BIG Bad Barleywine BIGGEST the of the Ales

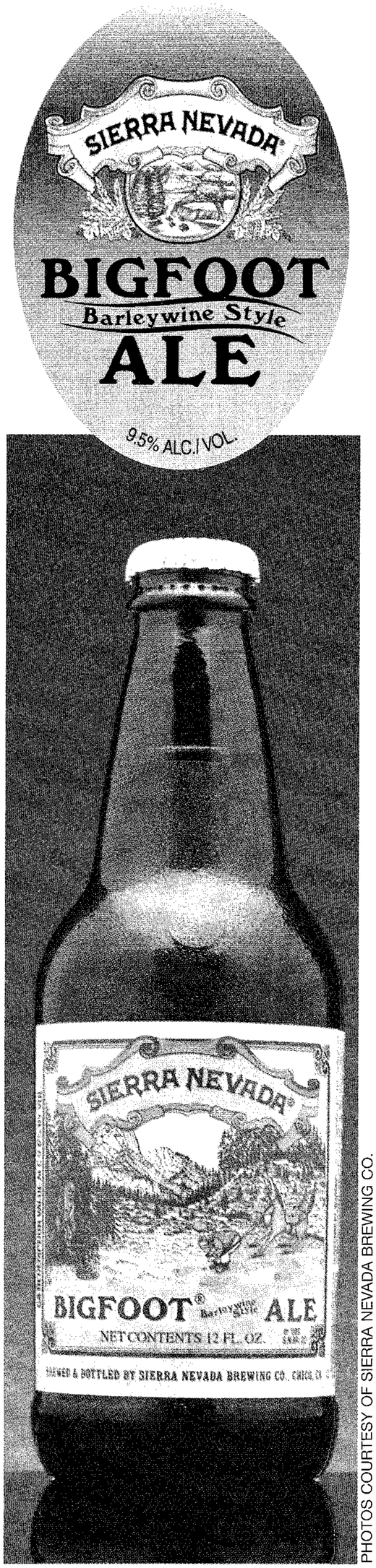
by Horst Dornbusch

BARLEYWINE by the numbers

OG	preferably at least 1.090
FG	often between 1.020 and 1.032 (5–8°P)
SRM	can vary between 10 and 20
IBU	anywhere between 20 and 100
ABV	decidedly high; 8%–14+%

BARLEYWINE is both a very old and a very young style. It is old, because its origins lie in the ancient British custom of taking several runnings from the same mash and fermenting them separately — a technique known as partigyle brewing. It is young, because its modern name and definition have evolved only in the early part of the twentieth century. The oldest known designation of a barleywine is Bass #1 beer, dating from 1903. Number one was their beer made from first runnings. Bass, and many other English breweries, had numbered beers ranging from barleywines to old ales and on down to mild ales. The higher the number, the weaker the beer.

When the marketing wizards searched for a name with mass appeal, they stumbled upon the suggestive term "barleywine." The suffix "wine" is of course a misnomer, because this brew has nothing to do with fermented fruit juice. It is pure essence of grain! In this context, it is interesting to note that barleywine has been marketed not only with the "high-brow" comparison to wine, but in very low brow ways that simply hyped its alcoholic strength. Whitbread, for example, used to advertise its Gold Label as "twice as strong as a double Scotch, and half the price." Health-inspired advertising regulations put a halt to such come-ons. As is apparent from the box "Barley Wine by the Numbers," however, there is very little that seems to be definite about the style's specifications.



PHOTOS COURTESY OF SIERRA NEVADA BREWING CO.

Any style description is by its very nature a broad generalization. This is the more so with barleywine. So here is a very short, simple and vague — albeit accurate — prescription for the barleywine maker: Make the strongest-possible, barley-based, blond-to-brown beer that your system will allow. Hop it any way you wish. Then ferment it with any type of ale yeast that is sufficiently resilient to finish the job.

Many brewers, however, wish to be more specific. They divide barleywine into two subcategories, English and American. The American style tends to have more hop bitterness, often with a liberal use of flavor and aroma hops. Anchor's Old Foghorn, first brewed in 1975, paved the way for modern American barleywines, but Sierra Nevada's Bigfoot is perhaps the standard bearer for this substyle. Bass #1, long an excellent example of the English substyle, was phased out in 1995. Perhaps, like Thomas Hardy Ale, which was out of production for the 2000–2003 vintages, it will be revived.

There is a wide variation in starting and finishing gravities of commercial barleywines. Most begin at specific gravities of 1.090–1.100 and finish in the lower 20's (SG 1.020–1.023), yielding levels of alcohol by volume (ABV) of 8–10%. However, you don't have to search too hard to find much stronger examples, many up to 14% ABV. The biggest barleywine is Sam Adams Utopia MMII at a whopping 25% ABV.

The bigger the barleywine, the higher its final gravity (FG) tends to be. Many of the biggest barleywines have FGs into the mid-30s. On the opposite end of the spectrum, you don't have to look too hard for smaller beers labeled as barleywine, either. Young's Old Nick's Barleywine, for example, has a mere 7.25% alcohol.

The barleywine's original gravity target is, of course, more of a challenge to the dedicated all-grainer than it is to the extract brewer. All-grain brewers, will want their systems to deliver first runnings of as high a gravity as possible, perhaps up to 1.090. The wort can be further thickened by extended boiling or by adding malt extract.

The extract brewer, by contrast, just has to keep that can opener handy to bump up their kettle gravity.

In the fermentation department, on the other hand, brewers of both the all-grain and the extract persuasion have the same problem of yeast husbandry. You have to be nice to the little critters to coax the last bit of alcohol out of their metabolic system. Like wine from grapes, the alcoholic strength of a barleywine should be at least 8% alcohol by volume (ABV). For the signature characteristics of this beer, you should also be able to taste the alcohol, which again means an alcohol level of at least 8% ABV. To achieve this result, you have to make a brew with a gravity drop between at least 65 points during fermentation!

As a high-alcohol brew, barleywine needs to be aged like a good grape wine before it reaches its full potential. How long is up to you, but you should consider six months in the bottle for a brew with greatness. Reputedly the best barleywines can be kept for a quarter century before they are over the hill. At least, that is what Thomas Hardy Ale bottles used to proclaim. Traditionally breweries have released their barleywines almost like vintages — as limited, special-occasion, seasonal brews, often distributed around Christmas. So if you want to have your barleywine well matured and ready for drinking in winter, you must brew with some lead time. How much lead time is a matter of opinion. Sierra Nevada's Bigfoot is not aged very much longer than their normal ales. Of course, plenty of homebrewers buy a "vintage" of Bigfoot and cellar it for a year or two before sampling.

The Trouble with Barleywine

Getting to a barleywine's daunting original gravity can take blood, sweat, tears, trepidation and above all, improvisation. Here is the problem: Your mash tun is likely to be designed for "normal" brews, that is, for the production of wort up to an original gravity of perhaps 1.060, maybe even 1.080. To brew your standard batch size of five gallons (19 L) of barleywine, however, you would have to do the impossible: to squeeze about twice as much grain into your mash tun than it can comfortably hold. This is of course based on the *ceteris paribus* assumption (the assumption that all else is equal), which unfortunately is questionable in barleywine making. When you strive for such a rich wort, you encounter all sorts of pesky process problems, because the compact, heavy grain bed is almost certainly going to make your run-off difficult. If you overstuff your mash tun (as I have done many times), you create less than perfect run-off conditions. Then it becomes difficult to wash all the sugars out of the mash, and as a result the kettle gravity might not climb above the mid-1.080 range.

There are many things you can do, however, to reach your target OG. First of all, you should strive to mash thick and collect as high-gravity a wort as is feasible. Often this means terminating the sparge at a much higher gravity — up to 1.060 — than you normally would. Terminating a sparge early results in a much lower extract efficiency. This in turn requires you to add more grain, up to 50% more, than your normal extract efficiency would indicate. (Remember, you can always run off additional wort and make one (or more) smaller beers after your barleywine wort production.)

If your kettle gravity is still substantially low after wort collection, you may to need an extended boil, up to 5 hours for the biggest brews. A much simpler route is to add malt extract to make up the deficit. As a rule of thumb, a pound of DME in 5 gallons (19 L) of wort boosts the gravity 9.0 points, for example from 1.081 to 1.090. A pound of LME in 5 gallons (19 L) of wort boosts the gravity 6.6–7.4 points.

Some homebrewers make smaller batches of barleywine, as they don't need to overstuff their mash tun. It's also possible to make wort on two subsequent brewing days and combine them to make a full five gallons (19 L).

Because it is next to impossible to predict how much high-gravity wort — if any! — your system will allow you to get from a certain quantity of grain, the specifications listed in the recipes need to be understood more as guidelines than as rigid prescriptions. To dredge up a tired phrase, brewing an authentic barleywine is clearly much more art than science. Brewers, even commercial brewers, used to "hitting the numbers" when making

UNEARTHING SOME BIG BREWS

Gigantopithecus
American-Style Barleywine
(5 gallons/19 L, extract with grains)
OG = 1.109–1.114 FG = 1.027–1.029
IBU = 73–75 SRM = 11
ABV = 10.5–11%

One million years ago, the primate Gigantopithecus *inhabited the forests of China. At a height of 8 feet 2 inches (2.5 m), and weighing up to 595 lbs. (270 kg), it was bigger than modern day gorillas or even — dare I say it? — Bigfoot. This American-style barleywine has a huge hop flavor and nose and was formulated to age well for at least two years.*

Ingredients

7.0 lbs. (3.2 kg) Briess dried malt extract
6.6 lbs. (3.0 kg) Coopers liquid malt extract
0.5 lb. (0.22 kg) Briess crystal malt (40 °L)
1/2 tsp. gypsum
1/4 tsp. yeast nutrients
1 tsp. Irish moss
10 AAU Willamette hops (60 mins) (2.0 oz./57 g of 5.0% alpha acids)
10 AAU Willamette hops (45 mins) (2.0 oz./57 g of 5.0% alpha acids)
10 AAU Columbus hops (30 mins) (1.0 oz./28 g of 10% alpha acids)
0.8 oz./23 g Cascades hops (15 mins)
1.75 oz./50 g Cascades leaf hops
Wyeast 1056 (American Ale) or White Labs WLP001 (California Ale) yeast (1 gallon/~4 L starter)

Step by Step

Yeast starter: Add 1.0 lb. (0.45 kg) DME or 1.25 lbs (0.57 kg) LME to one gallon of water, boil for 15 minutes, cool, aerate, pitch yeast and let ferment for 4–5 days at 72–75 °F (22–24 °C). **Brew day:** Carbon filter 1 quart (~1 L) of tap water and heat it to 161 °F (72 °C) in a 3 qt. (~3 L) soup pot. Add 3 gallons (11 L) of distilled water to your large brewpot and begin heating. Place crushed crystal malt in a nylon or muslin bag. Steep grains in the small pot, keeping the temperature between 150–168 °F (66–76 °C) for 30 minutes — or longer if the water in your brewpot has not reached 150 °F (66 °C). Remove grain bag from small pot with a clean kitchen strainer and hold over large pot. With a large measuring cup, scoop 1 qt. (~1 L) of hot water (150–168 °F/66–76 °C) from brewpot and rinse grains. Pour grain tea from small pot into brewpot, stir and heat to a boil. Remove brewpot from burner and stir in DME. Return to burner and heat to a boil. Once the initial foam subsides, add the first charge of bittering hops and gypsum. Boil for 60 minutes. Add remaining Willamette hops with 45 minutes left in boil and Columbus hops with 30 minutes left in boil. With 15 minutes left in the boil, add Cascade pellet hops, Irish moss and yeast nutrients. When boil is over, remove the pot from the burner and stir in the LME. Let brewpot sit for 15 minutes with the cover on. The temperature should stay above 170 °F (77 °C) for this period. Cool wort to 75 °F (24 °C) and let sit undisturbed for 45–90 minutes to let the break material and substantial amount of hop particles settle. Siphon wort to fermenter and add distilled water to make 5 gallons (19 L). Aerate wort well, preferably with an oxygen tank, and pitch sediment from yeast starter. Ferment at 70–72 °F (21–22 °C) until primary fermentation ends, about 14–17 days. Rack to secondary fermenter, preferably one with little or no headspace. Condition at 60–70 °F (16–21 °C), with temperatures at the lower end preferred, for twice as long as primary fermentation took. Add dry hops five days before bottling or add to keg. Bottle or keg beer, being careful to avoid any oxygenation from splashing or overly vigorous stirring. Bottle condition beer for two to three weeks. If possible, cold condition the beer in your refrigerator for at least four months. **Extended aging:** This beer will taste aggressively hoppy early on, but will lose its sharp edges with aging. Don't sample the batch to extinction before it matures. Label and set aside at least a couple six packs and "forget" about them for year or two.

Dunkleosteus
English-style Barleywine
(5 gallons/19 L, all-grain with supplemental extract)
OG = 1.122 FG = 1.026
IBU = 51 SRM = 15 ABV = 12.4%

Dunkleosteus *was a placoderm, an armored fish of the Devonian period. It grew up to 20 feet (6.1 m) long and was the largest vertebrate to live up to that point in Earth's history.* Dunkleosteus *used its massive, crushing jaws to tear apart prey. Its teeth marks are found in fossilized prey species of the period. This English-style barleywine — loosely based on Bass #1, another "fishy" big brew — is also a big brute.*

Ingredients

14.0 lbs (6.4 kg) Maris Otter pale ale malt
0.66 lbs. (0.30 kg) English crystal malt (60 °L)
3.5 lbs. (1.6 kg) Muntons DME
2.0 lbs. (0.91 kg) sucrose (preferably invert sugar)
1/4 tsp. gypsum
1/4 tsp. yeast nutrients
1 tsp. Irish moss
15 AAU East Kent Goldings hops (bittering/60 mins) (3.0 oz./85 g of 5.0% alpha acids)
2.5 AAU Fuggles hops (20 mins) (0.5 oz./14 g of 5.0% alpha acids)
0.33 oz./9.4 g Fuggles hops (0 mins)
Wyeast 1968 (London ESB) or White Labs WLP002 (English Ale) yeast (1 gallon/~4 L starter for primary fermentation, make 1 pint/250 mL starter for secondary)

Step by Step

Yeast starter: Add 1.0 lb. (0.45 kg) DME or 1.25 lbs (0.57 kg) LME to one gallon of water, boil for 15 minutes, cool, aerate and let ferment for 4–5 days at 72–75 °F (22–24 °C). **Brew day:** Heat 4.6 gallons (17 L) of strike water to 163 °F (73 °C). Add crushed grains to your brew kettle, stir in strike water and mash grains at 152 °F (66 °C) for 1 hour. After the saccharification rest, heat mash slowly to 162 °F (72 °C) by adding heat in bursts of 1–2 minutes,

stirring constantly. Transfer the mash to your lauter tun and recirculate the wort for 20 minutes. Runoff all wort from lauter tun. Do not add sparge water. Once the first batch of wort is collected, stir about 3.5 gallons (13 L) of sparge water at 170 °F (77 °C) into the grain bed. Recirculate again and drain off wort. Boil the just over 7 gallons (26 L) of wort down to just over 5 gallons (19 L). This should take a little over two hours. Add gypsum at the beginning of the boil. Add DME with 90 minutes left in boil. Add hops according to the schedule given in the recipe. Add Irish moss and yeast nutrients with 15 minutes remaining in the boil. After the boil, chill the wort to 68 °F (20 °C), aerate — preferably with oxygen — and pitch sediment from yeast starter. Let ferment at 68–70 °F (20–21 °C) until primary fermentation ends, which should take 2–3 weeks. Rack to secondary, add second dose of fresh yeast, and let sit for two weeks at 65–68 °F (18–20 °C). If possible, bulk condition at 40–45 °F (4.4–7.2 °C) for three months. Bottle or keg, minimizing any splashing or other aeration of the beer. **Extended aging:** With age, the malty, sweet flavors of this beer will take on sherry notes.

Pterygotus Big Brown

(5 gallons/19 L, partial mash)
OG = 1.090 FG = 1.022
IBU = 42 SRM = 24 ABV = 8.7%

In the Devonian period, the eurypterid Pterygotus *hunted on the murky bottom of the sea floor. At 6.5 ft. (2.0 m) long, it was the largest arthropod that ever lived — bigger than any scorpion, lobster or beetle living today. This massively malty brew with a hint of dark, roasty flavor is as dark as the seabed* Pterygotus *called home.*

Ingredients

9.0 lbs. (4.1 kg) DME
0.5 lbs. (0.23 kg) 2-row Pilsner malt
0.25 lbs. (0.11 kg) Vienna malt
0.25 lbs. (0.11 kg) Munich malt
0.33 lbs. (0.15 kg) crystal malt (30 °L)
0.33 lbs. (0.15 kg) crystal malt (60 °L)
3.0 oz. (85 g) chocolate malt
1.5 oz (43 g) roasted malt
1/4 tsp. gypsum
1/4 tsp. yeast nutrients
1 tsp. Irish moss
12.5 AAU Northern Brewer hops (bittering)
(1.8 oz./51 g of 7% alpha acids)
Wyeast 1028 (London Ale) or White Labs WLP013 (London Ale) yeast
(0.75 gallon/3 L starter)

Step by Step

Yeast starter: Add 0.75 lb. (0.34 kg) DME or 0.94 lbs (0.43 kg) LME to one gallon of water, boil for 15 minutes, cool, aerate, pitch yeast and let ferment for 4–5 days at 72–75 °F (22–24 °C). **Brew day:** Carbon filter 0.66–0.75 gallons (2.5–2.8 L) of tap water and heat to 170 °F (77 °C) in a 6-8 qt. (~6–8 L) stockpot. Place crushed grains in nylon or muslin steeping bag and mash at 158 °F (70 °C) for 45–60 minutes. Add 3 gallons (11 L) of distilled water in your brewpot and heat to 170 °F (77 °C) while grains mash in other pot. Remove grain bag from partial mash with a large kitchen strainer and place over brewpot. Scoop 0.5 gallons (1.9 L) of water (at 165–170 °F/74–77 °C) from brewpot and pour through grainbag, rinsing the grains. Pour partial mash wort from stockpot into brewpot and heat this wort to a boil. Remove pot from burner and stir in malt extract. Resume heating and bring to a boil. After the foam subsides, add bittering hops and gypsum. Boil for 60 minutes. With 15 minutes left in the boil, add the Irish moss and yeast nutrients. Cool wort to 72 °F (22 °C) and rack to fermenter. Add distilled water to make 5 gallons (19 L) of wort. Aerate well and pitch yeast sediment from starter. Ferment at 68–70 °F (20–21 °C) until primary fermentation ends, about 10 days. Add second dose of yeast and rack to secondary three to four days later. Let condition in secondary for two weeks. Bottle and let condition at room temperature for two to three weeks. **Extended aging:** This beer may taste "muddy" early on but should clear and reach its peak flavor in nine to 12 months.

normal-strength beers often fall short of the mark when brewing barleywine. So, even if you're a number-cruncher, be prepared to go with the flow on brew day. Your beer can be great, even if it doesn't exactly match the specification of your ProMash printout.

In many commercial brew houses, brewers mash in a jacketed, steam-heated mash tun with a powerful recirculation pump and strong mash agitator that can churn the grain at 20 rotations per minute. However, even the equipment in a commercial brewhouse doesn't ensure an easy brewday. Ashton Lewis — head brewer at Springfield Brewing (and technical editor of BYO) — says, "Brewing big beers like barleywines can be a real nightmare. Our brewhouse has an agitated mash mixer and a lauter tun with height adjustable rakes with a variable drive for the rake speed. Mash-in can be a bear because the mash thickness is typically higher in big brew mashes to keep the mash volume within our system limits. This makes agitation and even mash distribution difficult, even with our really nice mash mixer. The real fun begins in the lauter tun. Most lauter tuns are designed around "normal gravity" brews to have a grain bed depth of about 12". When the idea is to double the gravity the grist charge must increase accordingly. Slow runoffs and higher differential pressures across the grain bed means more frequent cutting with the raking machine. This in turn can cause wort clarity problems. The net result is stress in the brewhouse! Then the day ends by determining how much wort we actually were able to collect to hit the target gravity. At this point we calculate the hop weights. In our standard brews we know how much wort we'll end up with after the boil, plus or minus 2%, so we use a pre-determined weight of hops. My advice is to hang loose and be flexible with your brewing plans."

In a homebrewery, you will likewise have a challenging brewday. One thing I would suggest is, instead of overstuffing your mash tun, make either a small batch of barleywine or brew twice. If you combine two (or more) batches into the same fermenter,

these should probably not be more than two days apart so that you can aerate the ferment on the second day without spoiling it.

Try to hit the correct gravity even if you cannot hit the expected volume. This requires that you adjust your hop quantities if you collect less than the expected amount of wort.

Finally, be prepared to "thicken" your wort through an extra long boil, the addition of malt extract or both.

Mash Tun Tricks for Big Brews

Given the enormous size of the barleywine grain bill and the need to produce fermentables for that enormous gravity drop that will yield the enormous amount of alcohol, I would worry mostly about the activity of beta amylase in the mash tun and about sugar extraction techniques.

We know that beta amylase enzymes from barley start showing activity at temperatures as low as 104 °F (40 °C), but that these enzymes reach their peak performance as they approach a temperature of 149 °F (65 °C). At temperatures above 149 °F (65 °C), beta amylase activity slows down. At 158 °F (70 °C), it all but stops. Most of the sugar produced by beta amylase is maltose, which is a two-molecule sugar (disaccharide). Beta amylase also produces a certain amount of other fully fermentable sugars. Because we are after these sugars, we should mash in at about 149°F (65°C). At this peak temperature, almost all beta diastatic conversion is complete after about 10 minutes, provided the mash pH is roughly between 5.2 and 5.4.

Although making a thick wort is paramount to barleywine production, there is a minimum amount of water needed to get proper conversion of the mash. As a general rule of thumb, do not mash any thicker than one quart of water per pound of grain (2.1 L/kg). And of course, don't dilute the wort by adding near-boiling water after the conversion stand for a mash out.

It may be easier, however, to create these fermentable sugars than it is to remove them mechanically from the heavy grain bed. Recirculation of the wort for perhaps as much as one hour is the only answer here. During such a long rest with prolonged recirculation, unfortunately, your mash is likely to lose too much thermal energy. So you need to re-supply your mash with heat. For brewers with RIMS or HERMS systems, this is not a problem. For brewers with manual breweries, simply draw about 1 qt. (1 L) of the run-off at a time into a pot and heat it quickly on the stove to about 190 °F (88 °C). Then carefully ladle the hot wort back over the top of the mash tun.

This infusion of heat from the recirculating wort will gradually raise the temperature of your mash and promote alpha amylase activity as well.

Alpha amylase start showing activity at around 140 °F (60 °C). They reach their peak performance in the mash as the temperature approaches 162 °F (72 °C). Their activity slows down above 162 °F (72 °C) and virtually ceases at around 176 °F (80 °C). These enzymes change starches into complex, mostly unfermentable sugars, but a large portion of these are then broken down further into simple, fermentable sugars by the still-active beta amylase enzymes.

With this trick you should be able to get the gravity of your run-off well above 1.090 or even 1.100 within the hour-long rest.

Once your run-off is at the right gravity, direct it into your kettle and start sparging with 190 °F (88 °C) water. Measure the mash temperature periodically to make sure it does not exceed 170 °F (77 °C), because you do not want to leach too many unconverted starches and grain tannins into the kettle. Also measure the kettle gravity periodically. Discontinue the sparge a few points short of your desired original gravity, unless you plan an extended boil or to supplement your wort with malt extract.

As for the grain in the mash tun, you can simply discard it even though it still contains some sugar. Or you can resume sparging, but into a separate container, until the gravity of the run-off reaches about 1.014. You can then boil this leftover wort for a separate surprise mild ale, which may still have an OG in the mid-1.030s. Just use any ale yeast and hops you have handy. Shoot for a bittering target of 4 AAU (about 0.75 oz./21 g of 5.0% alpha acid). Use about a quarter ounce each of flavor and aroma hops.

Partial-Mash Tricks

Given the vast quantities of grain involved in making a barleywine, using grain bags for partial mashing is probably a futile exercise. Instead, simply place the cracked grain into about three gallons of 190 °F (88 °C) water and let it steep for about half an hour. Then carefully strain the grain through a household sieve lined with several layers of cheesecloth. Get a helper to tilt the receiving pot during this procedure to minimize hot-side aeration. Then alternately stir in the canned malt bit by bit and add boiling water, and keep measuring the kettle gravity for guidance. Your target is at least an OG of 1.090 at five gallons (19 L), but you do not need to be exact at this stage, because you can always correct for any evaporation loss and thus for gravity after the boil.

Another way of making a barleywine is to start out with a full mash, but do not worry about your kettle gravity as you collect the wort. Simply collect 5.5–6.0 gallons (21–23 L) of wort and correct the gravity by adding malt extract until you reach your target OG. Boil this wort 60–90 minutes to yield 5 gallons (19 L).

All-Extract Tricks

As a rough guideline, consider that about 1 lb. (0.45 kg) of British-style liquid extract (such as Muntons) produces about 6.8 gravity points in a 5-gallon (19-L) batch. This value, of course, varies depending on your extract brand. Just for comparison, with a typical German-style liquid extract (such as Weyermann), the analogous number tends to be closer to 7.4 gravity points. The typical 1 lb. (0.45 kg) of DME by comparison, dissolved in 5 gallons (19 L) of wort, produces an increase of about 9 gravity points.

For a barleywine wort of at least OG 1.090, therefore, you would need at least 16.2 lbs. (7.3 kg) of British-style

liquid malt extract. If you used a German-style extract, the quantity would be closer to 13.75 lbs. (6.2 kg). If you used DME only, it would be closer to 10.5 lbs. (4.7 kg). Conveniently, five 1.5 kg (3.3 lbs.) cans of extract amount to 16.5 lbs. which will give you 5 gallons of British-style wort at a hypothetical OG of 1.112. This is why this quantity of pale malt extract has been built into the partial-mash and all-extract recipes.

In general, however, do not rely just on math for your quantities. Always measure your gravities with a hydrometer to confirm that your results are indeed what you intended them to be.

Note that the IBU-values in the recipes are given as ranges. This is because hops utilization rates decline unpredictably in high-gravity worts. So, for all practical purposes, these values must be approximate and educated guesses.

The Trouble with Attenuation

You need a real cranker of a yeast to get the high-gravity barleywine to give up its sugar. Remember that pure yeast strains were isolated by the Danish botanist Emil Christian Hansen only in 1881, but big beers have been around for centuries. So, with uncontrolled yeasts, it is not unlikely that some of the heavies used to get stuck at final gravities as high as in the mid-1.050s in the old days. Instead of high-alcohol brews such beers were just sweet, high-calorie brews. So pitching the right, alcohol-tolerant yeast is essential. It is also essential to get some of that British ale flavor into the big brew.

Most successful home barleywine brewers pitch either the yeast sediment from a large starter or yeast from a previous batch of beer. A one gallon (3.8 L starter) or two cups (474 mL) of yeast slurry should do the trick for most barleywines. One trick I use is to pitch several different types of yeast right from the start, with some for the right flavor and others for the right cranking power.

Given the enormous labor that goes into making a barleywine, I tend not to be skimpy when it comes to ingredients. So I usually pitch four packages of different liquid yeasts for a heavy-duty big ale. This automatically increases the start-up yeast count, which is always important in a high-gravity wort. Second, as the brew goes through its initial fermentation phase, when the alcohol level is still fairly low, you can take advantage of those ale yeasts that have great British flavor characteristics but might have a low tolerance for alcohol. Wyeast 1028 (London Ale) is a good choice for obtaining the fruity, estery characteristics of a typical British-style ale, but it will probably be the first yeast to go dormant, i.e., to get stuck. You should expect the White Labs WLP007 (High Gravity English Ale) yeast to last a bit longer and continue to produce a British flavor profile. After the WLP007 fizzles out, you can rely on the continued fermentation power of the WLP099 (Super High Gravity Ale) yeast. Finally as the finisher in the relay fermentation race, the Wyeast 3347 (Eau de Vie) should pull the beer over the FG finish line for the desired final alcohol level. WLP099 has the reputation of producing some "Belgian" phenolic character, but I've used it successfully in big ales.

Some people may regard this four-yeast regimen excessive, but it does provide some insurance against stuck fermentations. Likewise, some homebrewers think that non-beer yeasts should not be pitched to beer. If that is the case, simply omit the Wyeast 3347 and be prepared to accept a higher FG — probably in the 30s as opposed to the 20s.

Finally, a confession: I rarely make all-grain batches of big beers — ales or lagers — and when I do, I usually have to cheat, because I tend not to get the OG in the desired target range. I usually have to "fine-tune" the wort in the kettle with some extract out of a can to make up for the deficiencies of my mash tun (or my own deficiencies). Perhaps this should disqualify me from writing about brewing barleywine. Or perhaps not. At least I know painfully well what can go wrong in practice, in spite of all the erudite theory about making such a difficult brew!

Mid America
BREWING SUPPLY

As your one-stop
brewer's resource,
Mid America Brewing Supply
proudly features the excellent
malts of

Rahr Malting
Briess
Cargill
Crisp
Dingemans
Durst
Franco-Belges
Gambrinus
Pauls
Simpsons
&
Weyermann

in addition to

Hop Union Hops
Perlite
Ertel Filters

We also carry a full line of

Belgian Candi Sugar
Dried Malt Extract
Liquid Malt Extract
Brewing Spices
Water Treatments
Real Ale Accessories

Call today for pricing
and order information

WHOLESALE ONLY

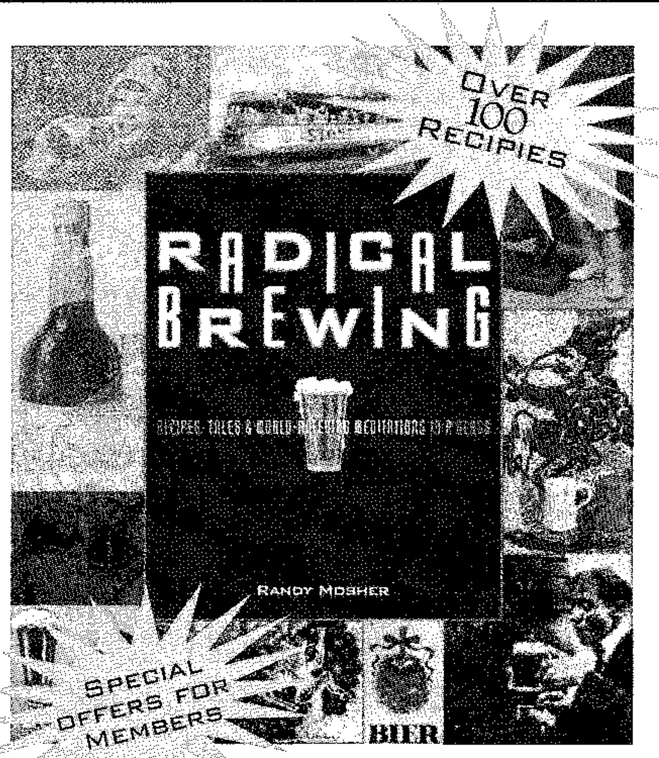
Mid America Brewing Supply
Kasota, MN
1-800-374-2739
www.midamericabrewing.com

Introducing

RADICAL BREWING

RECIPES, TALES AND WORLD-ALTERING MEDITATIONS IN A GLASS

By Randy Mosher



Veteran brewer and creative genius Randy Mosher delivers an entertaining look at beer history and culture along with a no-nonsense approach to the art of innovative brewing. He combines a passion for good beer with a solid understanding of brewing science to give a practical guide to joyfully creative brewing.

It will take you places you never thought you'd go!

"Radical Brewing reminded me of what I love about brewing. Brewers of all levels will find fresh ideas and new inspiration."
GORDON STRONG, GRAND MASTER BEER JUDGE AND AWARD-WINNING HOMEBREWER

350 pages, 8" x 9"
List price: $19.95 + shipping/handling
Available May 1, 2004

ORDER ONLINE WWW.BEERTOWN.ORG
OR CALL 1.888.822.6273 OR
+1.303.447.0816

Brewers Publications
A Division of the Association of Brewers
www.beertown.org

Brew Your Own and BBQ recipe contest!

Rubs, smears, bastes, marinades, injections...
Send us your best grilling-with-beer recipes and you could win sizzling homebrew prizes!

- Recipes must be original
- Enter as many recipes as you like, but you can only win one prize
- Winning recipes will be featured in the May/June 2004 issue
- Entries must be received in our offices by **March 1, 2004**

Send recipes with your contact info to:
Brew and BBQ Recipe Contest
5053 Main Street, Ste. A
Manchester Center, VT 05255
or Fax (802) 362-2377

RECIPES

Lord Big Barleywine
(2.5 gallons, all-grain)

Brew two batches to obtain 5 gallons
OG = 1.128 FG = 1.020–1.032
IBU = 50–70 SRM = 27 ABV = 12.3%

Ingredients

13.66 lbs. (6.2 kg) pale ale malt such as Hugh Baird, Crisp or Briess (2.5–3.5 °L)
3 lbs. (1.4 kg) light Munich malt such as Weyermann Munich Type 1 (5–7 °L)
0.5 lbs. (0.23 kg) crystal malt such as Hugh Baird, Crisp or Briess (approx. 60 °L)
7.5 AAU Galena hops (bittering) (0.7 oz./20 g of 11% alpha acid)
0.5 oz. Mt. Hood hops (flavor/aroma)
1 tsp Irish moss
Wyeast 1028 (London Ale) plus White Labs WLP007 (High Gravity English Ale), White Labs WLP099 (Super High Gravity Ale) and Wyeast 3347 (Eau de Vie) yeast
1 cup DME or corn sugar (for priming) (for both batches combined)

Step by Step

This recipe has been developed for a system that will yield 2.5 gallons of wort at an extract efficiency of about 50%, which may still be a bit optimistic. Make two batches no more than two days apart to make 5 gallons (19 L) of beer. (Optimally, you should make the second batch 16–24 hours after the first batch.) Mash in at 149 °F (65 °C). Recirculate for about an hour, heating samples of wort to 190 °F (88 °C) to maintain the grain bed temperature. Run off wort and sparge to collect around 5 gallons (19 L) of wort. During the sparge, check the mash temperature periodically, and make sure it does not exceed 170 °F (77 °C). Boil for 2–3 hours to reduce volume to just over 3 gallons (11 L). Add the bittering hops for the final 60 minutes of the boil and the flavor/aroma hops, as well as the Irish moss, about 10 minutes before shutdown. (Alternately, collect about 3.5 gallons of wort and stir in malt extract until you reach the target gravity. You will likely need around 2.5 lbs. (1.1 kg) of dried malt extract or 3–3.5 (1.4–1.6 kg) of liquid malt extract to do

this, but measure the gravity rather than relying on these estimates.)

Cool the wort to a fermentation temperature of 66–70 °F (19–21 °C) , aerate well and pitch all four tubes of yeast. Rack the beer after primary fermentation ceases. After another four weeks, rack again very carefully so as not to disturb the thick layer of yeast debris. Prime and package in bottles or in a Cornelius keg. If all went well, the beer's FG should be in the 1.030s, although the addition of the Eau de Vie yeast may cause it finish lower, optimally, in the low 1.020s. If the FG is lower, your barleywine will be drier and more alcoholic. If it is higher, your barleywine will likely be too sweet. Age at least four months, but reserve some for extended aging.

Lord Big Barleywine
(5 gallons, partial mash)

OG = 1.126–1.137 FG = 1.020–1.034
IBU = 50–70 SRM = 27
ABV = 12.1–13.3%

Ingredients

14.33 lbs. (6.5 kg) pale ale liquid malt extract (such as Edme, Maris Otter, Coopers, Muntons or John Bull) or 10.5 lbs. (4.7 kg) dried malt extract
6.0 lbs. (2.7 kg) light Munich malt such as Weyermann Munich Type 1 (5–7 °L)
1.0 lbs. (0.45 kg) crystal malt such as Hugh Baird, Crisp or Briess (approx. 60 °L)
15 AAU Galena hops (bittering) (1.4 oz./38 g of 11% alpha acid)
0.5 oz. Mt. Hood hops (flavor/aroma)
1 tsp Irish moss
Wyeast 1028 (London Ale) plus White Labs WLP007 (High Gravity English Ale), White Labs WLP099 (Super High Gravity Ale) and Wyeast 3347 (Eau de Vie) yeast
1 cup DME or corn sugar (for priming)

Step by Step

This recipe has been designed to use just over 4 cans of 3.3 lbs. (1.5 kg) liquid malt extract. If you wish to pump up your OG and alcohol, you can do so by adding the rest of the final can of extract. Crack or coarsely mill the specialty grains and steep them in about 3 gallons (11 L) water at 150 °F (66 °C) water for about 30 minutes. Strain the grains through a household sieve lined with several layers of cheesecloth. Have a helper hold the receiving vessel at a slant to reduce hot-side aeration. Transfer the hot liquid into your brew kettle. Add the extract to the hot liquid. Top off the kettle with water. Bring to a boil. Add the bittering hops about 15 minutes into the boil and the flavor/aroma hops as well as Irish moss about 50 minutes into the boil. The total boil time is 1 hour.

Cool the wort to a fermentation temperature of 66–70 °F (19–21 °C), aerate well and pitch all four tubes of yeast. Rack the beer after primary fermentation ceases. After another four weeks, rack again very carefully so as not to disturb the thick layer of yeast

BREWERS!

WILLIAM'S® BREWING

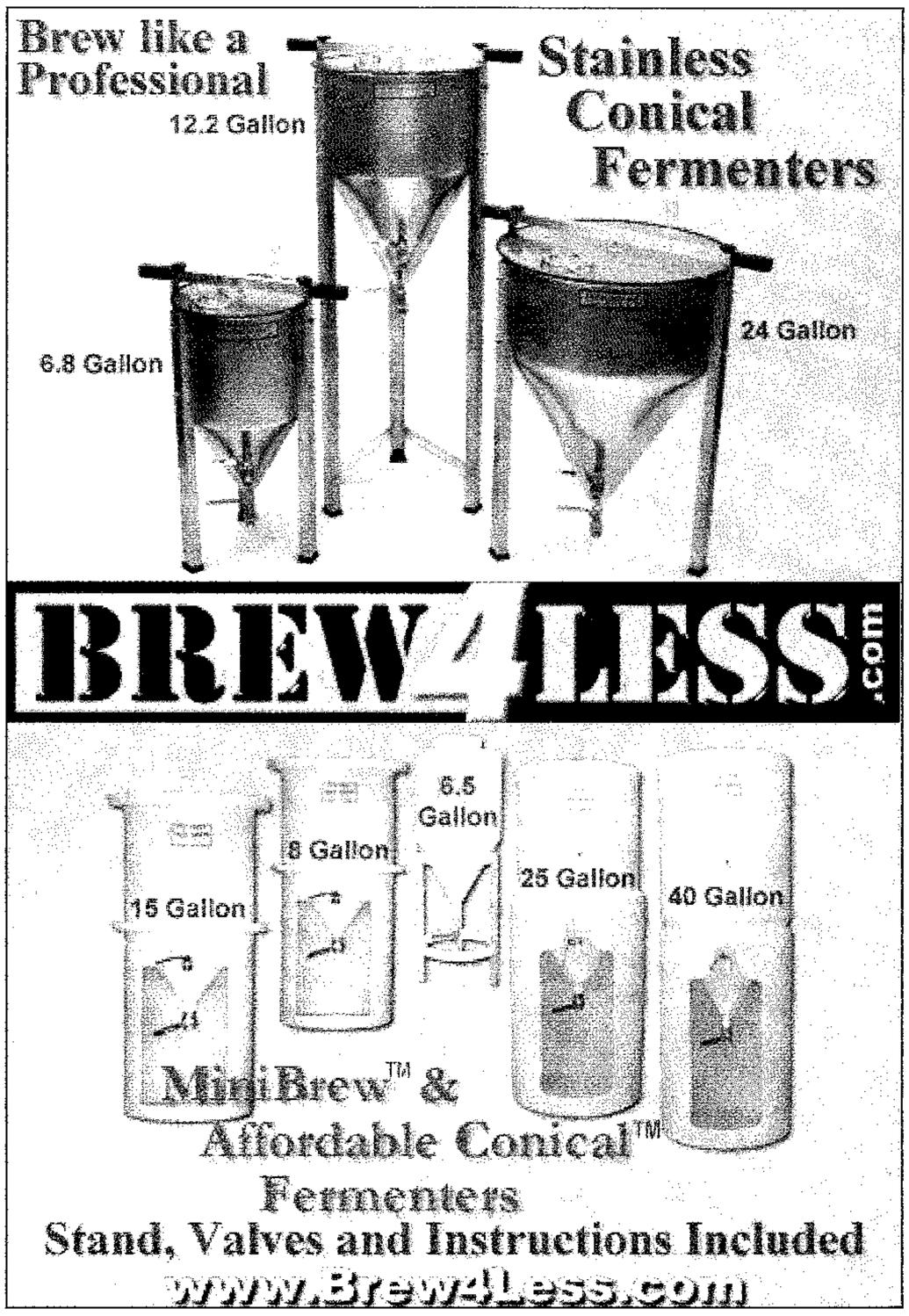
Since 1979, William's Brewing has been the leader in direct home brewing sales. We feature a huge line of home brewing equipment and supplies. Our large web site features a comprehensive brewing questions database, so you can get your questions answered quickly. Request your free catalog, or browse our extensive web site (and get on our e-mail specials list), and find out why we are the leader!

CHECK US OUT TODAY!

www.williamsbrewing.com

Free Catalog Requests: 800-759-6025

2594 Nicholson St. • San Leandro • CA • 94577



debris. Prime and package in bottles or in a Cornelius keg. If all went well, the beer's FG should be in the 1.030s. If the FG is lower, your barleywine will be drier and more alcoholic. If it is higher, your barleywine will be sweet. Age at least four months, preferably longer, especially if the beer finished at an FG well above the 1.030 target. Reserve some beer for extended aging.

Lord Big Barleywine
(5 gallons, extract only)
OG = 1.111–1.127 FG = 1.020–1.028
SRM = 22–25 IBU = 40–70
ABV = 10.7–13.4%

Ingredients
14.6 lbs. pale ale liquid malt extract (such as Edme, Maris Otter, Coopers, Muntons or John Bull)
1.1 lbs. (0.5 kg) Munich malt extract (such as Weyermann Munich Amber)
1.1 lbs. (0.5 kg) dark ale malt extract (such as Edme Maris Otter, Coopers, Muntons or John Bull)
15 AAU Galena hops (bittering) (1.4 oz./38 g of 11% alpha acid)
0.5 oz. Mt. Hood hops (flavor/aroma)
1 tsp Irish moss
Wyeast 1028 (London Ale) plus White Labs WLP007 (High Gravity English Ale), White Labs WLP099 (Super High Gravity Ale) and Wyeast 3347 (Eau de Vie) yeast
1 cup DME or corn sugar (for priming)

Step by Step
Boil 2–4 gallons (7.6–15 L) of brewing water in the brew kettle. (The more volume you can boil the better. Boiling a larger wort volume results in better hop utilization and less wort carmelization.) Turn off the heat and stir in all the liquid malt extract. It may take awhile to dissolve so much syrup. Do not resume heating until extract is thoroughly dissolved. Boil wort for 1 hour. Add the bittering hops about 15 minutes into the boil and the flavor/aroma hops as well as Irish moss about 50 minutes into the boil (i.e. ten minutes before shutdown). Cool the wort to a fermentation temperature of 66–70 °F (19–21 °C), aerate the wort well and pitch all four tubes of yeast. Rack the beer to secondary after primary fermentation ceases. After another four weeks, rack again very carefully so as not to disturb the thick layer of yeast debris. Prime and package in bottles or in a Cornelius keg. Bottle condition for three weeks.

If all went well, the beer's FG should be around 1.020. If the FG is lower, your barleywine will be dry and very alcoholic. If it is higher, your barleywine will be sweet. Age at least four months, preferably longer, especially if the beer finished at an FG well above 1.020. Reserve some beer for extended aging. You'll be glad you did. ■

Horst Dornbusch is the Style Profile columnist for BYO and the author of "Prost!: The Story of German Beer" (1997, Brewers Publications).