



The Herald Tribune

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Newsletter of the Ann Arbor Brewers' Guild

April 2010



April Meeting

This month's meeting of the AABG is Friday April 9th. It will be hosted by **Brad Sancho at Original Gravity Brewing**. See the map and directions on the next page. The featured style is **Extract Beers**. * Because this is a brew pub **NO HOMEBREW** is allowed.



AABG 2010

January	Randy deBeauclair	BBBW
February	Alex and Claudia Pettit	English Brown Ales*
March	Jack Carr.	American Ales*
April	Brad Sancho OG Brewing	Extract Beers*
May	Stephen Krebs	Cider/Specialty
June	Mark Zadvinskis	Wheat
July	Roger Burns	Mead*
August	Patti Smith Jeff Bletch	Sour Ale*
September	Jeff Renner	Oktoberfest
October	Strong Ale
November	Chris Frey	Porter/Stout
December	Rolf Wucherer	I.P.A.

* Denotes AHA Club Only Competition Style
All meeting are the second friday of each month beginning at 7:30 p.m., except for the July meeting (BeerBQ) which is the second saturday.

AABG Pico System

The guardian of the club's pico system is Mike O'Brien. Anyone wishing to use it should contact him at: 734.637.2532 or e-mail: mobrien315221MI@comcast.net

Great Commercial Beer from Malt Extract

— by Donald R. Outterson

Extract brewing, the step child of the brewing family, can produce top-quality brewpub and microbrewery beers. The key is understanding the properties of malt extracts and working with them.

I have had the unique experience of professionally brewing a wide variety of beers using many different methods, from cask-conditioned English ales using single-temperature infusion to Reinheitsgebot lager beers using upward infusion, and including work in malt extract brewpubs using ale, wheat, and lager yeasts. I also worked at a malt extract brewpub in Australia with limited access to supplies.

The most difficult of these formats to master was the malt extract lager brewpub. In going from full mash brewing to extract brewing, the brewer loses a degree of control over wort quality. The process is rebrewing as much as it is brewing. For this and other reasons, many avoid and even look down on extract brewing. Malt extracts, however, can produce great beers if the brewer understands the peculiarities of malt extract and how to work with it.

This article provides some simple tips for successfully brewing with malt extract. Although the context is commercial extract brewing, the practical issues are equally relevant to home brewers.

Light Lagers From Extract?

Malt extract makes worst the style of beer people drink most. The challenge is to make the lightest lager beer of high drinkability using an extract that allows as complete an attenuation as possible. Dark beers and ales are easy to produce in this production format, because their flavor profiles are already included in most extracts. Brewers therefore face the classic flavor choice: a flavor-neutral alcohol medium (light lager) versus a flavor-

positive alcohol medium (dark beers) as a target profile. Extract is more flavor-positive than flavor-neutral.

Very little textbook information is available on brewing with malt extract. The old brewers never use the stuff, and the manufacturers aren't brewers and don't pretend to be. Although certainly not a textbook presentation, the following discussion is intended to shed some light on successful extract brewing practice.

Factors Affecting Flavor in Malt Extract Brewing

Evaluate residual sweetness. One measure of a beer style is its sweetness, a function of residual sweetness, or the sugar left in the body of the beer after fermentation ends. Call the manufacturer and ask for the reduction time and temperature used when concentrating the malt extract, and try to determine the type of sugar that is produced. Focus on this sugar and its fermentation parameters. Try to visit the plant or one like it to see the process through brewers' eyes. Study beer styles that include these types of sugars. Add high maltose corn sugar to thin the body when needed for the two lightest styles. Use 21-day brewing cycles with lager yeast; longer fermentation times lead to greater attenuation and minimize residual sweetness. The greater the residual sweetness of the extract, the higher the adjunct ratio, which can be taken as high as 20–25%. Don't boil light worts longer than 45 min; they have already been boiled once and caramelize easily.

Ensure flavor and nutrient consistency. Batch-to-batch consistency and successful quality control depend largely on the quality of starting materials. Inspect the top of the extract containers for mold and check dates and shelf life. Malt extract comes pasteurized and nonpasteurized; nonpasteurized extract makes the lightest beer but has the shortest shelf life.

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When and Where

Friday April 9, 2010
7:30 pm Meeting Begins

Brad Sancho at
Original Gravity Brewing
440 County Street
Milan MI 48160

www.ogbrewisng.com 734.439.7490

NO HOMEBREW THIS MEETING

AABG Policy

AABG encourages responsible, legal consumption of homebrewed and craft beers. You must be at least 21 years old to attend AABG meetings.



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Using calcium (calcium sulfate, for example) and noniodized salt (sodium chloride) in the foundation water helps the yeast metabolize the complex sugars contained in malt extract. As a rule of thumb, use 2 oz calcium sulfate and 1 oz noniodized salt for a 7–10 bbl batch, adjusting as necessary for water hardness.

Check for swollen containers; extract can start fermenting on its own. Use the freshest, lightest extract first for the lightest beers possible.

Work within the limitations that extracts impose on styles. Manufacturers' in-house flavors are always a factor, regardless of specifications. Most companies have a full range of extracts, but some extracts consistently ferment more completely than others. Excellent-quality extralight malt extract is the hardest malt extract to find. I have often found that a blend of two brands of extralight are better than either alone (I have blended, for example, **Briess** CBW Brewers Gold and Premier Extra Light). The lightest

nonpasteurized extract I have ever used was Coopers Light, and the lightest pasteurized extract was Munton & Fison Cedarex Light.

Adjust flavor profile if necessary. When stuck with “extract tang,” seek a more dominant flavor profile.

Focus on quality. If your extract or system won't do all styles well, make the beer that your system makes best. Always focus on quality, regardless of limitations.

Circumvent budget limitations. High quality can be achieved within tight budgets by blending imported extract with domestic extract. Alternatively, infuse specialty and pale grains in the foundation water (145 degree F [63 degree C] for 45 min) to add character, then add extract to the kettle as usual.

Even if you must use “a Corona mill, a dog chain, and a pillow case,” stick to a commitment to the quality of the finished product. Much can be done for a relatively low investment. Add other extracts such as honey and molasses, for example, to introduce familiar flavors. Adjuncts are often used in extract brewing as a correction factor rather than as a full-mash short cut.

Consider production and labor requirements.

Extracts make possible double-density brewing – boiling twice the required amount of extract in the kettle and diluting to normal levels for fermentation (10 bbl knockout = 20 bbl beer).

Extract brewing produces little to no spent grains, so less storage and waste disposal space is required. The extract brew day is 4 h, whereas the full-mash brew day is 8 h.

Evaluate costs. A malt extract system costs \$5000–10,000 less than a full mash system and takes up less space. Where the cost of garbage removal is high and the market for spent grains is poor, extract brewing will always be viable.

Customize, innovate. Blend extracts with local products to regional flavor profile preferences. These include wheat extract, oatmeal, grits, and fruits.

Listen to consumers. Seek customer feedback and monitor sales receipts to make sure your money is where their mouth is.

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A Versatile Option

Although a brewer might prefer full-mash brewing over malt extract brewing, it is a brewer's duty to make great beer, anytime and anywhere, using any format and any system. Sometimes using malt extract is the best way to a superb beer.

In addition to their central role in all-extract breweries, extracts can be used in full mash systems to enhance the flavor range of the brewery's products.

Malt extract's brewing qualities have not yet been improved to the point where the full range of top-quality beers can be produced. Many extract manufacturers produce extract for the baking industry first and the brewing industry second.

In the future, freeze-dried worts and fractional crystallization (freeze concentration) technology will provide much-needed improvements to the malt extracts of today. Simpler sugars, energy savings, and longer shelf life need to be realized if malt extracts for brewing are to improve. As these qualities change, so will the stigma of mediocrity that malt extract carries among brewers.

May your next beer be your best!

Republished from BrewingTechniques' November/December 1993.

Malt extract offers excellent quality and versatility and is perfect in some setting. So how did it get a bad rap?

By Michael Mandelbaum as published in the September/October issue of "The New Brewer" Magazine for Micro and Pub Brewers

Just about any product we use today has been processed in one way or another. We accept that fact because the people who are doing the processing - whether they're pasteurizing milk, weaving fabrics, or turning cows into steaks - do what they do better than we could. They have more know-how. And experience. And equipment. They do it less expensively than we could, more consistently and better.

Brewers, too, have traditionally depended on others to produce the ingredients and equipment they need to make beer. Though there was time when individual brewers grew their own grain, cultivated their own yeast, pumped their own water, and stoked their own stoves, that degree of self-sufficiency

isn't possible today, and if it were, it wouldn't make good business sense. Brewers buy their grain, yeast, water and energy from specialists who produce such things better and less expensively. This gives brewers time to brew beer, which their suppliers and others buy from them.

Doesn't it make equal sense to brew with extract? "There's no doubt in my mind that brewers can make some great commercial beers using malt extract," said **Mike O'Brien, marketing director of the Michigan-based Pico Brewing Systems**. "Most brewers refuse to believe it, but their disbelief is an intolerance not based on science."

That brewing with extract has an image problem is no news to the brewing industry. Whether that image is warranted, however, is another issue. "There's a sort of "instant-coffee-versus-home-ground-coffee" mentality," O'Brien said about using malt extract. "But that mentality is based on half-truths and innuendo. It certainly doesn't hold true with the new methods of extract production."

Basically, there are five reasons why brewing with extract makes sense:

- extract producers invest in the best technology and quality control;
- the wide variety of extracts makes production of specialty brews easy, economical and consistent;
- extract brewing saves space, solves spent grain disposal headaches, and eliminates the need for expensive equipment purchases and upkeep;
- exotic, imported extracts are instantly available without the inconvenience and problems associated with importing whole grain; and
- with care, extract brewing means no bad batches, no equipment downtime, and the insurance of quick-wort matches in emergency situations.

With such obvious advantages attendant to extract brewing, what, then is the reason for the apparent preference among some brewers for full mashing at all times?

The prejudice seems to go back to the Prohibition Era. Since no beer production was allowed, farmers had no justifiable reason for growing malting barley (as opposed to feed barley), and quality malting barley essentially disappeared. The left bootleggers no alternative but to do what they did best:

Improvise. Since the feed barley was being mashed to produce desizing syrup for the cotton industry, it was a simple matter for the bootleggers to mash it a second time to produce the wort for malt syrup. The remashing, however, along with the use of feed barley that has a smaller kernel size, increased the likelihood the wort would retain some hull taste.

Add in all the other challenges bootleggers faced—scarcity of hops, inferior yeast, make shift equipment and the accelerated brewing cycles necessitated by the constant threat of being found out by federal agents - and it is no wonder that the primary goal of producing alcohol overshadowed the desire to produce medal-winning brews.

But that was then and this is now, and extracts have some a long, long way. Producing extract has become as much a science as an art, and manufacturers who make extract produce consistent, high-quality extract. Specially trained experts maintain quality control through each stage of production. Not only is the grain itself of high quality and consistency, but checks and tests are conducted at every stage in the extracting process. Every mash is controlled for time and temperature to achieve the optimum yield from the grain.

What does that mean to the owner of a brewpub or microbrewery? In addition to quality and consistency advantages, there's yet another compelling reason for brewing with extract: lower labor costs than full-mash brewing. What might take a brewer eight or ten hours on a full-mash system takes about four hours using extract. "A full-mash operation would put about 16 hours on our work week," said **Jeff Snelles, head brewer for the Shannon Pub, in Rochester, N.Y.**, which produces about 350 barrels a year using extract.

Dean Wiltse, owner of Wiltse Brewery in Oscoda, Mich., believes that the economies of extract brewing are extremely attractive for small breweries—especially those being added to existing bars or restaurants. An extract system allows a small staff to focus on both brewing and food.

"A brewpub's primary interest is food," Wiltse said. "You need to be able to make good beer, you just can't devote too much time to it."

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“Using extract, you can brew in half the time and with half the equipment—which is perfect for many small operations. Why would a guy want to put in a full-mash system if he knows he’s probably only going to be brewing 200 barrels a year?”

When he opened in 1994, Wiltse opted for an extract system on which he brewed a wheat beer, pilsner and Paul Bunyon ale using extract augmented with grain. He wasn’t the least bit concerned with the “snobbery” associated with full-mash brewing. “What Americans are finding out is that quality and freshness are what’s important,” he said.

When volume of production grew significantly, however, and he needed to expand, he went with a full-mash system. “Because of the cost of brewing more beer and because of customers’ intrigue with grains,” he said. “When we got to a certain volume—200 barrels—it made more sense to go with grain, although economically, it wouldn’t if that meant you had to hire a brewmaster.

Besides labor, storage and disposal are also minimized with extract. The hundreds of square feet of storage space typically needed to store grain sacks is reduced to five or ten feet of shelf space when extract replaces the grain. There are also the auxiliary concerns associated with the use of bulk grains including spoilage, inferior product quality, delivery glitches, cleanup, pest control and health issues. And while it often takes a lot of labor and luck to dispose of thousands of pounds of spent, wet grain, the empty extract containers can be tossed into the recycling bin.

There can be no argument, however, that the prejudice against extract brewing persists. But why? “One reason may be that because malt extract comes in a can, some people do not take the same care in safeguarding its freshness that they do with their grains,” said O’Brien. “Naturally, as it would with older grains, the resulting beer would suffer. The misconception would grow as to the poor quality of extract beers.”

Control is an issue often mentioned by brewers when asked why they prefer using a full-mash system of extract. By being able to control the mashing process, the argument goes, a brewer is better able to control the characteristics of the wort. Yet even the most

avid full-mash brewers wouldn’t dream of malting their own barley; they realize maltsters do it better because of their expertise and specially designed equipment. And what happens when control over a full-mash batch of beer fails, and the brew goes down the drain instead of into bottles? Such a problem rarely occurs when every step of the extract process is controlled by the extract producer. And given the consistency of the extract itself, reproducing a great beer is more achievable than attempting to recreate a full-mash beer, given the variation in weighing and evaluating grains.

Does extract brewing diminish the artistry involved in producing a unique brew?

Nothing could be farther from the truth. There’s nothing to stop a creative brewer from exerting as much or as little control over his or her final product as in a full-mash brew. It’s completely possible—and desirable—to create brews with individual profiles through using different blends of extracts. Depending on the capabilities of the brewing system, it is also possible to produce even more unique characteristics by supplementing the wort with grains such as black, chocolate and Munich malts and roasted barley. There are also all of the infinite variations possible through control of hop types and the hopping rate, yeast, caramelization and fermentation times and temperatures.

In addition, a brewer can make use of adjuncts to further fine-tune other qualities of the brew. Glucose, dextrose, maltodextrin, barley syrup and rice syrup are some of the possibilities.

In fact, rather than limiting versatility and creativity, the use of extracts enhances a brewer’s ability to add the personal touches that make fine, unique brews. “And putting some grain in with the extract gives you even more ‘from scratch’ taste,” said **Shannon Pub’s Jeff Snelles**. “We use roasted barley for our stout and that works pretty well.”

But can a brewer make a quality beer from extract? **James Spence of the American Homebrewers Association in Boulder, Colo.**, is convinced that the taste distinction between the two brewing methods is illusory. “All things being equal, brews produced from full mash and those from malt extract are virtually indistinguishable,” he said.

Dean Wiltse agrees; “I would have put my extract brews against 70 percent of beers made with all-grain,” he said. “In a survey of 800 customers, 96 percent listed total satisfaction with my beers. Beers made with extract can be every bit as good as beers made exclusively with grain.”

Pacific Coast Brewing Co.’s many wins at the Great American Beer Festival attest to that fact. The Oakland, Calif. brewery has been brewing with extract since it opened in 1988. Since then, its beers have won more than a dozen GABF medals including a silver in the Scottish Ale category at the Great American Beer Festival in 1989. Last October (1995), Pacific Coast took a GABF silver in the India Pale Ale Category and a gold for its Belgian Triple. All are made using extract.

Another GABF award winner in 1995 was the **Cottonwood Grill and Brewery in Boons, N.C.**, which took home a bronze medal in Belgian-Style Specialty Ales. **Head brewer Kinney Baughman** says when he started homebrewing in 1980, he was disappointed with the quality of the extracts on the market. “I went to all-grain, and it wasn’t until five or six years later that I began experimenting with extracts again. I was amazed at the improved quality of the extracts on the market at that time.” Today, all of Cottonwood’s brews have an extract base, although Baughman mixes in some specialty grain for all his brews.

And Baughman has continued to win awards. At the 1996 World Beer Championships, Cottonwood brought home three bronze medals, being recognized for its Flemish Brown Ale, Flemish Brown Framboise, and Abbey Ale.

“What the extract debate boils down to is this—the end must justify the means,” O’Brien concluded. “Full-mash brewing is half art and half science, and there’s a lot of risk and a multitude of variables involved in producing a great beer. By relying on the technology and experience of the high quality malt extract producers, brewers can assure themselves of a more consistent product, while reserving the right to hone their artistry with other facets of the brewing process.” 