Hop yields are expected to continue to get better

By Jennifer Stevens
Hopunion LLC

The 2011 Pacific Northwest hop harvest is under way (as of this writing) and early indicators point to an average yield crop; however, early testing is also showing some exceptional aroma and alpha acid profiles.

Since the demand for IPA style beers has been increasing, many growers have expanded acreage for particular hops being utilized in these beers. From the 2010 crop year to the 2011 crop year, there has been an increase in acreage of approximately 30% to accommodate for these demands. Some varieties, while showing some promising increases in yields this year, will not produce to full capacity due to bine maturity. Baby hops have a much lower yield and can produce anywhere from 50% - 80% the poundage of a mature hop field. These baby varieties might not have had the yields that were hoped for or anticipated, including Atrium™ Brand YCR 1 cv., Simcoe® Brand YCR 14 cv. and Amarillo® Brand VGP01 cv. varieties. Other varieties such as Cascade are showing above estimated yields, while Centennial is coming in with average yields.

Simcoe® acreage is up approximately 64% over last year’s lower-than-expected crop yield, which translates to a larger percentage of babies for the 2011 crop. Citra® acreage is up approximately 53% and Centennial acreage is up approximately 52% for the 2011 crop, which equates to a larger quantity of babies for both varieties. The average yields for Simcoe® are 2,300 lbs. per acre, with Citra® yields at 1,800 lbs. per acre. Centennial yields are coming in at about 1,700 lbs. per acre.

See “Hop report,” page 6

Briess workshop

Gets high marks, setting stage for 2012 event

Tours, technical presentations, guest speakers, and a specialty malt sensory workshop highlighted the second annual Briess Malt & Brew Workshop held August 10-11 in Chilton, Wisconsin.

The entire staff at Briess thanks guest speakers Dr. Michael Lewis, John Malott of Bell’s Brewery, and barley expert Don Grumbich for taking time from their busy schedules to present at the workshop. And thanks to all the participants who carved out time from busy schedules to see “Briess workshop,” page 2

Yeast focus: San Diego Super Ale

Popularity following limited release makes it full-time

By Mike White
White Labs

A yeast strain introduced as a one-off during the National Homebrew Conference to celebrate White Labs’ new building proved so popular with a range of brewers including professionals that it has been added to the full-time lineup.

Besides being widely available in homebrew shops since its release in June, San Diego Super Yeast has been put into production by breweries including for 10, 15, and 21 bbl pitchable sizes.

White Labs officials decided to keep the strain in the lineup because of its quick and consistent popularity. Indeed, customers would have been unhappy if they could no longer order it.

Based on initial testing by White Labs brewers, the yeast was shown to see “Super yeast,” page 5

Style Matters: Tips for Strong Ales

In each issue, CBQ spotlights a particular beer style and provides tips from an ingredient and fermentation perspective. In this issue we examine the category of strong ales and specifically American Barley Wines and Old Ales.

Hop Notes:

With autumn upon us, the colder nights and color changing trees give signs of winter to come and provide a shift in the beers we drink. While summer is all about light “session” beers that you can drink throughout the day, fall is all about drinking fuller bodied beers that fill you up and provide a warming sensation on a cold night. Old ales are a traditional English style that fill the gap between regular strength pales/porters and high gravity barleywines.

Historically, old ales were made by producing moderately high gravity beer (~6% ABV) from pale, caramel and specialty malts, and aged in casks at the pub or brewery. These aged beers were used either as a stock ale for blending with mild ales or enjoyed by itself as an old ale. Old ales would exhibit oxidative character due to evaporation loss in the cask over time similar to sherry or porty. The reuse of casks from the cellar would promote the growth of lactic acid bacteria and/or Brettanomyces providing a slight sour quality depending on the time of aging. Hopping rates

See “Style Matters,” page 7
Briess Workshop

attend the workshop and so enthusiastically participate in the sessions and extracurricular activities.

The workshop sold out and received positive feedback from participants, which is setting the stage for the third annual Malt & Brew Workshop in 2012. The third annual Briess Malt & Brew Workshop will be held Wednesday and Thursday, August 22-23, 2012. It will be held in Chilton, Wisconsin, and participants will be encouraged to arrive on Tuesday, August 21. An agenda and registration form will be posted on the Briess website in early 2012.

ABOVE: Dr. Michael Lewis, Penny Pickart (Briess) and Julia Herz (Brewer’s Association) study kernels of germinating barley in malthouse.

LEFT: Workshop participants dug into germination compartments to get a first-hand look at day one, day two, day three and day four "green" barley. Following germination green barley is dried by kilning or roasting or both.

ABOVE: Guest Speaker John Mallett of Bell’s Brewery cooked up some interesting aromas during his "Maltolicious" presentation.

ABOVE LEFT: A tour of the Briess Extract Plant/Drying facility began with a look at the 500bbl brewhouse.

ABOVE RIGHT: Participants, guest speakers and Briess staff take time for a group picture in front of Briess headquaters in the Chilton Industrial Park.

RIGHT: An automated packaging line in the malthouse completes the process by shrink wrapping a neatly stacked pallet. The automated system assures 50-pound bags of malt are accurate to within one ounce.

LEFT: Workshop attendees participated in sensory training.
Handle recyclable Briess bags with green hands

"Green With Briess" is just an easy way of saying... "As a manufacturer of all-natural ingredients, Briess Industries, Inc. is committed to operating in an environmentally conscious manner. Our objective is to be a trusted and committed supplier to the beer and food industries while utilizing sustainable practices with less environmental impact."

Much easier.

One of the ways we're accomplishing this is equally easy — packaging in paper bags. The bags are multi-walled, strong, 100% recyclable and biodegradable. We recommend that you put on your "green" hands and use care when handling bags of Briess malts by following these tips:

- When moving or handling the bags, grasp and hold firmly by the sides or the ends.
- Moving or handling bags by the "ears" at the top or bottom can cause them to tear or break.
- Dropping or throwing bags can cause them to tear or break.
- When re-stacking or otherwise handling the bags, avoid sharp objects that could puncture or tear them.
- Because there is no moisture barrier in the bag, it's important to properly store them, especially in humid weather and humid climates. Bags are best stored unopened. If opened, reseal with tape. Store in low humidity at room temperature for optimum shelf life.

Briess has been packaging malt in paper bags for American craft brewers since 1970. The bags looked a little different back then, but were just as effective...and just as biodegradable. We continue to package in paper bags because they're environmentally friendly. And we're happy to have eliminated almost four decades of non-biodegradable bags from landfills.

Today at Briess we recycle 99% of our waste stream. We hope our paper bags help you increase the amount of waste stream that your brewery recycles, too.

PhD candidate awarded Roger C. Briess scholarship

Andrew MacIntosh, a doctoral student in the Food Science Department of Dalhousie University in Canada, is the recipient of the 2011 Roger C. Briess Scholarship.

The scholarship was presented to MacIntosh through the ASBC Foundation.

MacIntosh, pictured at right, reports that he hails from Halifax, Nova Scotia. "I am very fortunate to have the opportunity to study the brewing science. My background is in engineering where I completed a master degree on scaling up bioreactor production of an antibiotic."

"This background has been especially useful for our current research on the prediction of malt fermentability in relation to existing and new varieties of malting barley," he continued.

"The research aims are to design technologies to improve malt and beer quality through the reliable assessment of malt fermentability and other quality parameters."

MacIntosh is also an avid homebrewer. "The research completed through the Food Science Department has revealed a new view of brewing as a science," he said. "The techniques learned have yielded both success, and the odd spectacular failure. I am very pleased to discover the level of support for this discipline by companies such as Briess Malt & Ingredients, and I am delighted to be a recipient of your scholarship."

We wish Andrew the best of luck in all his endeavors!

Andrew is the fourth recipient of the Roger C. Briess memorial scholarship. It was established to keep Mr. Briess' passion for superior malting and brewing alive. Mr. Briess was a highly skilled maltster and brewer.

From 1971 until his untimely death in 2001, he was president of the family business that was started in 1876 in Czechoslovakia by his great-grandfather.

Monica Briess, wife of the late Mr. Briess, is CEO of Briess Industries, Inc.

Photo collection from the Great American Beer Festival

CBQ partners again sponsor Rocktoberfest with Bavarian-style costumes and decorations
Make it funky, Part 3 — more tales of wild beers

Andy Parker, Avery Brewing Co.

A common misconception is that all Brettanomyces strains work in a similar fashion, but saying something is a ‘Brett’ strain is about as specific as saying ‘Belgian’ strain. That could mean Hoegaarden, Unibroue, or Westmalle, and those strains are all very different. Different flavors, different fermentation rates of fermentation, and different ranges of flocculation. Our ‘Drie’ [Drie Fonteinen] Brett strain can do a full primary fermentation in less than four weeks, but Brett Bruxellensis takes up to three months.

So if you’re brewing with Brett, do some research and see what kind of flavors you actually want. We have found that the strains are reasonably consistent with their eventual flavor profile, and we’ve created consistent flavors through consistent parameters (temperature, pitch rate, etc.), just like a Saccharomyces strain. Since we’ve liked those flavors (especially from “Drie”), we’ve stuck with them.

For primary fermentations, the basic rules of brewing apply... each strain will throw off different flavors depending on fermentation temperature, and I wouldn’t say that we’ve done enough experimentation to tell people what temperature they should be fermenting at for the perfect flavor profile. As far as advice goes, just realize that Brett strains tend to work slowly for the better 50% of fermentation and therefore won’t keep up heat as well as a normal Saccharomyces ale strain.

We’ve tended to go for a warmer fermentation with the knowledge that it will cool itself down eventually while fermenting. I’ve definitely been a little afraid to ferment at, for example, 66 degrees F, because likely over the last few weeks, the temperature would just keep dropping to a point where even the Brett’s wouldn’t be very happy.

From our large-batch primary Brett fermentations, we’ve also found that the Brett won’t “superattenuate.” Ed imagine that a lot of brewers out there think that if you do a primary Brett fermentation, the Brett will just eat everything in sight and take the beer down to zero. “Drie” and Bruxellensis, on the other hand, generally ferment down to 1007-1009 and simply stop. Nothing left to eat. Which is strange when you look at secondary fermentations.

One of the reasons that Brettos are so fun to play with is the secondary fermentation option. Much like Orval, you can take a beer that had a Saccharomyces primary fermentation, toss some Brettos at it, and more fermentation will generally happen. We’ve taken many a finished Saccharomyces beer that has stopped at 1099 and had Brettos drop them down to 1003-1004. We’ve done this in tanks with and without Brett (68-70 degrees F, 1010 beer), but we’ve also done individual kegs of Brett beer that was crashed to 32 degrees F. Add some Brett, wait a month or two in a room temperature warehouse, chill it and tap it... in almost every case, the Brett in the keg has fermented 3-5 points and carballed itself.

I have yet to try doing a primary fermentation with one strain of Brett and then following with a secondary fermentation using a different strain of Brett. That’s an experiment for another day.

Caleb Staton, Upland Brewing Co.

Mr. Staton is the author of an excellent article that appeared in the July-August 2010 edition of The New Brewer, entitled “Exploring the American Sour Niche.”

The article in The New Brewer really highlights my best thoughts on sour/wild ale fermentations involving Brett. Based on the article and my own experiences, here are my recommendations:

Provide a diet for Brett: higher temperature fermentation (153 F for higher, for example) creating/keeping more deoxygenated material that Brett will use as it super attenuates during fermentation.

Discover/explore Brett strains and pitch rates through yeast supplier recommendation or through in-house experimentation, establish a repeatable pitch regimen around final beer flavor characteristics.

Select a repeatable temperature program for fermentation, whether a constant cellar temperature or a seasonally fluctuating environment.

Leave the pellicle alone during Brett fermentations to avoid oxidation and potential for increased acetic acid content (Vinni at Russian River has a great method and explanation on how to take samples from oak barrels without interrupting the pellicle formation). If working with oak barrels, store in place where they require no movement during their fermentation.

Sanitation concerns are no different, if not heightened, when brewing with Brett. Clean vessels, barrels, parts and all items involved no less thoroughly than when not involving wild yeast and bacteria. Ensure the microorganisms you want to be involved in the fermentation process are the ones you specifically select.

There is always the bigger concern of Brett and bacteria of infiltrating existing typical Saccharomyces fermentations at a brewery, so keeping equipment separate, physical separation of Brett fermentation vessels and sour packaging, and extra caution in sanitation are all key to keeping delicious sour from ruining mainstay beers.

Taste and check pH. The ‘horse-hide’, ‘mousy’ aspects from Brett tetrahydropropyridine production can be sensed and evaluated, as well as the acidity developed from acetic and lactic production. Checking pH is a great empirical way to monitor the ‘souring’ of Brett beers.

Be patient with Brett, it takes months

See “Make it funky,” page 7

Yeastbank news and notes: Yeastman lookup features released

By Mike White
White Labs

** Yeastman updates: Yeastman now allows you to look up lot numbers regardless if you discarded the documents when you received your yeast. The look up feature also allows homebrewers to look up lot numbers, which is more difficult than it sounds because many vials have the same lot number. To view this feature, follow the links to lab reports near the top of the page. Meanwhile, we are testing a new feature in Yeastman that essentially asks the system for an earlier date if we think the date it is giving us for shipping the yeast is too far out for your needs. It is being tested in house and if everything goes right it will be rolled out to our customers as well. Essentially it will replicate the process of calling up and asking the lab if we can get the yeast sooner. Lab people have various other sources of yeast to examine, and the so-called Neva Logic feature (named after longtime lab manager Neva Parker) uses the same logic to answer this question.

** Pre-CBC classes planned: White Labs will host two special training sessions on yeast essentials before the Craft Brewers Conference 2012 begins. The sessions will be held at White Labs’ new headquarters and production facility in San Diego.

The Pre-CBC seminar is intended for brewers going to the conference and will be held the day before the conference begins, on May 1. It is also open to other professional brewers, including locals. The May 1 session is open only to professional brewers. The So-Cal edition on March 24 is intended for homebrewers and commercial brewers in the region.

The seminars will include training on:"}

Yeast Metabolism & Nutrition
* Cell Counts, Viability, and Pitch Rates
* Yeast Handling & Storage
* Yeast Propagation
* Controlling Off-Flavor Compounds
* Implementing a Brewery Yeast QC Program

With hands-on micro laboratory instruction!

Lunch will be included. The cost is $300, or $250 for early registration.

An interest list is being created and you can sign up by calling 1-888-5-YEAST-5 or by writing info@whitelabs.com. Or if you already have a phone number or internet access you can call the phone number or log into the Yeastman tracking and ordering system. Go to the tab called “Other Merchandise” and scroll to the bottom where the classes are listed.

The classes will be limited to the first 80 people.
Building up and running and more options to come

When we moved to a new headquarters and production facility, we knew we would have a rough time. While the experience has been trying at times over the past few months, our customers have been extremely supportive and we are on the cusp of some major advancements that are possible only with the increased space and building planning.

This is the first factory in which we have had the opportunity to build everything from the bottom up based on the needs of a yeast production facility. Indeed, the lessons I have learned from over 15 years in the business went into the construction of our new building. While the building itself has existed for some time, we rebuilt practically everything within the walls, and in some cases the walls themselves. We have not cease production for one moment, so we haven’t been as quick to utilize this new and well-equipped space as I would like, because we can only work on the future of the building as a secondary consideration to yeast production. Yeast production is going very well, with homesbrew incursions into brewery increases but both businesses are expanding nicely. We have brought in many new tanks and hired new employees to respond to the increase in business and to take advantage of our increased space. The production space at our Candida Street location is five times the size of our previous building. As the employees get training and tanks are put into place, we expect to go back to our practice of making yeast not just based on orders but also on expanded orders. This will give us more yeast availability and the opportunity to reduce the time it takes to provide our products to customers.

Meanwhile, we have been taking advantage of other attributes of our new building besides increasing our future production ability. We built a large classroom space in the front of our Candida headquarters, and we used this space for our second-annual Distilling Yeast and Fermentation Workshop. We planned on using this space for our first-ever yeast essentials workshop (scheduled for the day before the Craft Brewers Conference in 2012). The conference will be held a short distance from our headquarters, and will serve as a perfect opportunity to showcase our building to our clients and to teach them the ins and outs of proper yeast practices. More details about the workshop can be found in Yeastbank Notes on the previous page.

Moving to a new building has of course been difficult. This was no surprise, as we have worked with many brewers over the years who once they moved to an expanded facility have discovered their beers no longer came out just as planned.

In other words, it took some time for them to accommodate to their new location, and we went through some of the same issues. Our customers have shown patience during this transition, knowing that it was temporary and that we would work through them, and we have for the most part. We are looking forward to the day very soon when not only do we solve every outstanding issue with the new building, but we fulfill all the promise that it brings us and our customers.

Chris White is President of White Labs Inc. He has a Ph.D in biochemistry from the University of California, San Diego. Feel free to write him at cwhite@whitelabs.com about this column.

Super Yeast

have very distinct characteristics. Many reporters find normal fermentations compared to other similar strains, such as WLP001 California Ale Yeast. It falls into the realm of European origin strains with neutral characteristics that allow brewers to make beers in the hoppy or malty ranges.

The strain has also generated interesting questions.

Find other new strains in 2012 at whitelabs.com

For instance, where is it from? White Labs policy prohibits releasing the origins of a particular strain. Using San Diego in the name honors the place where White Labs is headquartered and the yeast is produced.

The Yeastman hero logo is used in the label for fun but also for a reason. The logo symbolizes how the Yeastman computer system monitors production and keeps an eye on quality, for WLP090 and all strains.

Big QC Day encore

Big QC Day had its first encore edition in 2011, and the results were promising. White Labs offered a fall edition of the testing program (in addition to the usual spring program earlier this year) based on feedback from customers. In a survey after the last round the #1 request from participants was that they wanted another round of testing during the year. While many participants were repeat customers, about one-fifth were new to the program, which suggests that at least for some brewers the fall is a more ideal testing time. The overall group was smaller than the spring edition, and for this and other reasons the spring will continue to be the cornerstone of Big QC Day.

For those who don’t know about the program, Big QC Day is a chance to have two of your beers tested for over a dozen factors, including alcohol, bitterness and calories, for a discounted price.

Details of the 2012 Spring edition — the sixth year of the program — are now available at the White Labs website, whitelabs.com.

New Logos

White Labs has a few new logos for its laboratory services department. The logos, one for Big QC Day and the other for Analytical Services, were unveiled in September and others are on the way. The logos help promote the brand and what’s behind it. Analytical services in general and Big QC Day in particular have a long history and a promising future at White Labs, and these logos will help provide some consistency in our catalogs and publications. Use of the microscope ties them to the company logo.

Craft Beer Quarterly

The purpose of CBQ is to provide information and tips about brewing from an ingredient perspective — malt, hops and yeast. CBQ is sent each quarter to thousands of professional brewers. CBQ is sponsored by Briess Malt, Hopunion LLC and White Labs Inc.

Editorial:

Mike White, mwwhite@whitelabs.com

Advertising:

Mike White
coldcreekpub@aol.com

Production:

Cold Creek Publishing Co.
coldcreekpub@aol.com

For all other inquiries, contact:
CBQ, 95409 Monterra Ct.,
Union City, CA, 94587

coldcreekpub@aol.com
Featured hop — Falconer’s Flight 7C’s

By Melody Meyer
Hopunion LLC

On December 13, 2010, Falconer’s Flight®, Hopunion’s first customized proprietary pellet blend, took to the skies and began soaring to more than 270 breweries worldwide. In just 90 days, inventory was sold out and brewers everywhere praised the blend for its premium aromatic qualities and proclaimed it to be the ideal hop for a vast array of beer styles. As a result of the unprecedented success of the inaugural flight, Hopunion is proud to announce the continuation and brand expansion of Falconer’s Flight.

Hopunion will continue to produce Falconer’s Flight, and in increased quantities, for the 2011 harvest season. The blend integrity and targeted brewing values will remain constant, however, official brewing values will not be determined and released until the 2011 harvest is complete and pelliterizing begins.

In addition to the original Falconer’s Flight blend, Hopunion will also be producing Falconer’s Flight 7C’s®, an exclusive pellet blend comprised of seven “C” hops and additional experimental varieties. Falconer’s Flight 7C’s delivers strong fruit and citrus characteristics but is layered with spicy, earthy overtones that allow it to function as the perfect addition/alternative to any IPA/Pale Ale style brew. Targeted brewing values are 9.5% Alpha, 4.4% Beta and 29% Co-humulone although actual BV’s will not be determined and released until pelliterizing has begun.

Due to our commitment to quality and the fined nature of pellet blends, quantities will be limited for both Falconer’s Flight and Falconer’s Flight 7C’s. Contracting options are available now with shipments commencing in mid-late November.

Hopunion appreciates the support of every participating brewery in the Falconer’s Flight initiative and is honored to continue supporting the Glen Hay Falconer Foundation through this great cause. In alignment with the Foundation’s mission, the funds generated from these blends will be used to award outstanding brewers with scholarships to top brewing institutions to further their knowledge and expertise.

We look forward to another great flight — live to fullest, brew to fullest.

Hops and Brew School class of 2011 — review

During the week of August 22nd, Hopunion conducted its 8th annual Hops and Brew School at its headquarters in Yakima, WA.

Over the course of two, two-day sessions, more than 180 brewers from all over the country had the opportunity to hear from award-winning brewers, local hop growers and industry experts.

Discussions ranged from the current state of the craft beer growth dynamics to the exciting advancements for aroma hops currently under development in the world of hop breeding.

Along with informative presentations, brewers had a chance to enjoy a variety of brews from around the country while sharing good conversation with fellow craft beer colleagues. And yes, there was a field trip!

The highlight of both sessions was a trip to B.T. loftus Ranches to experience hops up close and personal. The participants had a chance to see everything from harvesting the hops to all the processing steps — cone separation, kilning and baling.

While commercial craft breweries of all sizes have attended annually, this marked the first year that Hopunion hosted a class consisting mainly of home brewers.

The feedback has been very positive and Hopunion is already making plans for the 2012 school. If you’re interested in rubbing some hops with us next year — stay tuned for more details. Registrations are released in March.

Hop report

Overall, it seems that the cooler weather during the spring and summer months heading into harvest were able to create favorable conditions for the hops. Aromas, hop yields, and brewing values can differ within a variety due to the geographic location of a grower’s farm and the plants exposure to different environmental factors.

Varieties harvested early in the season, such as Cascade and Centennial, are showing higher alphas reminiscent of the 2008 crop year.

However, you could say that it was the “perfect summer” for aroma hops, and growers are estimating that this will be a year for the aromas to shine. Amarillo® aromas are being described as having “orange, white pepper [and] floral notes” as well as having a balanced aroma character.

A fresh truckload of Citra® was received at Hopunion, and the facility was enveloped with the indicative fragrant citrus and tropical aromas.

Visually and aromatically, the hops from the 2011 harvest are in much better shape than the 2010 crop.

With the average yields of hops being harvested and the expansion in acreage, there should be some top quality hops for brewers to use in the upcoming brewing season.
were high to help balance maltiness and hop additions would have come at the beginning of boil since all late hop addition character would have been lost in the aging process.

Modern interpretations of this style haven’t changed much with the one exception being alcohol content. Today’s versions run between 6%-9%. Grain bills are still predominately pale malt with judicious amounts of higher Lovibond crystal, specialty character malts, and adjuncts. Darker versions would require the use of dark malts like chocolate or black, but it is important to let the dark malts provide color and not roast character.

Grain should be mashed in high to reduce attenuation and provide the sweet malt backbone common of old ales. Hopping rates are in the 30-60 IBU range depending on desired starting gravity and the main focus is to balance most of the malt character. These beers should be malty sweet with lots of fruity esters and complex aromas of dried fruit, molasses, nuts, and toffee but should not be overly sweet. Any hop variety will work because bitterness is the name of the game and all varietal character will be lost during aging. Late additions can be omitted or drastically reduced as this beer’s aroma is all about age, oxidation and malt notes rather than hops. English hop varieties are traditional but American Goldings and Fuggle work great too. Cask ageing is preferred but can be done with oak chips and Old Ale yeast which has Brett blended in with it. Some examples are aged for months, others years.

— Will Harrison, Interior Northwest Account Manager, Hopunion LLC

Yeast and Fermentation Notes:
American barley wines create many interesting yeast and fermentation options. We recommend English strains such as WLP002 English Ale Yeast or WLP005 British Ale Yeast for the lower attenuation this style requires, or perhaps even WLP001 California Ale Yeast for slightly higher attenuation and neutral flavor contributions. If you want to accommodate the hop character of the beer, in addition to WLP001 you may want to consider WLP007 Dry English Ale Yeast. Another attractive English option is WLP026 Premium Bitter Ale Yeast, which may provide slightly higher estery character. This strain is not made regularly and needs a slightly longer lead time when ordering.

— White Labs employee contributions

Malt Notes:
Malt contributes to the many facets of American style Barley Wines. The color that ranges from amber to deep copper-garnet comes from malt. The sugar that provides the yeast the substrate to produce a high alcohol content comes from malt. The full body and high residual maltiness comes from malt. Malt is also responsible for the caramel and toffee flavors.

This spells formulating paradise to the creative brewer who likes to experiment with specialty malts.

Like any barley wine, however, formulating can be a challenge due to the sheer size of the grist: a large to huge grist is needed to develop the rich flavors, full body and alcohol strength of 8-12% ABV. Color is in the 10-20 SRM range with warm amber to copper hues, or even as dark as light brown, and sometimes with ruby highlights.

Most American barley wines start with a well-modified domestic Pale Ale Malt to build a solid foundation, although domestic 2-Row Base Malt can be successfully used as well. Base malt usage is frequently in the 85-90% range, which leaves room for 10-15% of specialty malts.

Good candidates are Caramel Malt plus a variety of other roasted and kilned specialties that will add complexity and body. Dark malts are used with restraint because color arises from a lengthy boil.

Start your specialty malt selection with 1-1.5% Caramel Malt. Those in the 30-60 L range deliver the toffee, caramel flavors characteristic of barley wine. But experiment because the wide range of Caramel Malts available offer almost endless formulating possibilities.

| Caramel 10L-20L | Candy-like sweetness, mild caramel
| Caramel 30L-40L | Sweet, caramel, toffee
| Caramel 60L | Sweet, Pronounced caramel
| Caramel 80L | Pronounced caramel, slight burnt sugar, raisin
| Caramel 90L-120L | Pronounced caramel, burnt sugar, raisin, prune

Several other roasted Briess malts develop unique to complex flavors. Depending upon the color you are targeting, use at 1-5%:

Victory® (Biscuit) 28° L; Toasty, biscuit, baking bread, nutty, clean
Special Roast 50° L; Toasty, biscuit, sourdough, raisin
Extra Special 130° L; Both caramel and dry roasted flavors
Chocolate 350° L

After the base and roasted malts, round out full flavor from one or several kilned malts at 1-15%:

Vienna 3.5° L; Slightly malty, warm light biscuit note
Rlonder® (Munich) 10° L; Very smooth and malty, 2-Row
Aromatic (Munich) 20° L; Very smooth and intensely malty, 2-Row
Munich Malt 10L 10° L; Smooth and malty
Munich Malt 20L 20° L; Smooth and intensely malty

And if you’re looking for a final boost for full body, add Carapils® Malt at 1.5%.

If the large grist or potentially slower lautering deter you from brewing American barley wine, or if you’d like to make the process easier or faster, we recommend supplementing the grist with CBW® Pilsen Light malt extract. CBW® standards for 'Concentrated Brewers Wort' because it’s 100% pure brewe’s grade malt extract. Unheated and the lightest colored malt extract available on the market, CBW® Pilsen Light is available as liquid and dry. An addition of approximately 14 pounds per bbl provides an increase of 1.025 SG.

— Briess Malt & Ingredients Co.

Make it funky

to develop its full flavor contributors.

As far as lactic acid bacteria and Pediococcius, we have more experience working with the former.

Choosing to work with either places other considerations on acid production desired, and in pedio's case, a closer eye on diacetyl production.

Chad Yakobson, Crooked Stave Artisan Beer Project and The Brettanomyces Project (http://brettanomyces.wordpress.com/)

As far as important steps and considerations for achieving a desired flavor or final product, I think it's important to treat Brettanomyces as you would any other brewing yeast. Proper pitching rate is important especially for primary fermentation. I like to use the standard ale pitching rate of 1 million cells per degree Plato per ml. The propagation is very important for Brettanomyces as well. It takes longer to propagate and has a few growth steps so it's important to harvest propagation yeast when it is at the end of exponential growth and right at the beginning of lag phase.

This is when the yeast is 'ready' for primary fermentation with a good build up of reserves (still an important consideration with secondary as well). I like to get a good start to fermentation so I aerate at...
Attention brewer

Craft Beer Quarterly

More funky — From Page 7

More funky makes it something unique. I find I get softer Brett flavors that are more mellow and balanced (given everything else in the beer is right, including the recipe as that is a whole other consideration). When using Brettanomyces in secondary, I find brewers often overdo it, creating a Brett bomb: too much Brett character, not balanced with the beer characteristics. This is a hard balance in my opinion. I prefer a long slow Brett secondary, it’s more natural (like an infected wine barrel that takes months to develop a light Brett flavor). When using Brettanomyces in primary I feel I have better control over making a clean(er), more subtle Brett beer that is more balanced.

What do you see as the role of Lactobacillus and Pediococcus and how do you best recommend working with them? I think they are both very important organisms when considering making a Brett beer. I think that some lactic acid is very complementary when using Brett and creates a nice tartness, depending on how much acid is produced. I stay away from pectinase unless I know I’m going to give the yeast a long time to age, simply because of the possibility of rye and diacetyl. There are Brett strains which don’t produce the rye but they are rare. Also Brett strain produces a more pronounced sourness and usually with a Brett primary I’m only looking for a tartness — not too much sourness. To achieve this I would either sour mash, using the natural lactic acid bacteria on the malt, use some acidified malt in the mash, or I’m quite content with adding lactobacillus into the primary fermentation knowing it will take a while to slowly develop. If I’m producing a Brett beer that I intend to have a pronounced sourness, then both bacteria are best and adding them into a barrel in adequate amounts is great for getting a long developing sourness which complements the Brettanomyces present in the beer. Both organisms also form a great symbiotic relationship with Brettanomyces. Brettanomyces seems to attenuate better under acidic conditions, a greater range of flavors are produced from esters created from the acids as well Brettanomyces will metabolize the rye carbohydrate matrix produced by Pedio and clean up any diacetyl produced.

From the GABF - more photos inside

Judges photo - can you find Chris White?