



Volume 4, Issue 3/Summer 2005

Despite drought, hops in good supply

Water conditions improve in Yakima Valley

By **Ralph Woodall**
Hopunion CBS

Heavier than normal rain patterns hitting the Pacific Northwest in April and May have added some good news on the water front. The cooler temperatures and

rainfall have promoted hop growth and growers with short water supplies are having some signs of relief. Snow pack in the Cascade Mountains is still lower than normal for this time of year but improved during May.

Oregon hop growers also experienced above average

Find more news about the world of hops and Hopunion on pages 6-7.

moisture this month. This water shortage does not mean we will be out of water, it just means some growers' water

See "Hops," page 6

Style Matters: Czech Pils

In each issue, CBQ spotlights a particular beer style and provides tips from an ingredient and fermentation perspective. In this issue we take a closer look at Czech Pilsners.

Malt Notes: The grandfather of today's most popular beers, Czech Pilsners originated in the city of Pilsen in the Czech Republic. The soft water of the bohemian plateau made it possible to brew an all malt, pale beer which showcased the bitterness and flavors of hops. Over the years, as malting technology advanced and the use of adjuncts became more common, pilsners have become paler in color, but the epitome of the style, Pilsner Urquell, still retains a slight amber hue with a Lovibond of 3-5.

In formulating the grain bill for a Czech Pils we would suggest a mild, clean tasting base malt which will allow the hop characteristics to shine through. Cargill's Salzgitter Malthouse, located in Salzgitter, Germany, specializes in Pils Malt. World Select German Pilsner is a low protein, high extract, Barke variety, pale malt very popular among

See "Pilsners," page 2

White Labs' 10-year anniversary

By **Mike White**
White Labs

White Labs continues to grow strongly as the company and its customers celebrate 10 years of manufacturing brewers yeast and providing fermentation services.

The last few years have been marked by tremendous growth not just in the domestic market but also internationally, said White Labs President Chris White, who recently attended brewing conferences in Europe and South America.

To celebrate a decade in business, White Labs introduced WLP010 — a special 10th anniversary blend. Soon after White Labs started in 1995, the company offered five strains — WLP001, WLP002, WLP004, WLP300 and

Turn to pages 4-5 for more news about yeast and fermentations.

WLP810. Staff members created a blend of four of these strains (the fifth strain, Hefeweizen Ale, was not included because it does not mix well with other strains) and the result will be available for a limited time only. Contact your sales representative for more details at 888-5-Yeast-5.

In conjunction with White Labs' anniversary, AleSmith Brewing Co. in San Diego is developing a special beer with the blended strain. AleSmith, which is also

celebrating its 10-year anniversary, is introducing one of its characteristic high-gravity beers using the new strain.

As White Labs celebrates a decade in business, the company is maturing. While still operated as a small business, employees are receiving benefits normally associated with larger companies. The company offers a 401k plan and health insurance, among other perks. As a result, employees are staying longer, creating a more stable environment for the company and its customers. Customers are most familiar with White Labs' sales associates and directors, but some of the longest-time employees work in production, including supervisor Ricardo Gamboa, who has been with the

See "White Labs," page 4

New Canadian malting barley variety: Metcalfe

Bill Ladish
Cargill Malt,
Specialty Products Group

The Canadian 2-row malting barley variety *CDC Harrington* has long been the standard bearer of international commerce. Its smooth and neutral flavor profile, combined with enzyme levels significantly higher than traditional European varieties of the same level of total protein, makes it well-suited for the production of lager beers.

Harrington was developed by Dr.

Bryan Harvey at the Crop Development Centre at the University of Saskatchewan in Saskatoon. Hence the initials *CDC*. Dr. Harvey just retired as the dean of Canadian malting barley breeders, with the development of *Harrington* being his proudest accomplishment.

However, *Harrington* was registered in Canada in 1981. So it has been on the scene for more than twenty years. During that extensive time period the development of new barley lines, and more importantly the development of lines with

improved agronomics in those crops which compete for acreage with malting barley in Canada, has proceeded unabated. By the late 1990s it was apparent that *Harrington* was losing acreage. *Harrington* reached its highest percentage of the total area seeded to barley in Canada in 1993 at about 38%. That figure dropped to about 21% in the year 2000, and to about 8% in the 2004 crop year. The trend is anticipated to continue with the 2005 crop.

See "Metcalfe," page 3

Spiritwood: The big malthouse on the prairie

(The following article is reprinted in part from Brewpoints.com. You can enjoy more stories like “The Big Malthouse on the Prairie” on Brewpoints.com. You can sign up, compliments of Cargill at <http://brewpoints.com/subs/subscriptionForm.html>)

The vastness of the North Dakota prairie can swallow your illusions of personal grandeur. The horizon sweeps in an unbroken panorama. Miles tally on your odometer, but your progress toward a plainly visible landmark can appear to be painfully slow. There’s a stark grandeur about the Great Plains, alluring to some travelers and a purgatory to others.

This is agricultural country. Big Agriculture. The fields are measured in miles rather than acres. As you travel west across North Dakota, corn begins to diminish and the fields become seas of wheat and barley. It’s the barley that’s brought us to Spiritwood, North Dakota. More precisely, it’s the Cargill barley malting plant located there. The Spiritwood plant was built in the 1970s by the Ladish Malting Company. Ladish became part of Cargill in 1991 and began using the name Cargill Malt in 2001. Since old habits die hard on the prairie, local residents still refer to the facility by its original name — “the Ladish.”

It’s a huge installation by any standard — one of the largest malthouses in North America. You can see it from more than ten miles away, rising on the horizon like a ship returning to port. Once spotted, it takes a surprisingly long time to

reach the turnoff. More than likely you will follow one of the dozens of grain trucks that arrive every day with their golden cargo of future beer.

The location was chosen for its proximity to the barley fields and to the main line of the Burlington Northern Santa Fe railroad. Most barley arrives at Spiritwood by truck, coming directly from the fields or local grain elevators. Over 99% of outgoing malt is shipped by rail. In addition to malt production, the Spiritwood facility acts as a transshipping point for barley destined for other Cargill malting plants in Jefferson Junction and Sheboygan, Wisconsin. The Dakota grain is taken in from the trucks, cleaned and stored for shipment by rail.

A malthouse is an industrial facility and the Spiritwood combines Industrial Revolution with Information Age technology, on a grand scale. Huge amounts of barley, malt and water must be moved through the process with each step precisely controlled. While the process control system is highly computerized, maltsters such as our guide Frank Golde also maintain a close watch on the schedule using their keen memories and printed daily schedules tucked into a shirt pocket. As in any sophisticated operation, it’s the people who make the difference. Some 86 full-time employees keep the Spiritwood plant humming. Turnover is low, a testament to good management and the Midwest work ethic.

Pale malt makes up the vast majority of the plant’s output. Cargill is a major

supplier to the Big 3 brewers as well as many of the small and medium-size producers as well. The addition of “Kiln 8” has provided the ability to produce Crystal Malt with a Lovibond rating up to 60. This circular kiln is built to such exacting specifications that the malt bed is even to within 1/64 of an inch in depth. This sort of precision is crucial in maintaining consistency in output.

A big part of the operation of a malthouse is quality assurance. Cargill’s QA lab is a busy place, conducting hundreds of individual testing procedures every day. Modern technology are combined with highly trained and motivated personnel to make sure that the highest standards of quality are maintained. The gleaming clean labs are staffed by highly trained personnel and stocked with enough high-tech equipment to look like a set for one of the “CSI” TV programs.

The malt lab performs over 160,000 tests every year. That averages out to 77 tests per hour! The barley lab does 115,000 tests per year. That’s about 55 procedures per hour. Talk about a busy place!

The goal of all this science is to provide a product that will perform exactly the way brewers expect — every time.

The pilot malting and brewing depart-



Maltster Frank Golde outside the Spiritwood plant in North Dakota. Photo courtesy of Brewpoints.com.

ment at Spiritwood is a major asset to the entire industry. A team of experienced and dedicated technicians is constantly at work in their laboratory in an ongoing effort to unlock the secrets of malt. New barley varieties are evaluated in mini-malthouses that closely duplicate the huge systems of the plant. Variations in process can be evaluated for their effects on quality and efficiency. The key word is “repeatability.” Precision control of all variables assures the team that results in the lab will be replicated in production.

The mini pilot brewhouse is fully computerized for the same reason. Every step of the process is recorded and/or controlled by computer, guaranteeing repeatability of process. This allows them to determine accurately analyze the effects of

See “Malt,” page 3

Pilsners

From Page 1

north European pils brewers. As a domestic alternative Idapils, malted from Idaho grown Harrington, is a flavor neutral malt widely used in lager beers. Europils can be used for a more assertive flavor, which will support the hop character of a pils.

Because of the 3-5 Lovibond color range of a Czech Pilsner, a specialty malt may have to be added. Here we strongly recommend the use of a low color caramel malt. The process of stewing green malt before drying, unique to caramel malt, produces foam positive compounds which aid in the head retention found in an excellent pils. Any of the Continental European caramel malts available will make an excellent pils, although we would suggest stirring clear of the darker types. The roasting process used in dark caramel malts can add a burnt note inappropriate to a pilsner. On the domestic side our kilned Caramel 10, 20, or 30 will provide a reddish hue, and a slight toasty note.

— Cargill Malt

Hop Notes: The signature hop for this style of beer is the classical “noble” aroma hop from the Czech Republic named the Czech Saaz. This is the signature

hop associated with the world-renowned Pilsner lager. The Czech Saaz variety is typically lower alpha from 3-4.5%, with a similar beta level and has a Co-Humulone in the mid-range from 24-28%. It is very mild with pleasant “hoppy” spicy and floral notes. The oils are not as high as other hops but the Farnesene level of 11-15% is one of the highest of any hop and plays a part in its noble aroma characteristics. The beer should have a distinct bitterness that is not overly harsh and blends in with the rich maltiness.

There are a couple of other hops that can be used in brewing this style, which are the Polish Lublin, which is a Sazz grown in Poland, and the Sterling, which is a Saaz plant grown in the US. Both of these other hops have similar profiles to the Czech Saaz so can give similar bitterness and aroma to the beer. Although these other hops are available, the Czech Saaz is still the standard for the Czech-style Pilsner, and also is still our largest selling import hop. For more specific varietal details please refer to page 48 in the Hopunion Hop Characteristics book. If you do not have a new book give us a call.

— Hopunion

Yeast and Fermentation Notes: *The following is a first-person account by Chris White, president of White Labs, after returning from a trip to Europe:*

Recently, I had the good fortune to be in the Czech Republic for the European Brewing Congress. I drank my fair share of Czech pilsners, and talked to some of the brewers. A lot of tradition is still present; some brewers are even still fermenting in open (some wooden!) fermentors.

For those of you who have used our WLP800 Pilsner Lager Yeast, you know that it ferments more from the top than most lager strains.

I believe that is due to its use in open fermentors, and you can see a thick yeast coat on the open fermentors in the Czech Republic.

I spent a day at Budweiser Budvar; they are very traditional in practice, but they switched to tall, closed conical fermentors in 1992. They ferment for 12 days, plus or minus depending on the VDK test, then transfer to horizontal maturation tanks. Tradition now takes over,

See “Brewer comment,” page 8

Metcalfe

From Page 1

To their great credit, the Canadians released three new varieties in the late 1990s as potential replacements for *Harrington*. This would enable the market to determine which varieties would succeed and which would fail. *AC Metcalfe* was registered in 1998. The initials *AC* stand for Agriculture Canada. *Metcalfe* was developed by W. G. Legge at the Agriculture Canada Experimental Station at Brandon, Manitoba. The varieties *CDC Kendall* and *CDC Stratus* were registered in 1999. More recently the variety *CDC Copeland* was registered.

As anticipated, the market is rendering its judgment. In the 2004 crop year 56% of the barley acreage planted was seeded to 2-row malting varieties. About 36% was seeded to feed varieties, and 8% was seeded to 6-row malting varieties. The acreage seeded to 6-row malting barley varieties in Canada has been dropping precipitously in recent years. The 56% of acres seeded to 2-row in Canada in 2004 break down as follows, in descending order:

Metcalfe	47.4%
Harrington	14.9%
Kendall	14.3%
Copeland	8.6%
Merit	4.6%
Stratus	4.5%
Stein	2.9%
Others	2.8%

Clearly *Metcalfe* is the apparent winner, with almost half the acres seeded to 2-row malting varieties. In 2005 this trend is expected to continue. Also in 2005 *Kendall* is likely to pass up *Harrington*, and *Copeland* will come on strong. *Stratus* appears to be falling by the wayside. Only limited domestic demand is anticipated in 2005 for both *Stratus* and the Busch Agricultural Resources variety *Merit*.

In what follows we will focus our comments on *Metcalfe*. Subsequent articles will discuss primarily *Kendall* and *Copeland*.

Metcalfe is a cross of the previously well-known Canadian varieties of *Oxbow* and *Manley*. For those interested, *Harrington* has *Klages* in its parentage. The parentage of *Harrington* is *Klages*/(*Gazelle*/*Betzes*/*Centennial*).

One of the hallmarks of *Metcalfe* is its improved agronomic performance relative to *Harrington*. Those familiar with *Harrington* know that it has a tendency to have loose hulls. All four potential replacement varieties have improved hull adherence relative to *Harrington*. Overall agronomic yield for *Metcalfe* is about 8.5% higher than *Harrington*. Similar values for the other varieties are 7.5% for *Kendall* and 10% for *Stratus*. *Metcalfe* has im-

	Metcalfe	Kendall	Harrington
Friability, %	86.5	90.7	85.7
Moisture, %	3.9	3.9	3.9
Extract, Fine, dry, %	81.7	82.4	80.6
F-C Extract, dry, %	0.8	1	1.4
Wort Color, Lovibond	2	1.95	2.1
Wort Viscosity, cP	1.48	1.47	1.49
Total Protein, dry, %	11.2	11	11.3
Soluble Protein, dry, %	5	4.8	4.7
S/T (Kolbach Index), %	44.7	43.8	41.3
Free Amino Nitrogen, mg/L	175	159	158
Diastatic Power, Lintner	151	161	128
Alpha Amylase, DU	54.9	53	49.2
Beta Glucan, mg/L	88	81	88

proved scores relative to *Harrington* on lodging resistance, net blotch resistance, stem rust resistance, and resistance to smuts, particularly to loose smut.

Comparisons of malt analytical data across varieties has 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 customers and processed differently. So, while great amounts of data are available, there is only limited data available when all varieties are processed under generic conditions in an attempt to quantify differences across varieties. The writer is aware of only two such studies. One was done internally at Prairie Malt Ltd (PML) and 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 and included *Copeland*. 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 104-100.

In the chart above is the original comparative data, generated at PML. Represents at least 30 batches each. Generic processing.

Both *Kendall* and *Metcalfe* are capable of producing malt at the same level of total protein and moisture, with adequate modification, as *Harrington*. *Metcalfe* appears to have the more potent enzyme package. Diastatic Power and α -amylase are higher than *Harrington*. *Metcalfe* also has a higher rate of proteolysis. Note the higher soluble

protein and S/T values. Yet wort color is not materially higher than *Harrington*. Friability and fine-coarse extract difference are improved relative to *Harrington*.

One surprising aspect of this data set is the similar values for b-glucan across varieties. This is not typical of the variety. As the year progressed it became apparent that *Metcalfe* produces noticeably lower levels of b-glucan than either *Harrington* or *Kendall*. This data relationship was also confirmed by Li & Egi.

This same data set also produced an average b-glucan for *Stratus* of 150 mg/L, significantly higher than that of *Harrington*. This may account for at least part of the reason why *Stratus* has not

been as commercially successful as either *Metcalfe* or *Kendall*.

This low concentration of b-glucan in *Metcalfe* was also confirmed by processing data from the brewpub brewhouse. *Metcalfe* had a noticeably shorter run-off time than any variety tested. From the point of view of a maltster or brewer, this excellent performance in the brewhouse is the hallmark of *Metcalfe*, and is almost certainly responsible for at least some of its success.

We also found the following relationships of brewing data for *Metcalfe* relative to *Harrington*.

- Approximately equal ratio of fermentable sugars in wort.
- Similar rate of maltose utilization during fermentation.
- Similar rate of Plato decline during fermentation.
- Slightly higher alcohol production during fermentation.
- Similar pH during fermentation.
- Slightly lower VDK production during fermentation.
- Slightly less FAN utilization during fermentation.

At Cargill Malt, Specialty Products Group, we are attracted to the lower b-glucan and run-off times of *Metcalfe*, the higher extract of *Kendall*, and the growing popularity of both varieties with Canadian growers. Thus we construct our Cargill Two-Row Pale base malt as a blend of both varieties.

Malt

From Page 2

the particular variable at issue.

Much of the lab's work is directly connected to the needs of Cargill and the Spiritwood operation. They also dedicate a fair amount of their efforts to problem solving for people in the brewing industry. Brewers come to them with an idea for a new product or process and the Cargill lab boys do what they can to turn the dream into a reality. Much of what they work on in this way is very hush-hush, so getting information is tricky. Need-

less to say, even if we saw anything secret, the hypnosis has completely wiped it from our minds.

The smallest part of the lab's work falls into the category of "pure science." These investigations are not targeted to any commercial customer or even a particular end result. Just a lot of smart guys looking at "what if...?" Not surprisingly, this appears to be the favorite part of the job. Like any science project, there are many dead ends, but so often it's the journey that proves more en-

lightening than the destination. The pilot brewhouse crew is composed of pure science guys and headed by a brewmaster who had years of experience with an award-winning national brewing company. They shyly avoided photographs, preferring to remain anonymous. "We consider ourselves to be part of the Cargill team," they told us.

"What we do here is done to support other parts of the Cargill operation and what they do supports us."

L. White speaks on the low-cost QC challenge

Material for this story comes in part from a talk by Lisa White, vice president of White Labs, at the Craft Brewers Conference in April 2005.

Brewers have many challenges when it comes to fighting unwanted bacteria such as *Lactobacillus* and *Pediococcus*, but the battle can be won on a limited budget and with limited manpower. How can you fight contamination and keep it simple at the same time? Here are a few general tips before we talk about the specifics of a QC program.

■ Learn testing basics through classes or seminars at the various brewing conferences. On a more advanced level, training is available through Siebel Institute of Technology's two-week microbiology course for brewers. White Labs also offers on-site consulting for brewing emergencies or scheduled events. Some establishments have White Labs come to their breweries on a regular schedule, such as once a year, to check QC procedures and offer practical advice.

■ Develop a habit of using down time to test. Soon this will be as much a part of your routine as cleaning and mashing in.

■ Use a flame and Isopropanol when possible.

The essentials for good testing practices are fairly inexpensive. You will need the following items:

Isopropanol, a cleaning agent that can be found in most drug stores; a flame source; sterile water; sterile pipets, tubes and bottles; and microwaveable media. For those with larger budgets, consider purchasing an autoclave. At White Labs, we autoclave almost everything, including media and bottles. Another solution for those with limited budgets is a pressure cooker, which many brewers use. These can be found in kitchen supply stores or on Web auction sites for less than a couple hundred dollars. At White Labs, we also sell new ones.

Now that you have some general tips and equipment knowledge, let's move on to some of the tests that you can perform. Here are a couple good ideas:

■ Forced wort test. This test measures the cleanliness of the wort chiller and hard pipe or hosing leading up to the fermentor, before the yeast is added. Obtain wort sample and place into a sterilized container. Incubate in a warm area for a few days (optimal temperature is 30 degrees Celcius. After three days, if it is clear, your brewery is safe. If it is cloudy or bubbles appear, you may have problems in your brewery.

■ Environmental tests: To test the air, leave a plate out in the brewery for an hour and examine it with your eyes (no microscope necessary). If something appears on the plate, your air is not as clean as it needs to be. With



Lisa White, right, talks to brewers about lab techniques.

training, you can learn to detect what kind of problem you have by just looking at these plates.

These are just a few easy tests that you can perform. In future issues we will look at other tests and techniques that you can use to keep your brewery safe and your beer tasting great.

Chris White, Tomme Arthur discuss Brettanomyces

Radical beers was the topic of a presentation by Chris White, president of White Labs, and Tomme Arthur, brewer at Pizza Port in Solana Beach, at the Craft Brewers Conference in April 2005.

The two brewing professionals explained that although the word "Brettanomyces" can fill brewers and winemakers with dread, it has a past of historical importance and a future filled with promise.

A growing body of professionals are learning techniques for making the best of what many in the past have viewed as an unwanted flavor in beer. They explained not only how to accept Brett in your beers but to exploit it for all of its potential virtue. The taste of Brett, if handled properly, brings complex flavors to beer and helps us connect with earlier generations of brewmasters.

The world of Brettanomyces dates back to the origins of European brewing, but the word itself is relatively modern. N. Hjelte Claussen, director of the New Carlsberg Brewery, Copenhagen, Denmark, introduced the word at a meeting of the Institute of Brewing in 1904, and



Chris White, middle, talks to brewers about radical beers.

named it for the connection between yeast and British ales. He demonstrated that strong English stock beer underwent a slow secondary fermentation, and that this secondary fermentation produced flavors characteristic of British beers. The flavor was duplicated by inoculating primary fermentation beer with a pure culture of this newly named Brettanomyces. At this time, there was still no connection made to the wine world.

Specifically, Claussen showed a Brett inoculation of a 1.055 specific gravity beer would achieve the "English" character. In

1947, J.L. Shimwell confirmed the conditions: a 1.060 OG beer was essential to achieve a "vinous" wine like flavor, a beer under 1.050 would produce an unpalatable and turbid beer with insipid flavor and aroma. Shimwell said Brett can be-

have "as a desirable organism in one beer and an undesirable one at one and the same brewery."

In future issues, we will look at some of the techniques brewers are using to get the most out of Brettanomyces.

White Labs

From Page 1

company about six years. His wife Ana also is a longtime employee in the production department. They are two of among about 30 employees.

As it grew, the company managed to work on longterm projects, such as Yeastman, the computer program developed specifically for the lab. The program allows workers to track each strain through the entire production process, improving quality control and production schedules.

Eventually the system will be available to the sales staff, allowing them instant access to production timetables. The program has been in development for three years, and in-house efforts are led by lab supervisor Neva Parker. (See Neva's update of the program on Page 5).

Over the next few years, White Labs plans to move to a larger production facility; conduct fermentation trials with a new brewing system being developed by Beer,

Beer and More Beer (see page 5 for more information on this testing system); and provide more services to the fermentation industry including wine and distilling.

It took tremendous effort to get to this point. During the first few years the lab had numerous locations, and it took four years before the company began making a profit. Today White Labs is a leading player in yeast production and fermentation sciences for American microbreweries and pubs, and international breweries are expected to be a big part of the lab's growth over the next few years. The company looks forward to another successful decade and longer in business.



Visit to Germany a must for any craft beer fan

As president of White Labs, nothing brings me more satisfaction than seeing brewers making great beer. I especially enjoy visiting brewers at their facilities or at conferences. There are few better places to visit, in terms of beer and beer history, than Europe.

Here is a condensed account of a recent trip to Europe, complete with brewery tours, beer tips and friendly faces.

On May 15, I arrived for the International Congress of European Brewery Convention in Prague. It was about a 12-hour flight from San Diego, with stops in between, of course. When I arrived in the Czech Republic at about 5 p.m., I found the hotel, changed and headed right for the conference. It was wonderful. They had a nice reception with a band and about 1,000 attendees. Besides meeting some new friends from Europe, I encountered brewers from the U.S., including Boulevard Brewing Co. (Kansas City), Stone Brewing Co. (San Diego), and Sierra Nevada (Northern California), among others.

The conferences started the next day, and they were taken very seriously by the beer scientists who presented as well as attendees such as myself. The yeast discussions were particularly enlightening, including a presentation by Brian Gibson of Oxford Brookes University about the stress placed on yeast through oxidation. Gibson's research involved examining the DNA of lager yeast.

In all, there were three days of scientific conferences. More than 800 delegates attended and there were 60 exhibiting companies. On the last day conference attendees



Technical
advice
Chris White

visited a number of Czech breweries, including Budweiser Budvar. (For more on my visit to Budweiser Budvar, turn to "Style Matters" on Page 1 and read my observations under the category "Yeast Notes.")

The next day, we left for Denmark to visit breweries, and I gave a seminar in Copenhagen.

A few days later I was back on the plane to the United States. Everything until this point was wonderful. But going halfway around the world on a plane can be grueling, as anybody who takes business trips knows all too well.

Or was it the commotion from the festivals? It's okay with me.

I am ready for the next trip.

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. Contact him at cwhite@whitelabs.com

From the Lab: New equipment and other upgrades

"From the Lab" is written by Neva Parker, whose job includes developing the computer program called "Yeastman." The program, developed specifically for White Labs, uses barcodes to follow yeast strains through the entire culturing process, allowing employees to track strains through each step of testing and growth.

and viability of our cultures. With this function, an all-en-



compassing Quality Control Report can be generated, specific to each customer. Another advantage of Yeastman is that the PDAs can operate under the extreme temperatures in the cold room, where a lot of our work takes place.

In the future, we hope to link the inventory module in Yeastman to our sales desk, so that they may also see what yeast strains are in production and when they will be available for shipping. We will put in place a yeast reservation system that will

allow our sales staff to give a customer an immediate response when they have a last minute request.

New Brewing System

White Labs is expanding its testing abilities through the use of a new pilot brewing system. In July, White Labs took possession of a complete brewing system from Beer, Beer, and More Beer. It is a 20-gallon all-grain system with four 5-gallon stainless, temperature-controlled, cylindroconical fermentation vessels. While we have done a lot of lab-scale fermentation trials in the past, this new system will allow us to replicate real brewing conditions and get better results.

We will be able to perform a number of fermentation trials – same wort with different yeasts, different fermentation temperatures, wort trials, enzyme trials, etc. With the digital controls of the brew system, we will be able to manage certain prop-

erties of the brew and study how one variable can affect fermentation. We hope to gain more information about our products so that we can better aid the brewing community.

And of course, we at White Labs love beer and we like to brew! Not only will this be a great tool for us in the lab, but we will be able to enjoy the end products.

Yeastman Updates

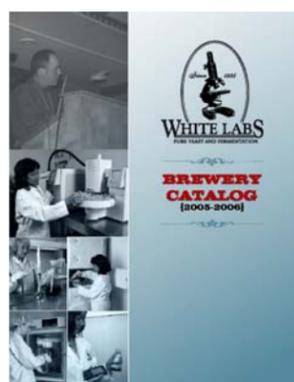
With the addition of wireless handheld PDA devices, multiple users are now able to access the Yeastman interface to perform lab and production functions. This new feature allows up to three technicians to perform tasks using the PDAs and all of the information is sent live to the Yeastman program.

These PDAs have the ability to not only track yeast production, but they are able to record testing results, cell counts,

New catalog now available

Wondering what White Labs has to offer? Curious what's new and interesting for the coming year? Get a hold of the latest White Labs catalog.

The 2005-2006 catalog is now available. Call 1-888-5-YEAST-5 to order your copy today.



Goodbye, Justin White

Justin White has left White Labs after more than four years at the Colorado sales office.

Justin was instrumental in working with brewery clients and international sales. White Labs wishes Justin well in his new pursuits at BASE.

Justin and wife Monica recently celebrated the birth of their second child.

Craft Beer Quarterly

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CBC Philly overflows with positive news

By **Ralph Woodall**
Hopunion CBS

This year's Brewers Association's Craft Brewers Conference was held in the Philadelphia Marriott Downtown April 13th-16th. A positive feeling was definitely in the air as good industry news was shared among attendees. Hopunion was well represented again this year by Ralph Olson GM/Owner, Ralph Woodall, David Edgar Hopunion representative of Boulder, CO., local company associates, John Farver, Phil Crane, Dave & Becky Pyle of Springfield, VA., and Tom Moench of Orlando, FL. We also sponsored Dave Wills of Freshops of Philomath, OR.

We attended numerous brewer events and seminars and met many brewers for

the first time while reacquainting ourselves with many old friends. Our Brew Expo America booth was open both Friday and Saturday. We attended the Stoudt's Brewery Party on Tuesday night. We were well represented on the Wednesday Brewery Tours, cosponsored the Wednesday night Welcome Reception at Yards Brewery as well as cosponsoring the CBQ hospitality suite Friday night. Hopunion provided hops for the 7-Threads Symposium Ale produced as a collaboration of several area breweries.

Some other highlights of the conference were the Conference Welcome by Tom Kehoe of Yards Brewing, Co., Opening Remarks & Presentation of BA Awards by Kim Jordan CEO of New Belgium

Brewing Co., State of the Craft Brewing Industry by Paul Gatz Director of the BA and the Keynote Address by Gary Fish, President of Deschutes Brewery of Bend, Oregon.

The 2005 Russell Schehrer Award for Innovation in Brewing was presented to long time brewer and beer writer Greg Noonan of the Vermont Pub and Brewery in Burlington, VT. The 2005 AOB Recognition Award was presented to the first woman US brewery owner, Carol Stoudt of the Stoudt's Brewery in Adamstown, PA. The EX. Matt Defense of the Small Brewery Industry went to Marc Sorini of McDermott, Wills and Emery.

The final event was the Grand Ban-

quet Saturday night with speakers BA President Charlie Papazian and Ken Wells, veteran Wall Street Journal writer and author of "Travels with Barley," a story of one man's journey through the craft beer culture in America. A book purchase and signing session was held after the dinner.

Hopunion would like to extend special thanks to the BA staff especially Events Director Nancy Johnson and the 7-Threads brewers; Yard's, Stoudt's, Independence, Flying Fish, Victory, Dogfish Head, Iron Hill, Nodding Heads, as well as other area breweries Manayunk, McKenzie Brewhouse, Triumph, Stewarts, General Lafayette and the Sly Fox.

See you at the CBC 2006 in the "Emerald City" of Seattle, Washington.

Hopunion CBS sponsors rally series race car

Stage Rally is an exciting race where a team of driver and co-driver race against the clock following detailed notes of the road. Rally is run on closed public roads that are divided into stages.

Vilnis Husko took a 1986 Toyota Corolla and turned into a Production Class Rally car. At his first race ever, Doowops 2004, he and his co-driver Karen Avila took 3rd Place.

At Oregon Trails they took 2nd place in Production Class. With the challenge of a new unexpected co-driver, the third event was a disaster. They got lost in transit. The road section between stages wound up going 25 miles out of their way. But, with a new co-driver John Schwab, Villy took first place at the Wild West event.

Without the financial support of his sponsors Hopunion CBS, US Bank and Franks Tire, getting to that race would not have been possible. The last event of

the year, Mt Hood, Vilnis and John did so well that their competition did not believe the car was capable of their times.

They issued a protest and Villy had to completely tear his engine apart or move to a more advanced car class. He would have gotten first place in Production but took 2nd in Group 2 instead.

The 2005 season started with Vilnis and John moving up to Group 2 (2 WD cars with unlimited modifications except turbo chargers.) They finished 5th overall in their class of 37 cars.

At Oregon Trails, the car had an unexpected breakdown so no points were scored. The next race in June, Dryad & Shitepoke good results are expected.

The car is ready.

The co-driver is willing.

The driver is able.



Hops

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allocation will be lower.

In a water shortage year, some growers have senior water rights which gives them 100% allotment of water. Other growers have junior water rights, so receive allotment percentages based on the total supply.

Hop growers for the most part are used to having periodic droughts and most have some type of back up system for their water needs. Drip line irrigation has added to water usage efficiency, deep wells as well as water sharing is available to some growers.

Also, the US hop acreage is significantly lower than it was some 20 years ago. As some of you are aware we have experienced this dry condition every few years and have always gotten hops to sell during these years. Hopunion CBS, LLC Washington grower owners have senior water rights as they are located in the original hop growing area of the Moxee Valley east of Yakima.

We do not want to cause an over reaction to the

Rain storm in Yakima causes funnel cloud

On May 9, Yakima experienced what was called a "drenching" with over an inch of rain recorded some places in the Yakima area, causing local street flooding. Ralph Woodall had just completed a phone conversation with Owen Williams of BJ's regarding the improving water status in the Yakima Valley, then went home to get his Internet connection fixed. While there the cable guy said, "check out the fun-

nel cloud." Ralph (being the armature photographer he is) immediately got his camera and captured what would be a front page shot the next day in the Yakima Herald Republic newspaper. It was also released to the AP and appeared in the Seattle PI.

This is living proof that water conditions have improved in the Yakima Valley this month.

market but want Craft Brewers large and small to be aware of the short water situation that now exists in the Yakima Valley.

If you are overly concerned please give us a call at 1-

800-952-4873. Also call this number for updates or if you would like to be precontracted for 2005 crop needs.

The last issue of the CBQ had a good overview of pre-contracting hops to review.

Dave, Becky Pyle win “Best of Show” award

The Pyles have worked with Hopunion for 10 years

Over 4,000 beers were entered into this year American Homebrewers Association’s Homebrew Competition, with the second round being judged at the AHA Conference held in Baltimore June 16-18. During the Grande Banquet, awards were presented to the 1st, 2nd and 3rd place winning beers in 29 different categories. The award for Best of Show was given to Dave and Becky Pyle of Springfield, Virginia for their unblended Lambic, earning them the title of AHA 2005 Homebrewer of the Year.

Dave and Becky, pictured at far right, have been avid homebrewers since the early 1990s. Shortly thereafter they became members of Brewer’s United for Real Potables (BURP) that is one of the largest homebrew clubs

in the USA. At that time the laws in Virginia had not been updated to reflect support for the small (but growing) craft brewers in the region. A man named Bud Hensgen spearheaded the effort to change the laws and enlisted the Pyles’ help to lobby for changes in Virginia Law. This led to the first legal beer festival in Virginia called “River City Real Beer Festival.” Ralph Olson with Hopunion was one of the first sponsors to step up to the plate. That was the day the Pyles became Ambassadors for Hopunion and they have been working with Hopunion for over 10 years now.

Their love for Lambics has been going on almost as long. With the acquisition of two oak barrels what was a small endeavor has become a way of life.



Hop availability update for 2004 and 2005 crop

By **Ralph Woodall**
Hopunion CBS

As many brewers know some hops are in short supply again this year (Simcoe, Santiam and Amarillo, US Magnums) while others that were short last year are fine this year such as Crystal.

This is part of the never-ending cycle of the supply and demand process which

is hard for both growers and brewers to predict with the changing of beer styles, customer’s tastes and the increasing hopping rate of many popular new beers. 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 it’s special circumstances

which make pre-contracting a must for certain brewers and their signature styles. We are suggesting that brewers in need of Santiam, Simcoe, US Magnums and Amarillo pre-contract their hops early this year.

It looks like Crystal and Centennial have balanced out and will be in good supply from the 2005 crop. For Willamette there were some rumors of

their being all purchased by a large brewer of which we can attest this is not true as we have our 2005 crop yearly sales needs already contracted. Rest assured there is and will be a good supply of Willamette for sale. You can call us at; 1-800-952-4873 to discuss the details as to availability of particular hops, price and payment terms.

Hopunion hop and brew school class of 2005 update

This second annual event will be held again at the Hopunion CBS, LLC office and warehouse complex in Yakima, WA. The date is September 8-9th. It may be that two separate dates are scheduled as we had such a successful first year we are concerned

there may be too many attendees to handle at one time.

The additional date if needed would be September 6-7 Ralph Olson is planning to have another talented group of brewers give hops and brewing oriented talks along with other hop related topics. The school also includes a bus trip to a Moxee area hop ranch to see the harvest process as well as the American Hop Museum in Toppenish.

The registration cost is a minimal \$100 and covers the two-day event. The fee also includes a BBQ the first night, lunch and another BBQ the second night. This is a great time to network with fellow brewers, learn more about hops, drink some “hoppy beers” and experience the Yakima Valley Hop Harvest at its prime time.

Look for our flyer in the mail with all the registration details. If you want a jump you can call us at 1-800-952-4874 to get on our pre-registration list.

Hopunion’s new addition

On January 14, CBS Coordinator Jennifer Stevens and her husband Tim welcomed the birth of their first child, Nathaniel, into the world. With careful planning, they made sure Nathan would arrive during the winter so that Jennifer will be ready to tackle her 6th year of hop harvest duties in August. Nathan is pictured right in a Hopunion bucket hat with a bottle of Señor Stinky’s Stout. Congratulations!



Read more about
Hopunion at
www.hopunion.com



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Attention brewer

Craft Beer Quarterly

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Brewer comment

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and they mature the beer for a surprisingly long time of 90 days. They allowed me to compare a beer from a 40-day tank and a 90-day tank. The flavors were similar, but the aroma of the 40 day was higher. It was also not as clear as the 90; some yeast looked to still be present in the 40-day tank. Aging for 90 days has another advantage, as it keeps diacetyl down; some Czech pilsners do have diacetyl.

Not surprisingly, their lager yeast is not very flocculent (similar yeast to our WLP802, Czech Budejovice Lager Yeast). Perhaps if the 40 day was filtered, the aroma would be closer to the 90. Sulfur aroma was very little in both samples.

— White Labs

Brewer Comment: In each issue we try to get a brewer who has experience in a particular style to offer his or her own perspectives. In this issue we welcome the comments of Philip DiFonzo, President and Brewmaster at King Brewery in Nobleton, Ontario, Canada. The brewery produces only European-style Lagers and celebrated its three-year anniversary in July.

CBQ: What are you trying to accomplish with your beers?

DiFonzo: I want the beer drinker that understands this style of beer to say it tastes like a pilsner some where between Pilsner Urquell and Budvar. That it has the bitterness of Pilsner Urquell and the maltiness of Budvar. I believe that a Czech pilsner should have some challenge to the beer drinker. I think that many Czech pilsners have been mainstreamed to a milder bitterness and less hop flavour. I feel that my Czech-style pilsner was probably what

Bohemian Pilsner beer was about some 50 years ago. A pilsner with a firm malty back bone to support a lot of fresh saaz hop bitterness and flavour.

CBQ: What do you do differently than other brewers?

DiFonzo: I spare no detail to brew a stylistically correct and authentic European tasting lager.

To capture the aroma, flavour and body of a Czech-style pilsner you need pure soft water. I use distilled water and salt it to match the soft water of Plzn. My malt bill is straightforward 100% Bohemian Pilsner Malt from the Czech republic. Four additions of only Czech Saaz hops. I brew in a newly fabricated German-style decoction brewhouse. I mash in my kettle and perform 3 upward temperature rests using steam jackets and a speed adjustable mixing paddle. This is known as stir mashing. My mash off is by decoction.

Accurate fermentation, aging and lagering are very important to all lagers. Clean consistent flavours and aromas are at the route of a quality experience in the beer glass. For me there is only one to do this — a 99.9% pure authentic Czech strain of yeast. Clean and viable, ready to perform a vigorous and complete fermentation at 10°C or colder. Use the White Lab rules of pitching rates and start temperature then drop the temperature down to your target but only after yeast has started its aspiration of CO₂. After a 48-hour ferment, let the temperature naturally go up to a diacetyl rest for an 8 hour period and then reduce temperatures to perform an aging over the next 5 days.



White Labs personnel recently visited King Brewery in Ontario, Canada. From left to right are King Brewery President and Brewmaster Philip DiFonzo, and Lisa and Chris White of White Labs.

Then lager at 0°C for whatever period necessary to drop yeast and get rid of unwanted by-products of fermentation.

CBQ: What suggestions can you offer to other brewers to improve their Czech Pilsners?

DiFonzo: Get to know your yeast! I seem to learn something new about my strain every fermentation. The correct temperature for the phase of fermentation is vital to a complete proper ferment. Yeast

should stay in suspension after fermenting to clean up flavours and aromas. Sure, pull yeast after you reach your finished gravity but do an aging of 5 days or so, by dropping slowly to 0°C that will keep the yeast around for awhile. Yeast is a brewers best friend don't piss him off! Or you will be sorry.

Learn more about King Brewery at www.kingbrewery.ca.