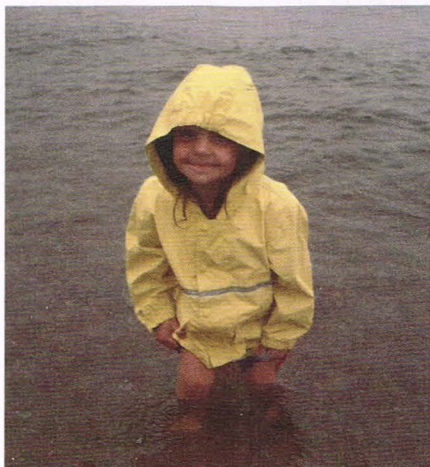
Our online customer service is available 24 hours a day.
Just click on the Magazine Customer Service link in the
upper right corner on every page of byo.com

Hope for Emma

How Homebrew Can Help

Eric Wentling • Waconia, Minnesota

“As of October, 2011, Emma's final bone marrow biopsy results were negative for neuroblastoma, which means that she is officially, 100%, really and truly **CANCER FREE.**”



Emma German's battle with a form of childhood cancer inspired homebrewers to organize an event in her honor.

What do a young girl, cancer, hope and homebrewing have in common?

In 2010, four-year-old Emma German was diagnosed with neuroblastoma, a malignant childhood cancer. Emma's dad, Chris, a member of the Jack of All Brews homebrew club, sells grain and brewing supplies to commercial breweries and homebrew shops. Jack of All Brews (JAB) wanted to do something special for their friend and his family, so after some brainstorming, the club decided to host a beer-centric benefit for Emma.

The club contacted several local Minnesota breweries and brewpubs who generously supplied the club with beer to serve at the event as well as donated prizes to hand out. When all of the equipment, products and promotional items started arriving, however, the club decided they wanted to create an even bigger draw to increase event attendance. When JAB members learned that Northern Brewer had created an English brown ale kit called “Emma's Ale,” with all the proceeds going toward pediatric cancer research and treatment at Children's Hospital and Clinics, the lightbulb turned on and JAB members incorporated a homebrew challenge into the benefit: brew your own version of “Emma's Ale.”

From all-grain, boil-in-bag and extract with grain versions, many enterprising JAB members embraced the brewing challenge and added some unique twists to the base recipe: pumpkin, spices, smoke, vanilla, bourbon-soaked oak chips and many more formulas — more than 18 different interpretations were concocted!

By the time the day of the benefit arrived, homebrew supply companies, yeast companies, club members and local liquor stores had all jumped on board for an amazing lineup of silent auction items, and the staff from

Brewing TV captured the action and even donated a televised brew session to the silent auction. Emma and her brother Brady got in on the fun by drawing the winning raffle tickets.

During the benefit, taps and bottles of the various “Emma's Ale” interpretations were rotated and the public had an opportunity to vote for their favorite version. It was very hard to choose the best, as a lot of club members pushed the envelope of the English brown style. The winner of the traveling Golden Mash Paddle Trophy, however, was Keith Brady, who brewed a chipotle and honey version. The runner-up was Emma's dad's German cocoa-nibbed ale.

Not only was the event a great time, it earned \$3,300 for the family! The event has also generated a significant nationwide response from other homebrewers and clubs who have brewed the “Emma's Ale” kit. Emma received chemotherapy treatment and had her tumor removed at Children's Hospital in Minneapolis, followed by a bone marrow transplant at Fairview University Children's Hospital. As of October, 2011, Emma's final bone marrow biopsy results were negative for neuroblastoma, which means that she is officially, 100%, really and truly **CANCER FREE.**

The “Emma's Ale” kit is still available from Northern Brewer, so it's not too late to brew up a batch and help cure childhood cancer! If you want to follow Emma's progress, check out her CaringBridge site: www.caringbridge.org/visit/emmagerman

To see video of the Hope for Emma Event and tell us about your experiences with the Emma's Ale Kit, go to: www.jackofallbrews.org.

Donations can be made to “Hope For Emma” fund at: State Bank of Belle Plaine, PO Box 87, 201 West Main Street, Belle Plaine, Minnesota 56011-0087 

I KNEW EVERYONE WOULD
BE AT HAROLD'S PARTY.
HE HAS HOMEBREW.

FINE. GO AHEAD AND
ORDER THAT KIT FROM
MIDWEST SUPPLIES.

HAPPY NEW YEAR FROM YOUR FRIENDS AT

MIDWEST
SUPPLIES

HOMEBREWING & WINEMAKING

MidwestSupplies.com • 877-364-2097

Wyeast Culture Collection

100% Pure Liquid Yeast



1007 German Ale • 1010 American Wheat • 1028 London Ale • 1056 American Ale® • 1084 Irish Ale • 1098 British Ale • 1099 Whitbread Ale • 1107 Ringwood Ale • 1214 Belgian Abbey • 1272 American Ale II • 1275 Thames Valley Ale • 1318 London Ale III • 1332 Northwest Ale • 1335 British Ale II • 1338 European Lager • 1450 Denny's Favorite 50 • 1728 Scottish Ale • 1762 Belgian Abbey • 2000 Budvar Lager • 2001 Urquell Lager • 2007 Pilsen Lager • 2035 American Lager • 2112 California Lager • 2124 Bohemian Lager • 2206 Bavarian Lager • 2278 Czech Pils • 2308 Munich Lager • 2565 Kolsch • 2633 Oktoberfest Lager Blend • 3056 Bavarian Wheat Blend • 3068 Weihenstephan Weizen • 3278 Belgian Lambic Blend • 3333 German Wheat • 3463 Forbidden Fruit • 3522 Belgian Ardennes • 3638 Bavarian Wheat • 3711 French Saison • 3724 Belgian Saison • 3763 Roeselare Ale Blend • 3787 Trappist High Gravity • 3942 Belgian Wheat • 3944 Belgian Witbier • 5112 Brettanomyces bruxellensis • 5335 Lactobacillus • 5526 Brettanomyces lambicus • 5733 Pediococcus

Private Collection

Available January through March 2012

1581-PC Belgian Stout • 1882-PC Thames Valley II • 2487-PC Hella Bock

www.wyeastlab.com

© 2012 Wyeast Laboratories Inc.