



Volume 5, Issue 3/Fall 2006

New Canadian malt variety

A closer look at Copeland

By Bill Ladish

Cargill Malt, Specialty Products Group

In a previous article we discussed the drop in acres planted to Harrington in Canada during the mid- to late-1990s and afterwards, after a long and distinguished reign atop international commerce. The declines were

Turn to pages 2-3 for more news on malt and Cargill.

driven by the comparatively improved agronomics of newer lines of crops that compete with malting barley for

See "Copeland," page 2

White Labs expansion under way

More yeast news on pages 4-5

By Chris White

President, White Labs

We are in the midst of vastly expanding our production capacity — and this could have significant impacts

for our customers in North America and around the world.

While we are not at this time expanding our space — we remain in the same San Diego manufacturing facility — we are making much better use of the space by going

See "White Labs expansion," page 5

Hopunion prepares for the 2006 version of the Alpha King Challenge

The eighth-annual Alpha King Challenge will be held Sept. 29th from 1-3 p.m. at the Falling Rock Tap House in Denver and is hosted by Chris Black. This annual event at the Great American Beer Festival is sponsored by Hopunion, American Brewers Magazine and Three Floyd's Brewing Co. of Munster, IN.

Three Floyd's brews the high IBU "Alpha King" Pale Ale which is used as a bench mark for the challenge. The beers submitted typically have an IBU level over 60.

Beers will be taste-tested by a panel of veteran beer judges for malt balance, aromatics, bitterness, and floral

Turn to pages 6-7 for more news on hops and Hopunion.

characteristics.

The list of previous Alpha Kings by year is as follows:
1999 Larry Bell, Bell's Brewing "Two Hearted IPA."
2000 Gabe Fletcher, Midnight Sun Brewing "Sock-

GABF News

Welcome to the Great American Beer Festival special edition of Craft Beer Quarterly. Many of the stories are centered around GABF themes, including the style article piece below, which focuses on pale ales — a popular entry at GABF.

We invite you to review these stories and send comments our way to improve future issues. If you are affiliated with a brewery or related establishment and are not receiving your complimentary issue of this newsletter, please send your details to cbqmag@aol.com.

We invite brewers to attend the following special events at the GABF:

Rocktoberfest Party

Thursday, September 28

9:30 p.m.-? At the Rock Bottom Brewery, 16th Street Mall, downtown Denver

See "GABF," page 8

eye Red IPA."

2001 Brenda Moylan, Moylan's Brewery, "Moylanders Double IPA."

2002 Brendan Moylan, Moylan's Brewery.

2003 Geno Acevedo, EL Toro Brewing, "Duce Imperial IPA."

2004 Tomme Arthur, Pizza Port Brewing, "Hop 15."

2005 Jeff Bagby of Oggi's Pizza & Brewing Co., "Torrey Pines IPA."

The next issue of CBQ will announce the new 2006 Alpha King.

Style Matters: The world of Pale Ales

In each issue, CBQ spotlights a particular beer style and provide tips from an ingredient and fermentation perspective. In this issue, which is timed around the Great American Beer Festival in Denver, CO, we take a closer look at Pale Ales. Pale Ales are traditionally one of the most entered and most competitive categories at the fes-

tival.

Malt Notes: An American twist on a venerable British style, American pale ale is one of the most popular styles of beer brewed by craft brewers today. Pale in color, bitter, with a strong hop flavor and aroma, these beers are found in nearly every brewpub and as the signature beer of many production breweries. American Pale

Ales differ from their British counterpart in their balance between hops and malt.

American Pale Ales tend to emphasize more aggressive hop character over malt flavors. The malt for these styles should provide the backdrop from which the hops stand out. We would suggest two ways of formulating the grain bill. The first would be to use a high quality 2-row

Pale Ale malt as the sole malt in the grist. The Pale Ale malt needs to have been kilned long enough to have the color potential needed in a pale ale. Cargill Special Pale, with a color of 3-4 L, and a full flavor would be our suggestion if this is the route you would like to go.

See "Style Matters," page 5

Ask the Maltster: How DP affects your mash

Q: What is the lowest DP a malt can have and still convert itself in a typical, single step infusion mash without problems? I know some well-modified British malts can be as low as 40 and still convert by itself, but what's the lowest? The second question is, theoretically, could a malt with a DP of 1 convert itself if given an unlimited amount of time? I'm sure in that unlimited amount of time a whole bunch of things could go wrong, but I'm just wondering about conversion.

A: The answer to your question is that for the most part, "it depends." Enzymatic systems are very complex and as such have a number of variables that affect the outcome of their actions. This really is more off a theoretical question which is taken into consideration in this answer: Enzymes are catalysts so one would think that a DP of 1.0 would just mean the reaction would

be slower than a DP of 101.0? This is not necessarily the case since starch conversions with enzymes, as mentioned, are very dependent on a host of factors.

The DP measured in malt is considered a measure of the total enzymatic power of the malt. There are more enzymes in malt than just alpha and beta amylase. As these enzymes convert starches to fermentable and non-fermentable sugars through a spectrum of temperature changes, (ie: The Mashing Cycle), the pH also changes which in turn alters the ability of other enzymes to react.

The three main control factors in mashing are time, temperature and pH, (and to some degree one could argue alkalinity).

Another factor that contributes to an enzyme's effectiveness in a mash is the water to grist ratio. This can affect the enzyme's

ability to promote the reaction. The answer whether a DP of 1.0 would work or not is "No." From a theoretical standpoint the scientist might say it should ... but ... if you leave a mash at conversion temperature the pH begins to drop due to formation of lactic and other acids.

The more the pH drops the less effective the enzyme becomes and eventually will be completely inactivated in a low pH environment before the mash is completely converted. DP is a tool for the brewer to convert his starches. Whether they are malt starches or adjunct starches the level of enzyme should be determined by the brewer to reach the goal for her/his final wort composition.

Therefore there is no right answer to what is the lowest DP a brewer could use because "It depends." It depends on the composition of the mashing water, the

time, temperature and pH of the mashing cycle. But above all it depends on the final goal of the brewer for her/his final wort composition given the beer style and raw materials the brewer intends for the final product.

If you have any question as to whether a particular malt will have conversion problems due to low DP, simply discuss this with your supplier. They should be able to tell you whether it will convert itself, or itself and perhaps some low (or zero) enzyme starch sources like high color malts or adjuncts.

Have questions about malt, barley or brewing? Get them answered by our staff of Maltsters/Brewers. Just visit our web site www.specialtymalt.com and the Ask the Maltster section. We will post questions in CBQ.

Copeland

From Page 1

average in Canada, and by the improved agronomics of newer 2-row malting barley varieties released in order to keep malting barley competitive with these other crops.

The newer 2-row malting barley varieties are primarily Metcalfe, Kendall, Stratus, and Copeland.

Metcalfe and Kendall were discussed in previous articles. Stratus has not been successful in the marketplace compared to Metcalfe and Kendall. Here we discuss Copeland.

Copeland was developed at the Crop Development Centre at the University of Saskatchewan in Saskatoon by Dr. Bryan Harvey, and was registered in Canada in 1999. Its parentage is TR118 x WM861-5. TR118 derives from Harrington. Metcalfe was registered in 1994 and Kendall in 1995.

Garth Massie, the Senior Barley Supply Agronomist at Prairie Malt Ltd (PML), provides the following comparison of the agronomic performance of Copeland relative to Metcalfe:

- * Improved straw strength.
- * Improved net blotch resistance.
- * Greatly improved yield. 107% of Metcalfe.
- * Improved hull adherence.
- * Equal plumpness.
- * Slightly earlier.

In short, Copeland is a definite step forward in agronomic performance. Comparisons of malt analytical data across varieties have to be done with great care. Typically maltsters have to work with a variety for a while to optimize processing conditions.

When that is completed, different varieties tend to be selected for different major customers and processed differently.

So, while great amounts of data are available, there is only limited data available when all varieties are processed under thoughtful generic conditions in an attempt to quantify differences across varieties.

	Harrington	Copeland	Metcalfe	Kendall
Friability, %	84.5	92.6	89.7	93
Extract, fine, dry, %	79.9	80	80.7	81.1
F-C Extract, dry, %	1.4	0.5	0.5	0.7
Total Protein, dry, %	12.4	12.6	12.5	12.2
Soluble Protein, dry, %	5.3	5.2	5.2	5.2
S/T (Kolbach Index), %	42.6	41.2	42.3	42.4
a-Amylase, DU	58.2	53.2	66	59
Diastatic Power, ASBC	137	134	159	157
b-Glucan, ppm	164	91	82	74
Wort Viscosity, cP	1.5	1.45	1.46	1.46
Wort Color, ASBC	2.13	1.95	2.24	2.1
Free Amino Nitrogen, mg/L	223	185	203	193

The writer is aware of only two such studies. One was done internally at PML in Biggar, Saskatchewan with brewing at the Great Western brewpub in Saskatoon using 1999 crop barley. The other is an extensive study done by our former

colleague Dr. Yueshu Li and his colleague Aleksandar Egi at the Canadian Malting Barley Technical Centre in Winnipeg. They used barley from the 1999, 2000, and 2001 crops.

More importantly, their study included Copeland, whereas the earlier PML study did not. This latter study has been published. Li & Egi: "New Canadian Malting Barley Varieties and Their Malting and Brewing Characteristics," Master Brewers Technical Quarterly, volume 41, number 2, (2004) pages 104-110.

Li & Egi report the data from their pilot malting study in the accompanying graphic. After reviewing the chart, consider these facts for Copeland:

- * Improved friability relative to Harrington and Metcalfe.

the four varieties.

It is this tendency toward relatively low wort color that is the most interesting aspect of Copeland.

Note the similar levels of total protein of the four varieties tested.

Li & Egi found the fermentation profiles of Copeland to be similar to those of Harrington. During ongoing processing subsequent to the Li & Egi study, PML noted that the differences between the extract and b-glucan of Copeland as compared to Metcalfe and Kendall narrowed considerably.

At Cargill Malt, Specialty Products Group we are attracted to the relatively lower wort color of Copeland. We feel that this variety is well suited to the production of an all-malt pilsner-style beer. Accordingly we have reformulated our Cargill EuroPils to be made entirely from Copeland.

The barley for Cargill EuroPils is selected at Prairie Malt Ltd in Biggar, Saskatchewan. Malting for Cargill EuroPils is performed there as well.

* Extract similar to Harrington. Full 1% lower than Kendall.

* Lower F-C and bglucan than Harrington.

* Slightly higher bglucan than Metcalfe and Kendall.

* Somewhat lower S/T than Metcalfe and Kendall.

* Lowest a-amylase of the four varieties.

* Lowest FAN of the four varieties, but sufficient.

* Lowest wort color of

Cargill Malt crop report for 2006: The first two slides are the U.S. report, followed by the Canadian charts.

2006 U.S. Crop Development Summary

Aug '05 Soil moisture levels were very good going into winter.

Apr '06 Good planting conditions. Timing slightly behind last year.

May '06 Planting progress started out behind but caught up to normal.

Jun '06 78% Good/Excellent. Rainfall limited. Crop moisture dropping.

Jul '06 Hot & Dry. Crop Ratings slipping. Good/Excellent only 51%.

Aug '06 Heat & dryness pulls crop progress ahead of normal by 2-3 weeks; Yields and Production hurt. Protein/Plump issues. DON levels lower than normal in 6-row.

Sep '06 Most barley growing areas are dry and is a red flag for 2007.

US Crop Barley & Malt Quality Overview

Variety	% Protein	Plump
All 2-row	12.5	80.0
All 6-Row	12.9	88.0

Source: Various



- Barley is bright, DON non-detectable levels.
- Selection averages above do not reflect rejections for poor plumps and high protein.
- 2-row selection OK. 6-row selection depends on area.
- Production is much lower than past few years. Lower acres.

Malt Factors

- Observing average/slightly better extract levels. Lower protein.
- Assortments slightly lower than normal. Lower plump.
- Beta glucan, easily modified, initial dormancy about average.
- D.P. much lower.
- Alpha's slightly lower.

U.S. Crop Report Page 2

2006 Canadian Crop Development Summary

Crop '05 One of the wettest years on record.

Fall '05 Extremely wet harvest conditions

Spring '06 Some problems with early sowing due to very wet soil, and significant rainfall in May.

Jun '06 Plentiful moisture results in excellent crop establishment.

Jul '06 Well above normal temperatures and sparse precipitation reduce crop yield potential to average.

Aug '06 Excellent harvest weather allows for 1/2 the barley crop harvested in August. Crop quality is the best in recent memory.

Canadian Crop Report Page 1

Canadian Crop Barley & Malt Quality Overview

Variety	% Protein	Plump
Metcalfe	11.7	90.3
Harrington	11.1	91.7
Kendall	11.6	93.4
Excel	11.9	86.7
Legacy	11.2	89.0

Source: PML selections as of Sep 1/06



- Barley has moderate colour, DON non-detectable levels
- Crop protein and plumpness are both slightly lower than last year's crop.

Malt Factors

- Still observing results.
- Easily modified.
- Low Beta Glucan, low Viscosity.

Canadian Crop Report Page 2

Malt Specials

Have you tried the Warminster Maris Otter yet? Here's your chance to give it a try. Mention the CBQ and receive \$1 off per bag.

Warminster Maltings has been supplying malt to the brewing industry since before 1879, and is one of only a few remaining floor maltings in England and Wales.

It produces malt of a quality that the purists would describe as a more natural product as compared to the malt produced in a modern pneumatic malt factory.

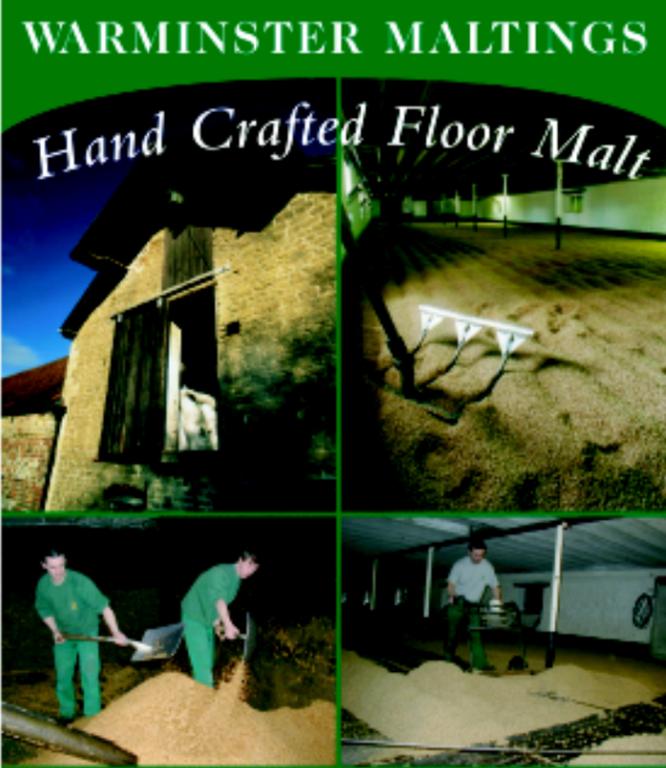
Not surprisingly the Maltings has been awarded the Soil Associations 'Organic' symbol, and is one of the few sources of **organic** malt within the UK.

Warminster Maris Otter (2.5° - 3.5° L)

Maris Otter, the malting barley variety revered by brewers for the production of traditional cask ales, floor malted for preferred flavor and performance.

Warminster Organic Pale Ale (2.5° - 3.5° L)

A malt of exceptional quality, floor malted and made from premium organic barley. Suitable for all organic ales.



WARMINSTER MALTINGS

Hand Crafted Floor Malt

Floor Malted MARIS OTTER now available exclusively from
CARGILL MALT
800-669-MALT

Buzz words in the craft brew world: quality control

Have you ever thought about introducing a quality control laboratory program in your brewery? Ever thought it was just too costly and too complicated?

Think again, my friend. Implementing a basic QC program during your normal brewing operations is actually very simple and cost effective in the long run. Depending on your brewery's needs, there are a wide range of tools out there that can offer you the most basic to the most in-depth analysis that you can find.

On the microbiology side, one of the most important (and simple) tests you can perform is a cell count and viability check. This greatly improves the efficiency of your brewhouse by knowing correct amounts of yeast to pitch. It will also allow you more consistent fermentations from batch to batch. At the next level is testing your yeast, wort, or beer for brewery contaminants. This can be done at the brewery through media kits or outsourced to a laboratory that specializes in brewery micro-

From the Lab

Neva Parker



organisms. Many brewers send samples to us for this type of testing on a monthly or quarterly basis as a means to monitor their production and sanitation practices. If a problem arises in a batch, they can be sure to identify it and eradicate it quickly.

Other more in-depth tests on your yeast include: petite mutant, attenuation/flocculation analysis, micro-

organism identification, and vitality. Beer and wort analysis is another category of testing that can be integral to the brewery. Your beer can be analyzed for real extract, apparent extract, carbohydrates, calories, protein content, apparent attenuation, pH, color, and IBU. We can also perform valuable tests using gas chromatography. We can test for such factors as alcohol by volume and total VDK or diacetyl.

These tests are an important way to evaluate your products and can be used to cross-check your own analysis, procedures, or instruments.

Finally, look for our Valentine's Day special. We all know brewers love their beers more than anything else. So have your beer tested during our first QC day on Feb. 14. Your beer, and your customers, will love you for it. More details will follow in CBQ and at our Website.

Neva Parker is the lab manager for White Labs. Write her at neva@whitelabs.com.

Revised web site: Customers encouraged to give comments

We at White Labs invite you to review the newly updated Web site. While the appearance is similar to previous incarnations of the site, we are seeking to expand content for all users.

Over the coming months we will add more questions and answers to the site with the hope that you will find answers to your questions on-site. Additionally, we

have updated the ordering process so that you can not only purchase yeast as needed but also related products, such as yeast nutrients.

Another important change is the descriptions for each strain. We're seeking to create more tips and recommendations for strains, and we invite you to log onto the site and make your comments. Think of it like a book re-

view: Give your fellow brewers recommendations so that when they begin to use the yeast, they won't have to relearn what others already know.

Of course, we will be happy to provide all advice necessary by phone. You will find more answers at our website — www.whitelabs.com. Please forward all website-related comments to mwhite@whitelabs.com.

Travel report: White Labs visits Mammoth and elsewhere

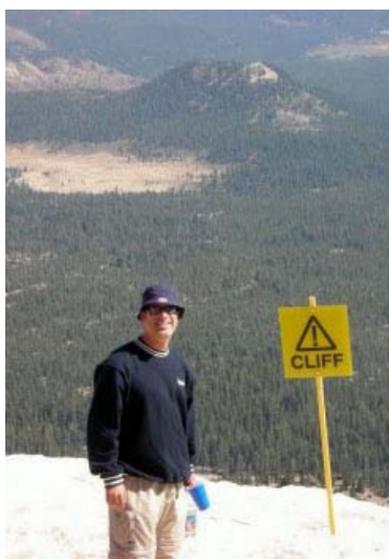
White Labs employees took a company retreat to Mammoth Lakes, Calif., to coincide with the Aug. 5 Mammoth Beer Festival and Bluesapalooza.

Employees spent several days giving lectures and reports and occupied themselves on the following Saturday with one of the most popular festivals in California.

The day began with a ride up the Panorama Gondola, which provides access to the top of Mammoth Mountain, which is about 12,000 feet above sea level. After breakfast on the mountain, employees walked halfway down the mountain and made it in time for the festival.

Brewing Network

Chris and Mike White appeared on the Brewing Network internet radio program on Sunday, Aug. 20, 2006. Chris White discussed yeast temperatures, strains and expansion plans for White Labs. Visiting guests from France provided proper pronunciations for various brewing terms; those who do not listen to the show will be behind the times. Chris White appeared live in the show's Walnut Creek, Calif., studio.



Chris White stands at the top of Mammoth Mountain. Snow was still abundant even though the festival took place in the summer. A popular spot for mountain biking, White Labs folks chose to hike down the mountain.

A can of vials and a dream

Many homebrewers are in a race to collect the most amount of used yeast vials. The contest has lasted several years, and several are closing in on the top prize.

One group in contention is Beer, Beer and More Beer. You can see their garbage can of vials at right. (Find them at www.morebeer.com).

Customers have been dropping off spent vials at the store for some time, and if this garbage can is impressive, you haven't seen what's already stored away.

Many competing clubs and stores are remaining hush on how close they are to the top prize. Ask them and they say, "Vials? What vials?" But many, like B3, are closing in, so the call is going out — get your vials in order. The final countdown is approaching.

The top prize is a visit by company President Chris White, who promises to help brew you or your club's beer. We will report the winner in these pages. We expect the announcement to come in the not too distant future. If you are close to the lead, take this advice:

Brew, and brew well.

And brew often.

To comment on this race, write info@whitelabs.com.



White Labs expansion

Continued from Page 1

“up” and bringing in new technology. We are nearly halfway complete with this ambitious project, which in the end will increase our capacity by 50 percent.

As of this writing we are installing three German and Czech-made 40-barrel fermentation tanks. We believe so much in this technology that we are acting as a North American sales agent for these Frings aeration equipment, which are especially well-suited for regional and large breweries seeking to grow their own yeast.

At the same time, we are taking measures to increase the efficiency in our other 100 smaller fermentation vessels. In short we have taken measures so that we can use these smaller tanks more often each week.

We expect all of these changes to be

in effect by the end of wine season.

It is too bad it could not happen earlier, because while

wine season is relatively short, it is a time of a rising number of orders. For the last few years we have run shifts 24 hours a day during these months, and we expect the same thing to take place this year.

Nevertheless, the changes we have made have already produced tangible results.



Technical advice

Chris White

Our production capacity is up 20 percent compared to the same time last year. You might wonder who is spearheading all of this work. Rest assured it is not taking away any of our focus on current projects and clients. That's because we brought in a professional that many of you have surely heard of to help

with this expansion project.

His name is Lee Chase, former head brewer at Stone Brewing Co. He is the perfect person for the job not just because of his respect and experience in the brewing community but also his specific experience at Stone, where he oversaw the expansion from a 30-barrel facility to a 150-

barrel German designed and manufactured brewhouse.

The new facility opened at the end of 2005. By the way, in case you do not know, the older facility was occupied by Pizza Port, the San Diego-area brewery with a nationwide reputation. I will continue to update you on our progress and hope to hear your comments on the expansion project.

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

Style Matters

From Page 1

Another possibility is to use both a base malt and a specialty malt. Here again we would suggest a solid 2-row malt, like our Cargill Two Row (1.5 – 2.5 L), for the base. It is a blend of Kendall and Metcalfe giving it more flavor than many other domestic barley varieties. In order to give more color to the beer a specialty malt will probably have to be used. Our pick would be a caramel malt. Pauls Caramalt (10 – 15 L), Dingemans Cara 8, or on the domestic side our Cargill Caramel 10 are all great options. Another suggestion would be to use Pauls Mild Ale, a dextrin malt, which will give a sweeter, chewier beer.

— Cargill Malt

Hop Notes: For American-style pale ales, the signature hop is the craft brewing favorite Cascade. The signature beer associated with this style is Sierra Nevada's Pale Ale. This style has a very moderate to strong hop aroma and hop flavor is moderate to high in US citrus hops such as Cascade, Centennial, Chinook, Crystal and Ahtanum. The bittering hops noted are Magnum, Columbus, Horizon, and Nugget. The beer should have an IBU level from 30-45%.

If dry hopped it should have some grassy notes. Other examples of American Style Pale Ales are Deschutes Mirror Pond, Summit Brewing Pale Ale and Anderson Valle Poleeko Gold Pale Ale just to mention a few. This is one of our favorite styles at Hopunion and is a good complement to any IPA.

— Hopunion CBS

Yeast and Fermentation Notes: The following advice comes from Chris White, president of White Labs.

“We have concentrated on some of the interesting and sometimes esoteric beer styles in this space in the past, and we have received many “thank yous” from brewers regarding these pieces. This time, we turn to the gold standard of craft beer — American pale ales, although I will also address the British style as well.

The following will show you that while many of these beers share similar characteristics, they can and should differ widely depending on what the brewer is seeking to make.

You will want to read on after this yeast advice to learn a tip from a fellow brewer about how he manipulated his water supply to improve his pale ales.

When thinking about yeast choices for your pale ale, you will want to select one that will bring out hop characteristics. This is why WLP001 California Ale Yeast is our most popular offering.

If you are seeking to make an English style pale ale, I suggest trying our WLP002 English Ale Yeast. While this yeast also works well with hops, it is not as hop-forward as WLP001 California Ale Yeast. Thus, it will impart less hop flavor and bitterness.

A third option is WLP028 Edinburgh Ale Yeast. This yeast imparts more malt flavor than WLP001, but it also promotes good hop flavor. Thus, if you are happy with WLP001 for its hop contributions but want to have more malt flavor, consider experimenting with WLP028.

Regardless of the strain you choose — you may even want to experiment with combining the two strains I mentioned above — you need to keep one thing in mind, and this might sound controversial.

I suggest that you do not want a high pitching rate, because pitching too much yeast will not allow the proper favor compounds to develop. Yes, you will get a vigorous and fast fermentation, but with pale ale in particular I urge patience. For beers at 10 to 12 plato, pitch your yeast at 7 million cells per mil. This translates into about a pound or liter of slurry per barrel.

Many people pitch yeast at twice this amount.

Another tip: Try making an unfiltered pale ale for comparison purposes, if you are not already do so. I think you will be shocked at how different the pales taste.

Let me also digress a minute to explain the changes over time in the way yeast works with pale ales. Before yeast was isolated and grown in a laboratory setting, pale ales had some phenolic and sulphur characteristics. In short these beers had too much yeast character and off flavors. Today, with industrial yeast, pale ales showcase more of the hop and malt ingredients.

But don't forget what yeast can do for these beers!”

— Chris White, White Labs

Brewer comment: The following advice is provided by Colin Kaminski, brewmaster at Downtown Joe's in Napa, Calif., since 2003. For the past year, Colin has experimented with water in his beers, including pale ales.

“I am no expert in water or water chemistry but it has been the focus of our brewery for this year. After a year of research we have identified a few things that can benefit all breweries. One of the most important things to get right in a Pale Ale is the water. Pale malts do not provide much

acidity and without care it is easy to get your boil pH too high. Here our water is very alkaline. We use acids to reduce our alkalinity. We have found the boil pH needs to be between 5.2 to 5.4. 5.2 makes a nice pleasing hop flavor where 5.4 makes a stronger hop flavor. Kolbach's equations work well for us to calculate our mash pH.

We like to set the water chemistry first and not add acid to the mash. Once you

See “Brewer Comment,” page 8

Craft Beer Quarterly

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Hopunion's 2006 crop report as of Sept. 4

By **Ralph Olson**
Hopunion CBC

Due to a prolonged hot summer, some of the aroma hops in the US are coming in on the light side. The cones appear to be smaller than average resulting in a lower yield.

The Cascades are doing fine. They are coming in as I write this. High alpha hops should be about average. The crop has matured at an accelerated rate due to the weather conditions. Growers are rushing to have them picked in time. They are hampered by trying to find



Hopunion's Doug Cannon pulls and cuts a brewers sample from the fresh crop.

available workers, but have done a pretty good job keeping up with the crop.

On the European continent, lack of rain and too much heat is causing similar issues with the German hops, causing a smaller than average crop.

More importantly the alphas on average are down, in some cases by 50%.

We are, however, still waiting for the final numbers. Things are just starting to get under way in the United Kingdom; the hops on average seem to be light, although the aromas and quality seem fine. No word yet on the alphas.

To conclude, in general 2006 will be a slightly lighter-than-average crop year. Final numbers won't be in for a while. Over the years acreage has shrunk worldwide and we are getting to a critical point for supply vs. demand, causing production below the needs of the brewers. With that being said, there will be hops available throughout the year.

This has created some over-demand on certain varieties. We strive to have the best supply of all hops available to the craft brewing world, but each year has its special circumstances, which makes pre-contracting a must for certain brewers and their signature styles.

We are suggesting that brewers in need of Santiam, Glacier, Simcoe, U.S. Magnums, Centennial, Amarillo, Horizon, pre-contract their hops early this year. It looks like Crystal has balanced out and will be in good supply from the 2006 crop. Please note if you are a raw hop user (dry hop usage of raw hops is still increasing), we are more likely to run out of these as we sell many more as



Part of the new hop harvest involves bailing hops.

hop pellets.

For Willamette there were some rumors of the 2005 crop being all purchased, of which we can attest that this is not true as we have a good supply of 2005 crop and our upcoming 2006 crop yearly sales needs are already contracted.

Rest assured there is and will be a good supply of Willamette's for sale this summer/fall. Please feel free to contact us at 1-800-952-4873 to discuss the details as to availability of particular hops, prices (price list is available upon request) and your prepaid contract payment terms.

Jim Boyd is welcomed to the Hopunion CBS sales team

Former expert with Yakima Chief joins Hopunion

In August 2006, Hopunion welcomed Jim Boyd with open arms into their Craft Brewing Sales department.

The merger of Hopunion and Yakima Chief allowed this great addition to the team. Jim's first exposure to the hop industry took place about 30 years ago as a kid growing up in Oregon he worked during harvest while in school.

After school, Jim became an Operations and Product Development Manager working on the production of extract products for the pharmaceutical and nutritional industry.

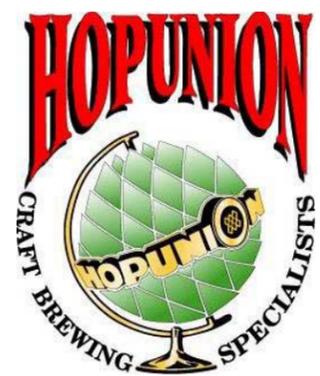
It was then, seven years ago that Yakima Chief came knocking on his door, and soon after he was introduced to the Craft Brewing World, and as he puts it "I have no



Jim Boyd

regrets, BEER is better than chemistry!"

When asked what his favorite part of the industry was, Jim replied with one word, "Passion."



Read more about
Hopunion at the
company's
website,
www.hopunion.com

Hop & Brew School class recap for 2006

By **Ralph Woodall**
Hopunion CBS

This year was the third year for the school that is held as two separate classes for two days each from September 5th to the 8th.

Attendance for the week was about 110 brewers, guests and speakers. Ralph Olson of Hopunion was again (for the third year straight) quoted saying, "This is the best time to hold the school because it is during hop harvest and this is the worst time to hold the school because it is hop harvest."

This is double duty time for the staff as hop receiving, marketing and sales were all going on at the same time as the classes. It was a week of day and night activities to insure that every thing got done that needed to get done. All in all it went really smooth and the outpouring of brewer support will guarantee a class for 2007 next September.

Hopunion's Ralph Olson gave an overview of the hop industry, with discussion of both the national and international hop situation. He discussed some of the newer hop varieties, the hop breeding programs, and also gave a hands-on evaluation and hop rub with some of the fresh 2006 crop. Ralph and coworker's

Ralph Woodall, joined by Jim Boyd and David Edgar, also gave a tour of the



A hop kiln is automatically filled during the hop tour for the brew school.

Hopunion office, lab, pellet plant and cold storage hop warehouses and explained the hop receiving procedures, including inspection, weighing, pulling of brewing value samples and brewers cuts

prior to storage.

Guest speaker for this years class were as follows:

Matt Brynildson of Firestone Walker – "Fermentation and Its Effects on Hop

Flavor"

Tomme Arthur and Jeff Bagby of Pizza Port and Port Brewing – "Sensory Analysis of Commercial Double IPAs"

Brandon Greenwood of High Falls Brewing – "Filtration and Hop Aroma"

Bryan Selders – Dogfish Head Brewing – "Continuous Hopping (Sir Hops A Lot)"

Jim Boyd – Hopunion LLC – "Preparation for a Food Safety Audit"

The class took the tour bus for an afternoon fieldtrip to the Moxee Valley area (5 miles east of Yakima) hop fields, observing the fields hop picking, touring the hop picking machine, kiln drying and hop baling process.

They also toured the American Hop Museum in Toppenish. Each evening included a BBQ dinner prepared by chef extraordinaire and Whistran Brewer/Owner Larry Barbus. This was followed by beer tasting held in the Tap Room and partying in the back room, "Bone Yard" where pool, dart, ping-pong, foosball and air hockey games were available. Like they say, it is a tough job going back to school but someone has to do it.

Plan early if you want to attend the 2007 class as the year goes by so fast it will be here sooner then expected. There are lots of good local hotels and campgrounds in the Yakima area.

Ralph Olson recognized by the American Homebrewers Association

Congratulations to Ralph Olson, who in June took home a 2006 American Homebrewers Association Recognition Award for outstanding service to the homebrewer community.

Ralph and his wife, Vicki, spent a lovely time in Orlando, Florida while accepting the much-appreciated award. Over the years Ralph has supplied homebrew clubs with hops for their competitions, and in doing so has introduced new varieties into the homebrewing community.

Be sure to read the hop section of the "Style Matters" article, which begins on Page 1



Ralph Olson wins a homebrewing award in June.

Hopunion variety book to be updated in the near future

The Hopunion Hop Data Variety Booklet is being updated for release later this fall or early winter.

We started working on updating the booklet last spring and hope to finish it this fall after this slow down after harvest. With so many new varieties being introduced to the market, this booklet will help you learn about the characteristics of the hops that Hopunion carries, along with Hop Oil, information and charts for the breakdown of hops.

This booklet includes everything from the aroma and alpha percentage to typical beer styles and substitutions for every variety. We also will update information on the CO2 Hop Extract, ISO Hop 30% and Tetra Hop products we carry.

Anything you can't find in the booklet, just feel free to call the staff at Hopunion at 800-952-4873 and we would be more than happy to assist you. We are in the process of updating the varieties on our website, www.hopunion.com, so be sure to keep an eye out for changes and updates.



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Attention brewer

Craft Beer Quarterly

The Back Page

CRAFT BEER QUARTERLY is brought to you by the following sponsors:



Yeast news,
pages 4-5



Hop news,
pages 6-7



Malt news,
pages 2-3

Brewer Comment

From Page 5

have the boil pH dialed in the next thing to consider is the ratio of sulfate to chloride. We prefer a high ratio for our pale ales. A high ratio makes the beers taste drier and crisper. A lower ratio makes the beer fuller and rounder.

We have 1,400+ batches of Irish Ale yeast experience. We have tested its qualities over time and can say a few things about it. It does not leave as much residual sugars as an average yeast. It does not flocculate as well as some yeasts. It is very robust to storage conditions. It does not require much O₂ and will blow off in ferments with too much O₂.

It stores well up to 14 days and good pitches can be harvested as early as 4 days. The flavor differences between 4 days and 14 days are minimal. It tends to be a sulfur producer but the sulfur tends to decline after 10 days. Once the strain starts to produce sulfur we discard it.

We have recently started to use English Ale yeast. We find it is quite fragile but we like the beers it produces greatly. We have used it in all English ale styles. It took us 30 batches to get enough experience with it to be consistent.

I think this is an important lesson. Yeast health is of prime importance with this strain and it does not store well. We like to repitch after 7 to 8 days. We also adjust O₂ levels based on the yeast age, pitching rate and starting gravity. Good control of O₂ levels is important.

We also find this yeast is sensitive to rapid temperature fluctuations and we try to warm cold yeast slowly before repitching. Its high flocculence makes it great for the production of unfiltered beers. It does tend to compact tightly on the bottom of the fermenter and can make it difficult to harvest. Often a half hour or more is required to harvest yeast. It is very sensitive to autolysis and needs to be separated from the beer promptly.”

GABF

From Page 1

Sponsored by Boelter Companies; Cargill Malt; Hopunion CBS LLC; Rock Bottom Brewery and White Labs Inc.

Join your fellow brewers for German-style beer and food. And, of course, the lederhosen!

Brewers badge required for admission.

Bowling Tournament

Bowling and beer — what could be better? Please join us for this annual afternoon of fun.

Elitch Lanes, 3825 Tennyson

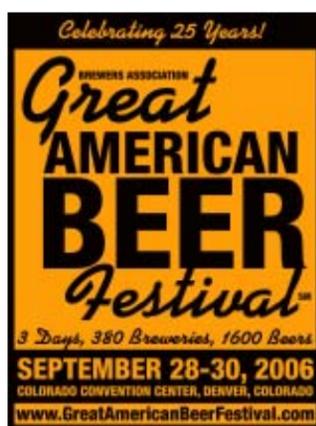
Friday, September 29th

1:00 -4:30 p.m. (Buses will leave the Hyatt starting at noon.)

Sponsored by the CBQ group of Cargill Malt; Hopunion CBS LLC & White Labs Inc.

Please contact joanne@whitelabs.com to sign up as an individual or a complete team of 5.

And we look forward to again sponsoring the Brewers



Gathering at Wynkoop. In honor of the 25th GABF Anniversary, we will be giving out special glasses and holding a door prize raffle.