The Midnight Brewer

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HERMS: A Better Way to Mash

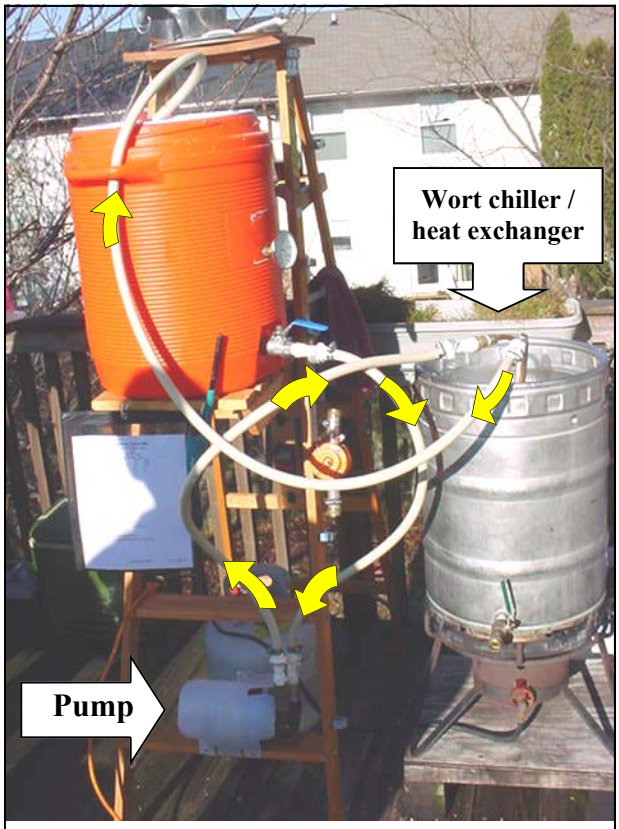
HERMS = Heat Exchange Recirculating Mash System

By Steve Kranz

Every all-grain brewer is familiar with the process of ***recirculating*** during the mash. At a minimum, it means drawing off several quarts of wort from the bottom of the mash tun at the end of a mash, and carefully pouring it back up into the top of the mash before sparging. The most basic reasons for doing this are to flush out any pieces of grain which have gotten under the false bottom, and to establish a filter bed of grain for a nice, clear run-off after the mash is finished.

But recirculating can also be done throughout the entire mash (not just at the end) with the use of a pump. The point of doing this during the mash is to add heat to the wort during recirculation. The advantages of doing this include:

1. No worries about hitting your target mash temperature, and maintaining the temperature throughout the whole mash bed for the entire 60-90 minute mash;
2. Being able to easily and accurately raise the mash temperature to do a "step mash", and a high temperature "mash-out";
3. Attaining a more complete starch conversion and significantly better efficiency (5-10 points);
4. Getting crystal clear run-off during sparging.



In this Heat Exchange Recirculating Mash System, the wort flow (shown by the yellow arrows) starts out the bottom of the mash tun and down into the pump, where it gets pushed back up, through the heat exchanger (a coil chiller inside the kettle), and back up to the top of the mash tun. The pump is protected from damage from splashing water or wort, with a splash shield which I made out of a one-gallon PBW jar.

The means by which a brewer applies heat to the recirculating wort is either directly such as by mashing in a kettle and turning on a burner underneath the mashtun, or passing the wort through a heating element; or indirectly by circulating the wort through a heat exchanger. The heat exchanger (a copper wort chiller is most commonly used) sits in a kettle of hot water, and as the wort is pumped through the exchanger it picks up heat from the surrounding water. This HERMS method of recirculating is wort eliminates the possibility of scorching the wort which would add unwanted color and off-flavors to the wort.

My HERMS system uses a plain old copper coil wort chiller as a heat exchanger to add heat as needed to maintain the mash temperature, or to raise it during a step mash. The wort flows out the bottom of the mash tun, into the pump attached to the bottom step of my BrewLadder, and up through the coils of the heat exchanger, where it picks up heat from the surrounding hot water in the kettle. The reheated wort then leaves the heat exchanger and goes back to the top of the mash.

The Pump

The heart of the system is the pump. It is a March brewing pump which uses a magnetically-driven impeller. The impeller (the paddles that actually move the beer) is in a separate housing from the motor, and it spins when the motor's magnet on the other side of the housing wall spins.

(Continued on page 6)

Club Hoppenings

Microbrewery Festival Update

Plans are coming together for the First Annual Union Mills Homestead Homebrew Competition, which will be judged on the grounds of the Maryland Microbrewery Festival on September 27. Our club is taking the organizational lead, but we are getting a huge assist from Les White and the Free State Homebrew Club Guild. The competition will be officially sanctioned by the BJCP.

In addition to seeing that the competition judging goes smoothly, we will also host the homebrewing pavilion again, demonstrating the brewing process, providing public education about beer & brewing, and distributing information about Maryland homebrew clubs. The main reason for our participation in this annual event is that the festival sponsors want us to provide public education on the subject of beer and brewing. As before, we will need volunteers to help with set-up & take-down, doing the actual brewing demonstration, and most importantly, talking with visitors about our club, and being able to explain the brewing process.

Big Brew 2008

Lydia and Gary Cress hosted another hugely successful Big Brew, which is an annual event organized nationally by the American Homebrewers Association to celebrate National Homebrew Day (as declared by Congress on the first Saturday of May). We even had a Mid-Atlantic Brewing News reporter stop by to visit late in the afternoon.

MHL at the Farm Museum

For the first time ever, the Midnight Homebrewers League set up shop as an exhibitor at the Carroll County Farm Museum, during the Carroll County Fiddlers Convention. We had a whoopin' & hollerin' good time meeting some nice folks, picking some tunes, and listening to some fine amateur old-time and bluegrass musicians compete for prize money. The event went well, and we hope to be able to participate at other (and larger) Farm Museum events down the road.

National Homebrewers Conference 2008

Thirteen club members had a great time representing the Midnight Homebrewers League in Cincinnati at the NHC. We did Seminars from Thursday to Saturday...Pro Brewers Night on Thursday...Club Night on Friday...and the Grand Banquet on Saturday before heading out of town on Sunday. Some of us got in a round of golf, saw the sights and sounds of greater Cincinnati, and had nice meals in area restaurants and brewpubs.

As in years past, the highlight of the NHC for most attendees is Club Night. It's a four-hour extravaganza of homebrewed excellence and decadence, where clubs from around the country try to "out-club" each other with mass quantities of great beers; bars and other delivery systems which run the gamut from beautiful to ridiculous; proud club attire ranging from bizarre costumes, to bowling shirts, to T-shirts; and more food from around the country than you can shake a stick at.

More articles and photos appear in the pages which follow, and in the next newsletter. Next year's NHC will be held in the San Francisco Bay area. More details will be shared as we receive them.

Brew-Ha-Ha 2008

July 12 is the date for the next and best Brew-Ha-Ha to be hosted by Neil Mezebish. This year, we anticipate that many brewers will be brewing a beer (or two) to enter in the Microbrewery Festival Homebrew Competition.

Those who attend will get to see our brand new bar in use, which was created for us by John Byrd for Club Night at the NHC.

And we also owe **thanks** to Gary Cress, who donated three beer faucet and shank assemblies to the club for use with the jockey box and bar.

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Brewer's Tips & Tricks

- **Flasks and yeast starters — one small step for yeast, one giant leap for yeastkind**

I rarely make yeast starters, but some of my brews of late have gotten off to sluggish starts, or didn't seem to finish where they should have, even with very fresh vials of White Labs liquid yeasts. White Labs suggests making a starter for high gravity beers, or if the yeast is near or past its "best used by" date. But even for your run-of-the-mill brew and a fresh vial, some yeasts will still start sluggishly. The way to get 'er done is to make a starter. But that's a pain...make a wort, boil & chill it, pitch the yeast and wait a day. That all takes planning and more work.

Enter the Erlenmeyer Flask. These glass lab vessels come in a variety of sizes, but what makes them special is the borosilicate glass from which they are made. This glass can go from boiling, right into an ice bath for chilling, without breaking like regular glass would. Pitch the yeast directly into the flask, shake it to aerate the wort, and within 12-24 hours you should have a nicely fermenting yeast starter to pitch into your new beer. Your yeast will thank you.

- **The Autosiphon...why did I wait so long?**

The Autosiphon is a device that's been around for a good while...I just never paid it any attention. Then, I was helping new brewer Mark Lortz bottle a batch of beer in his kitchen, and we used his Autosiphon which had come with his new equipment kit.

As I've said many a time, I am easily amused. But this gadget really works very well to get your racking siphon going instantly. It is a racking cane within an outer tube assembly. At the bottom end of the racking cane is a wider ring which creates a seal against the outer tube. When you want to start a siphon, you simply immerse the assembly into your fermenting bucket or carboy, pull the inner racking cane out about half-way, then push it back down. This causes a "plunger" effect to push wort up within the racking cane, instantly starting your siphon. The outer tube has a removable tip which keeps the end of the racking cane out of any sediment.

The device is pretty much as simple to sanitize and clean, as a plain racking cane.

Hop update: it's going to get ***worse*** before it gets better

One of the more engaging speakers at the NHC in Cincinnati was Michael Ferguson, the Director of Contract Brewing and Beer Training for BJ's Chicago Pizza & Brewery. His speech was on the subject of ***"Hop Substitution: How Do We Make the Beers We Want in this Crazy Hop Market"***.

Rather than focus on which hops can be substituted for our favorites (we can all find the chart, and his position is that there are no such things as substitutes), he suggested things we can do to maximize the use of the hops we have. Here are some:

* If you store your hops in a frost-free freezer (like most refrigerators have), the defrost cycle warms the freezer which is not ideal for hops in frozen storage. If possible, vacuum-seal your hops with ice cubes in the bag to maintain freezing temperatures for the hops during the defrost cycle for better long term storage;
* Brewing drier beers (i.e. with less residual sugars) lets more hop flavor come through, letting you use less. So, adjust recipes to either use fewer fermentables, or use a more attenuative (higher alcohol) yeast strain;
* Adjust water chemistry to add hardness (i.e. calcium carbonate) which can give a beer a drier "mouthfeel" and enhance perceived hop bitterness;
* Blend similar hop varieties to stretch your stock of those hops which are in short supply, without having to replace them in your recipes altogether;
* Try reusing hops, particularly dry hops. A lot people groaned at this suggestion during his presentation, but it is a practice that is already in limited use and is bound to become more popular as people try it.
* Lengthen your boil times to get more bitterness out of a smaller quantity of bittering hops.
* Similarly, if you dry hop, try using less, but leave them in for a longer period of time before you keg or bottle.
* Experiment with new hop varieties. Some varieties such as Cascade will be in short supply for a long time. Growers are focusing on higher alpha hops (bittering) over lower alpha varieties (aroma/flavor) because they typically have higher production yields, are more disease-resistant, and brewers can use less of them to get equivalent bitterness.

Pub Review: 21st Amendment Brewery & Restaurant (San Francisco)

By Paul Seegers

[Editor: Paul visited this brewpub in California while he was there on a business trip. But it fits in nicely here, on the heels of our trip to the National Homebrewers Conference, because next year's NHC is in San Francisco.]

The 21st Amendment Brewery & Restaurant, 563 Second Street, San Francisco, is located four blocks from AT&T Park, home of the San Francisco Giants, in a very accessible area of downtown San Francisco. The bar has a very open atmosphere with the bar seating (limited) in front and restaurant seating in back with a loft. I suggest you call ahead to make sure the loft is open as it wasn't the night we visited.

I had the beer sampler, which included South Park Blonde, Bitter American, Potrero ESB, North Star Red, and 21A- IPA.

(I just couldn't bring myself to try the "Watermelon Wheat" made with 400 lbs. of fresh watermelon. Please, leave the berries and melons for salads, they have no place in beer!)

I also stumbled on a mystery beer, very hoppy IPA which was to be released the following day. But if you asked the bartender for the "Beer" and pointed to the tap he would reluctantly deliver. The suggestion came from John Foster, a beer publisher/blogger, who was seated at the bar.

You might want to visit www.beerschool.com to find out more about John.

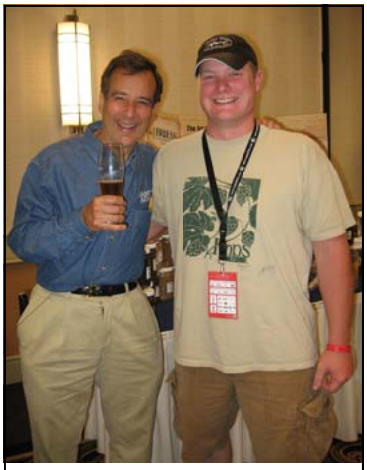
Well, the beers were good, I would say better than average, if you are in San Francisco it is worth the stop.

NHC was not just about homebrew. Commercial beers shined as well!

By Steve Kranz

While the focus of the NHC is on homebrew, commercial brewers are an integral part of the event. They sponsor (pay for) conference events to make it more affordable for everyone to attend, and of course, they have a presence there to promote their products to a captive audience of homebrewers.

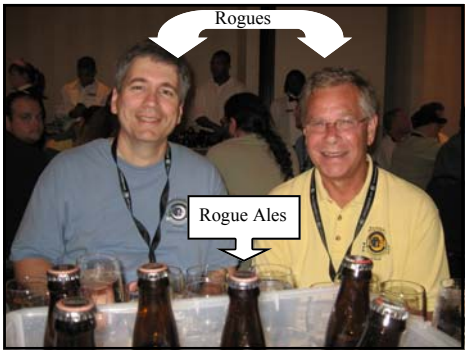
Microbrewers are on full display at Pro Brewers Night, a mini-beer festival, where local microbreweries serve beers which we might never otherwise get to taste. One example is **Goose Island Beer Company** of Chicago. They operate two brewpubs, and also distribute bottled beers in 15 states, but not in Maryland. And because Maryland doesn't allow shipping of alcohol into the state, you'll never get to drink these beers unless you go there or someone brings some home to you...or you have it shipped to a state where it is legal such as Pennsylvania.



Eric Custer with Jim Koch, founder of Boston Beer Company and keynote speaker at the NHC. Koch started out as a homebrewer, and is a good friend to the homebrewing community.

They served a wonderful beer, probably the most remarkable beer I tasted during Pro Brewers Night, called ***Pere Jacques***. It is a dark amber, Belgian style ale that's kind of sweet, very malty, and 9% abv. It is only released in small quantities in January..but they were pouring it in Cincinnati in June, and it was some delicious! I didn't get to it until "last call", when I was standing with Les White, and Les pointed to their table and asked if I had tasted Pere Jacques. I went right over to get a pour as the evening came to a close, and...WOW, I'm glad I did. I can't say it's worth a separate drive out to Chicago to get more, but damned near.

The other main event featuring commercial beers was the Grand Banquet on Saturday evening, which was sponsored by ***Rogue Brewery***. The beer-paired dinner featured four different Rogue ales: Morimoto Soba Ale with salad; HazleNut Brown Nectar with the sirloin steak entree; Chocolate Stout served with a dessert of chocolate mousse (OMG!), and Saint Rogue Red Ale as a digestif.



And not to be forgotten is Samuel Adams, whose founder Jim Koch gave the conference's keynote speech. (We also learned that Koch recently turned back some of their hop allotment, so that smaller brewers could have some...to great applause.) Sam Adams had a prominent place in the Hospitality Suite where they were serving two new test beers. Guests voted for their favorite of the two, one a Coffee Stout, and the other a Blueberry Wheat. Most of us preferred the Coffee Stout...we'll see if one of them actually gets to the market. It was actually fun to think our opinions might have an input into the final decision.

Space Beer is on the way

Tokyo - Sapporo Breweries Ltd., has brewed a beer made with barley descended from grains that traveled in outer space. The beer will be made with barley descended from seeds that spent five months in 2006 aboard the international space station. "We're really looking forward to tasting it when it's ready," Matsumura said.

The barley project started when Sapporo teamed up with biologists working with the Russian space team. The team took 0.9 ounce of barley into space for storage inside the space station from April to September 2006. The project is part of biological studies of the adaptability of plants to environmental changes and the impact from stresses such as space travel.

Sapporo planted the barley that returned from space at its research farm northeast of Tokyo in March 2007. The company expects to harvest 100 pounds of the third-generation grains for use in the space beer. Sapporo isn't planning to sell the special brew, at least for now, and hasn't decided how it will distribute the planned 100 bottles, Matsumura said.

Scientists have not found any difference between space barley and the Earth-confined version, she said.

InBev attempting a hostile takeover of Anheuser-Busch

June 27 - InBev, the world's largest brewer, said yesterday it would launch a hostile bid for Anheuser-Busch as its US rival rejected its $46 Billion bid as "financially inadequate".

In documents filed in the Court of Chancery in Delaware, InBev said it was preparing to launch a proxy battle seeking the removal of Anheuser's entire board, citing "delays and plans to attempt to block the acquisition".

Shortly after the filing, Anheuser formally rejected InBev's offer. August Busch IV, Anheuser's chief executive, suggested in a letter to Carlos Brito, InBev's chief executive, that the Belgian-Brazilian group was seeking to take advantage of the low level of the dollar and subdued US stock markets with an offer that undervalued Anheuser's earnings potential.

While InBev said it still wanted a "constructive dialogue" over its $65-a-share offer, the stage is set for a high-profile international battle for control of Anheuser, which controls almost half of the US beer market. The battle for control of the maker of Budweiser and Michelob beers will unfold during a presidential election campaign in which free trade and foreign investment in the US is likely to be a significant theme.

InBev's court filing said that it had been told by Mr. Busch before launching the bid that he was opposed to any offer, and that Anheuser was "not for sale". Mr Busch, according to InBev, also said he and his board were committed to the company's independence.

By Steve Kranz

The news that Anheuser-Busch could wind up under foreign ownership really troubled me...at first. I mean, while I personally don't care for their products, the company is an American icon which should remain American. Right?

But then I looked at InBev (http://www.inbev.com/index.cfm), and could not believe the brands which are owned by them:

> Beck's (Germany) ☠ Stella Artois (Belgium) ☠ Hoegaarden (Belgium) ☠ Leffe (Belgium) ☠ Brahma (Brazil) ☠ Staropramen (Czechoslovakia) ☠ Bass (England) ☠ Boddington's (England) ☠ Löwenbräu (Germany) ☠ Franziskaner (Germany) ☠ Spaten (Germany) ☠ St. Pauli Girl (Germany) ☠ Tennent's (U.K.) ☠ Labatt (Canada) ☠ ***Budweiser*** ☠ ***Bud Light***…the list goes on…

...wait just one minute here! What are Bud and Bud Light doing in InBev's "portfolio" when they haven't even bought them yet? Well, it seems that in Canada, Bud and Bud Light are ***already brewed by InBev***, by Labatt under license from A-B. From the InBev web site, we learn that:

> ***Budweiser*** *is a premium beer, enjoyed in more than 70 countries by people from all walks of life. Every drop of Budweiser is brewed in a popular, full-flavor style that has a slightly fruity aroma, clean finish and an alcohol content of 5% ABV. The unique beechwood aging process, which Budweiser has used exclusively for over 125 years, gives the beer its smooth, easy-drinking character.*
>
> *After more than a century of brewing, the St. Louis brewery was declared a National Historic Landmark in 1967, with special emphasis on the Brew House, the Clydesdale Stable and the Old Schoolhouse.* ***In 1980, Labatt began to brew and sell Budweiser in Canada under license from Anheuser-Busch, Inc.*** *(emphasis added)*

So, Anheuser-Busch is already in bed with InBev, beechwood aging, Clydesdales and all. How ironic this all seems.

I suppose as a matter of national pride, I would prefer that Anheuser-Busch remained an independent, American company. But, because Anheuser-Busch is a publicly-traded company (its stock can be bought and sold on the open market), its Board of Directors is obligated by law to act in the best interests of the company's shareholders. If that means the value of its stock price is best maximized by selling the company on favorable terms to InBev, it could well happen.

Not that I *really* care, but I hate the modern world.

Close-up of the March pump with the splash shield pulled back. The valve which controls the pump's flow has to be installed on the OUT port of the pump.

(Continued from page 1)

What this means is that you can totally control the outflow from the pump with a valve on the OUT port of the pump. Even if you completely shut off the flow with the pump still running, the pump is not harmed because the motor continues to run safely at full speed while the impeller can stop spinning. The only thing connecting the impeller to the still-spinning motor is a magnet. The pump is rated for hot liquids up to about 250°.

The Heat Exchanger

The heat exchanger is my old 50' copper coil wort chiller that sits in my kettle which has hot water in it (~155-160°). As the wort passes through the coils, it picks up heat from the surrounding water, and goes back to the top of the mash a little warmer than when it came out the bottom of the mash.

I control the temperature of the mash by varying the flow of wort through the heat exchanger, and/or by increasing the heat of the water in the kettle. Since wort is continually moving through the entire grain bed, there are no hot or cold spots anywhere in the mash. Once the mash temperature is where you want it, turn the pump's flow down to a trickle. If the temperature of the mash drops, open the valve a little to circulate more wort it.

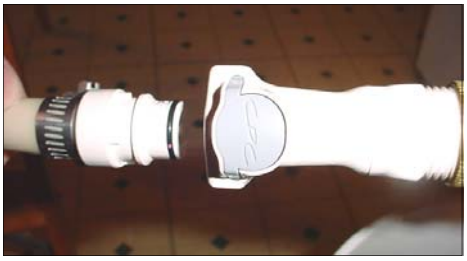
It is important to keep the wort flow relatively slow during the mash. Sucking wort through the grain bed too quickly will make the grain bed compress, as the grain is pulled downward by the flow of wort. If the grain bed gets too compact, wort won't flow through it evenly, and sparging could be difficult.

To do a step mash (which is important when your mash has a lot of wheat), I turn up the heat under the kettle to heat the water a little more, open the pump valve to let more wort flow through the heat exchanger, and in 10 minutes the mash goes from 120° to 150°. The same process applies for a mash-out at 170°.

Fittings and hoses

Two other important components of my HERMS are the hoses and the connectors. The hose is ½" (I.D.) high-temp thermoplastic tubing available from Northern Brewer and other online sellers. It is amazing stuff...flexible but rigid enough to keep its shape when hot liquid (up to 275°) is flowing through it. Available in 3/8" and ½" ID sizes, it costs $1.40 per foot.

The connectors are amazing quick-disconnects which are water-tight, and also high-temperature (250°) tolerant. Several vendors are selling these now (Morebeer, Northern



Brewer), but I went to the source and found a wider variety of fitting options at better prices. Look for the "HFC" line of plastic connectors at www.quickcouplings.net. They snap together with a positive "click", and easily separate again with a press of the button on the "female" coupling.

The inaugural use of the HERMS was on New Years Eve, and it worked perfectly. After the mash was over, I flushed all of the wort in the hoses and heat exchanger back into the mash tun before sparging, by disconnecting the hose from the mash tun "out" valve, and snapping it onto a connector on the valve at the bottom of my kettle. Open the valves again, and hot water is pumped through the whole system, flushing the remaining wort back into the mash tun. Switch a few more hoses, and the pump moves hot water from the kettle to the hot liquor tank up above, ready for sparging.

This system has increased my mash efficiency by 10%. It lets me brew more accurately (i.e. ***better beer***), by hitting and maintaining precise mash temps. The quick-disconnects make changing hose configurations easy, switching from mashing, to sparging, to boiling, in seconds.

Club Night 2008 - photos and notes

The Grand Ballroom floor was a sea of kegs when we got there to set up for Club Night. We had an hour and a half to get ready to serve the 950 conference attendees. All of our kegs were present and accounted for, and the event coordinators did a great job at making sure we had whatever we needed.

The Rocket City Brewers of Huntsville, Alabama won the admiration and respect of everyone in the house. They brought more kegs than any other club (40), every drop of which was brewed illegally since Alabama is one of the few remaining states which has not legalized homebrewing.

Glenn and Paul assembling our eight beer faucets into the rear panel of our most excellent bar.

A snaphot of most of our group before the doors opened. Kathy, Tom and Charlie must have been on a walk-about.

The view from across the Grand Ballroom during Club Night. The night was still young as there was still room to walk around.

Eric Custer was a media magnet with Melinda's moon hat. He's being interviewed here by Basic Brewing Radio for a podcast.

Events Calendar

For all tastings, $5 per member ($7 for guests) covers the host's costs. RSVP directly to the host, or as otherwise indicated. If you wish to schedule an event, contact Event Coordinators Eric & Krista Custer, or any club officer.

July
12 Annual Brew-Ha-Ha hosted by Neil Mezebish

August
? Too hot to brew?

September
8-20 Entries are due for the Union Mills Homebrew Competition
20 Guild Crab Feast
27 Maryland Microbrewery Festival @ Union Mills

October

November

December
TBA Holiday Party
6 Guild Holiday Party

More Conference notes

By Paul Seegers

This was my third full conference and fourth Club Night (did not do the whole Baltimore Conference), and I'm still not tired of the scene. The conference facilities were as nice as others, except for maybe the pool side in Orlando. Pro-Brewers Night was a little lacking, same venue as Club Night (main ballroom), unlike Orlando's pool side setup. Denver's setup seemed better as far as I can remember.

Quotable:

"He's been gassy since before we were married."

A certain member's wife overheard speaking about one of her husband's more notable attributes.

But Club Night at the last three have been great. There is nothing like serving your own beer to complete strangers who are enjoying it. Ask Kranz how it feels, and by the way ask him what he remembers from Club Night in Orlando.

I attended the mead seminar "Using Fruit and Spice to Create Balance in Mead" Ken Schramm on on Friday. It was a very good seminar, and gave motivation for getting deeper into mead making. Samples of Ken's mead we passed out and you just couldn't get enough. He grows his own fruit and has developed many varieties for his use. He said there was no substitute for using good quality fresh fruit, frozen could be second best and lastly use extract only if it's the last thing in the pantry. Same goes for spices...know what you are putting into the batch, and quality is worth the extra expense. I see it like paint, if you are going to spend all that time painting the house or a room, why go with cheap paint and have to put out the effort to repaint sooner. If you are going to go through the effort of making the mead don't shortcut the ingredients.

Enough rambling, the Conference was great!

Gas (CO_2) prices vary considerably

Here is what members report paying for CO_2 in our area:

C&O Distributors (Westminster) -
5 lbs.: $12.00
10 lbs: $14.50

Robert's Oxygen (Cockeysville, Westminster, etc.) -
5 lbs.: $19.00

July 2008

SUN	MON	TUE	WED	THU	FRI	SAT
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6	7	8	9	10	11	12
13	14	15	16	17	18	19
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27	28	29	30	31		

August 2008

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September 2008

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