The Cellar

The Official Newsletter of the Colonial Ale Smiths and Keggers

A Columbus Day Trip Delivers Cider

By Harrison Gibbs

Last year, Eric Gold and Jeff Stuebben traveled to Showalter's Orchard in Timberville, VA in search of apple juice. It was Columbus Day, and this was definitely a pressing matter as Eric and Jeff were collecting juice for more than a dozen CASK members who wanted to try their hands at making cider. They brought back 125 gallons of apple juice made from Winesap, Stayman Winesap, and York apples. Their trip became the basis of the CASK Cider House Project, a club attempt to explore the cider making process through experimentation and collaboration. The results will be on display for you to try during a roundtable presentation at the October CASK meeting, Thursday October 20, 2011at the New Town Green Leaf in Williamsburg.

Eric was familiar with this orchard based on the recommendation of his friend Kevin from Charlottesville. He remembers being told that it had rained the week before and the apples were not as tart as they had been. Kevin told him "The flavor from this batch is not as intense as the last batch and not as tart as I expected with that much York and Winesap and early season Staymans." According to Eric, "The mix we got was about 40% Stayman, 25% York, 25% Winesap and 10% Gala." They were all pressed together. Original gravity was 1.050 and the pH was 4.1.

"I can't remember how long it took to press, maybe an hour?" Eric noted. "It is an extremely efficient operation where the apples are dumped in a hopper, ground and sent through a pump to the press. once pressed, the juice is sent to a holding tank with a hose and ball valve for us to fill." The apples were pressed using a rack and cloth press. This popular and quite traditional methods of pressing, uses a frame with a heavy duty base and the pomace is then formed in 'cheeses' (layers of pomace folded into cloths and with racks in between each cheese - see images). These cheeses are then pressed by applying pressure to a large block that sits on top of the cheeses.

Last year the juice cost $2.50 per gallon. The orchard also has flash pasteurization capabilities and when it makes juice to sell to the public it generally costs $5.00 per gallon. This year, expect costs to rise above three dollars. On the way back, Eric and Jeff stopped by Beer Run in Charlottesville on our way back. Eric may make a run this year but requires additional club support such as someone with a truck.

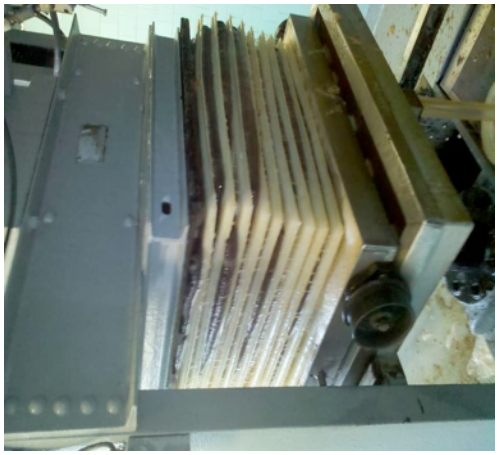
Showalter's Orchard website is http://www.showaltersorchardandgreenhouse.com/orchard.asp.

In this Issue of The Cellar:

CASK
Colonial Ale Smiths & Keggers

A Columbus Day Trip Delivers Cider (cont)

Photos by Eric Gold



CASK Cider House Project

By Harrison Gibbs

The CASK Cider House Project is an opportunity for club members to learn about cider and the cider making process. Fermenting apple juice has its own joys and hurdles, differing from the more common beer brewing most of us are familiar with. More than a dozen CASK members split up the 125 gallons of Winesap, Stayman Winesap, and York apple juice that Eric Gold and Jeff Stueben brought back from Showalter's Orchard in the Shenandoah. The experience level of these cider makers varied, however after this project all will have learned something new.

The CASK Cider House Project will be presented as a roundtable discussion at the October 20, 2011 CASK meeting, with participants bringing 2-4 bottles of their cider. Each participant will be asked describe their experience, steps they took with fermentation, any additives, and finishing. . The beauty of the project is that everyone started with the same baseline mix of about 40% Stayman, 25% York, 25% Winesap and 10% Gala. Some ciders will be dry and other will be sweet. Some ciders will be still others sparkling. The sky is limit.

If you were participant in the CASK Cider House Project please bring samples of your cider along with any notes or information as to your fermentation and finishing processes. If you are interested in cider making, please join us in learning more about this ancient craft.

CASK Oktoberfest 2011

Photos By Jeff Flamm

This year, CASK traded in the chilly winds of the Christmas Party for a rainy and very soggy late summer afternoon in September. The Oktoberfest Party was hosted by Steven and Peggy Davis (A warm CASK Thank You to both of them). The raffle was washed out due to the weather, but the diehards who braved the rain were rewarded with excellent food and IronBrews.

Congratulations to the winners of the Oktoberfest IronBrew!

The winner were:

1st Place: Steven Davis with his Oktoberfest,

2nd Place: John & Jared Smith with their German Pilsner, and

3rd Place: Bryan Falman with his Roggenbier.

Electric Heat-stick Test

By Jeff Flamm

While browsing various home-brewing forums around the web I found several references to brewing with electric heat instead of propane. Some of the pros listed are that it is cheap compared to propane and you can do it indoors without worries about ventilation. What attracted me to the idea was that it would be relatively easy and cheap to automatically regulate an electric heater with an off the shelf digital temperature controller compared to a propane burner. The propane would also require a solenoid valve and gas-flow meter, custom software etc.

There are multiple sites on the web that discuss how to build your own electric heat-stick using a replacement hot water heater element, sink drain pipe, and some electric parts (search on “homebrew electric heat stick”). There are also electric heating elements available at many homebrew supply shops, but they are pricey. At first I thought I would try to build my own using a water element, however I found a “Marshalltown 742G Bucket Water Heater “ on amazon.com for about $36 with free shipping. That was about the same price as buying the parts to do it myself, except ready to go, properly grounded, with heat shield and low water automatic shut-off safety features. So I purchased one of these 1000-watt heaters to try it out (picture 1). Most of the websites I browsed recommended at least 2000 watts to bring a pot to boil in a timely manner. So the 1000-watt heater is likely inadequate for that, but I thought

Picture 1 - Marshalltown 742G Bucket Water Heater

Picture 2 - Water heater placed in kettle for heat performance test

maybe it could be used to heat and maintain sparge water as a start. I could then buy another if I want to use it to boil later.

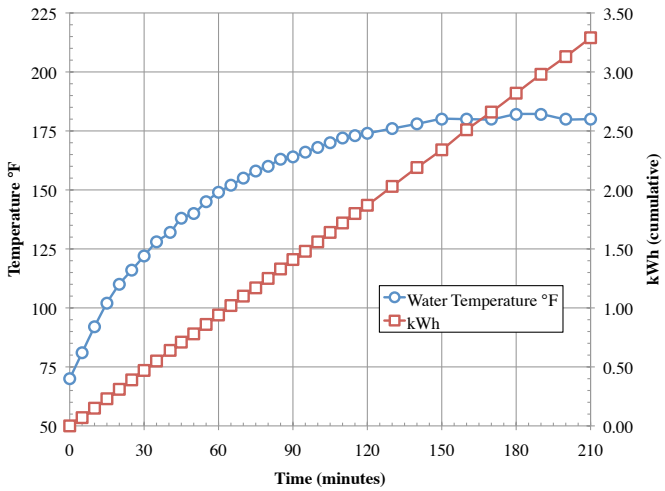
A few notes on safety: Since you are dealing with water and electric you should always plug the heater into a GFI protected outlet to avoid being electrocuted. Never plug the heater in unless it is submerged in water. Also keep in mind the capacity of the circuit you are using. The electric heater is a continuous draw electrical load and should only be plugged into a dedicated (GFI protected) circuit. A 1000-watt heater will draw 8.33 amps continuously. Most electric codes state that a circuit should not be loaded to more than 80% of its total capacity (ref 1). So for a typical 20 amp circuit the maximum continuous load should not exceed 16 amps which equates to 1920 watts at 120V (watts = amps x volts). Likewise the limits for a 15 amp circuit is a maximum load of 12 amps or 1440 watts.

On to the testing: First I wanted to see just how fast the bucket heater would heat water and to what temperature. The advertising copy on the box states the unit will heat a 5 gallon bucket of water to 180 °F. I set up a 10-gallon pot with 5 gallons of tap water. I placed a thermometer and the heater in the pot, plugged in the heater set a timer and periodically checked the progress as I brewed a beer in another kettle (picture 2). I did not disturb the heater or water (no stirring the pot). I also plugged in a "kill-a-watt" meter to monitor how many kilowatt-hours of electricity the heater used. See picture 3 for the overall setup.

Picture 3 - Overall setup for heat performance test (note the GFI circuit included in the setup for safety)

The initial tap water temperature was 70 °F. The test was outside and the ambient air temperature was about 76 °F. See plot 1 for the 1000-watt heater test results. The first curve is the measured water temperature at approximately 5-minute intervals. I expanded the interval to about 10 minutes later in the test. The second curve is the cumulative kilo-watt-hours (kWh) used through the duration of the test. You can see the 1000-watt heater was clearly inadequate to bring a 5-gallon pot of water to boil. It did eventually reach a plateau at approximately 180 °F after about 2.5 hours (true to the box advertising). The power usage was very linear; consuming about 3.3 kWh over the course of the 3.5-hour test (at $0.10 per KWh that is only about $0.33). So the heater was really only putting out about 940 watts. The discrepancy may have to do with the length and gauge of the extension cord I was using as well as the accuracy of the measuring equipment and the manufacturing tolerance on the consumer grade heater. The fact that the water temperature reached a plateau at 180 °F suggested the heater may have a limiting device . However, since the electric consumption remained constant even after the unit reached 180 °F it would imply that it was not cycling on and off. Rather the heater could no longer overcome the convective heat losses through the pot and water surface. One could try heating a smaller amount of water or use an insulated vessel to verify this. For comparison I included a plot (plot 2) of the time it took my 75k BTU propane heater to heat 5 gallons of 68°F tap water. It took about 29

Picture 4 – Close-up of water heater, thermometer and temperature probe in kettle for sparge water temperature hold test

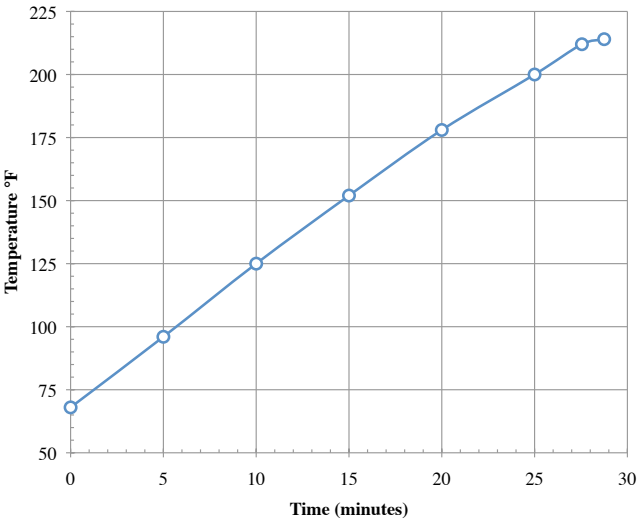


Plot 1 – Performance of 1000-watt electric heater heating 5 gallons of water

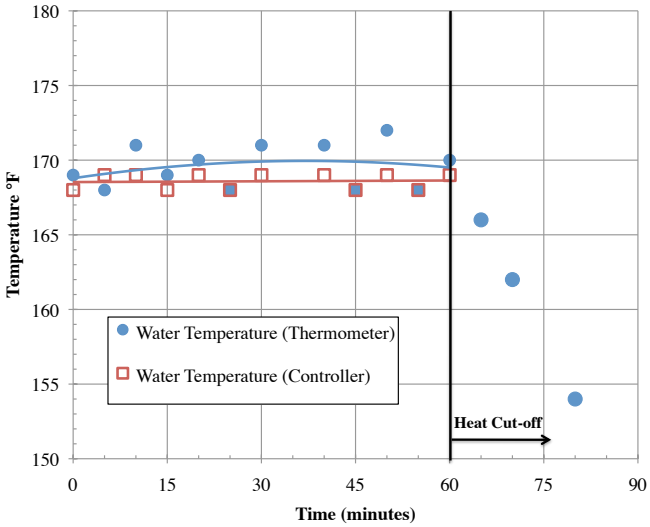
Picture 5 – Overall setup for sparge water temperature hold test

minutes to bring the water to a hard boil.

It was really no surprise that the 1000-watt heater was inadequate to boil 5 gallons of water, but could it be used to maintain temperature of water that was preheated (e.g 170 °F sparge water)? For this test I connected the electric heater to a Ranco two stage digital controller. I placed the controller's temperature probe in a thermowell in the 10-gallon kettle and again filled the kettle with 5 gallons of tap water (pictures 4 and 5) I used a thermometer to record water temperature. I also recorded the temperature as reported by the controller. The controller was set to 170 °F with a 2 °F differential. This time I preheated the tap water to 170 °F using the propane burner. The burner was turned off prior to engaging the electric heater. Again this test was conducted outdoors and ambient temperature was about 82 °F. See plot 3 for the results. The electric heater with the controller maintained the water at adequate sparge temperature ranging from 168 to 172 ° F as measured by the thermometer over the course of the 60 minute trial. The temperature reported by the controller was consistently either 168 or 169 °F and did not vary as much as the thermometer reading. The controller probe was shielded in a thermowell. This would likely dampen its response rate as compared to the thermometer, which was placed



Plot 2 – Performance of 75k BTU propane burner heating 5 gallons of water



Plot 3 – Performance of 1000-watt electric heater and digital temperature controller maintaining 5-gallons of water at 170 °F

directly in the water. Thermometers and thermocouples are typically rated to an accuracy of plus/minus 2 °F. So the readings of the two devices are within typical error margins. I turned off the heater at 60 minutes to see how quickly the un-heated water would cool off. The water temperature dropped below adequate sparge temperature to about 162 °F within ten minutes. The 1000 water heater together with the digital controller was able to successfully maintain 5 gallons of pre-heated water at a temperature adequate for sparging.

An additional observation was that the heater gave off a distinct “hot metal” smell when in operation. This smell was transferred to the water as well. The heated water had a smell reminiscent of my household hot water supply right after I had a new water heater installed. This smell from the household hot water dissipated quickly after a few hot showers. My hope is the smell will dissipate with the bucket heater as well after it is broken in with a few trial uses. In the meantime I would not use it for water that is to become beer until the hot metal smell dissipates or you may run the risk of imparting off-flavors to your beer. I read a few similar reports in online forums relating to home-built heats sticks as well. If the smell does not go away then I may have to conclude the electric heat-stick or bucket heater would only be adequate for use in a heat exchanger type system such as HERMS where the wort or mash never come in direct contact with the heating element. Stay tuned and I will let you know if the issue resolves itself over time.

Prost, Jeff

1 Home Depot Circuit Breaker Buying Guide, website accessed 10/15/11, http://www.homedepot.com/webapp/wcs/stores/servlet/ContentView?pn=Breakers&catalogId=10053&storeId=10051&langId=-1

To Boil or Not to Boil

By Harrison Gibbs

Mead makers, both professional and amateur, continue to debate the eternal question: to boil or not to boil. For home mead makers this is a natural question. Most of us took on making mead after starting out as homebrewers. Without boiling there is really no brewing in homebrewing. Moreover, we are aware of the benefits of a boil for beer, including sterilization, hop extraction, protein coagulation, and flavor development. However, boiling your honey and water mixture (the must) prior to fermentation can have unintended consequences.

The Debate

When I made my first mead, the only resource available at the time was The New Complete Joy of Homebrewing by Charlie Papazian. Although he recognized the boiling debate among mead makers, Papazian instructed novice mead makers to boil the mead. Papazian wrote, “Yes, I’m sure something is lost in the boiling process, but what is gained is a sweet mead “wort” free of wild micro-organisms that may or may not contribute strange flavors.” He also noted boiling aids clarification by coagulating proteins. As a compromise, he recommends boiling the honey with some water for 15 minutes.

Another early leader in homebrewing is Byron Burch, owner of the Beverage People beer and wine making store in Sonoma. He is the author of "Brewing Quality Beers" and winner of many awards, including the National Homebrewer's Association's National Homebrewer of the Year 1986 and Meadmaker of the Year, 1992, 1994, and 2001. “I bring it to a boil for about five minutes," he said. "Just long enough to clarify it. I sanitize the other ingredients by adding them at that time." Unlike Papazian, who suggests a long fermentation, Burch ferments for a month during the summer. The summer month's warmth helps keep the fermenting mead between 75 and 80 degrees. "I clarify it then leave it in the cellar over the winter and bottle it when the weather starts to turn warm again." Whether boiling allows for a shorter fermentation, it may be due to protein coagulation.

However, Ken Schramm, the current authority on home mead making and author of “The Compleat Meadmaker,” suggests that boiling is unnecessary. In fact he offers a no-heat method. He notes that boiling in earlier times was needed to remove all of the detritus left over from honey collection, such as honeycomb, cappings, dead bees, and even straw from the old hives. While heating will kill off wild yeast and bacteria, a strong yeast starter will outrace mist wild yeast, making their impact negligible, and honey’s traditional anti-septic properties (mead was often used to dress wounds) generally keep it safe bringing along its own bacteria. None of this reduces the need properly clean and sanitize your equipment, however. If you are worried, Schramm recommends adding the honey to hot water and holding it for 5 to 15 minutes at 150F.

Another way to avoid boiling your mead is to use sulphites, specifically potassium metabisulphite. This is what is generally used in home winemaking at the rate of 50 parts per million or one Campden tablet per gallon.

Schramm says that if you are using fruit that comes from the field, you could use 100 parts per million. Allow 24 hours before pitching the yeast. You can continue to sulphite at racking and then before bottling at the lower rate of 25-30 ppm. Schramm warns that sulphiting may bleach the color of fruit and cause allergic reactions, especially for persons with asthma.

David Myers, meadmaker and owner of Redstone Meadery in Boulder, CO, provided a recipe in "Brew Your Own" magazine, in which he instructed home mead makers to blend the honey with "about 2 gallons of boiling water and stir well. Do not boil the mixture." You then add additional water (2–3 gallons) a little at a time until the desired specific gravity.

The Experiment

What is the effect of boiling? Everyone from Papazian to Schramm note the negative effect of boiling off the aromatics from the honey. Honey is very delicate. Honey carries with it aromatic and flavor compounds from the flowers visited by the bees that made it. Smell and taste orange blossom honey and you can easily recognize its source.

"Erroll" who blogs at www.washingtonwinemaker.com, has shed some light on boiling debate with a three year experiment in which he prepared two nearly identical batches of mead, one he boiled and the other he did not boil. Subjecting his friends to a blind tasting of the two meads, they arrived at some startling results. Everyone clearly noted that that the boiled mead "weakened" the aroma. The non-boiled had a stronger aroma. However, the majority of the tasters found the boiled mead was "smoother" and had more body. Erroll used a strongly flavored heather honey. The most detailed summary provided in the blog was "#1 [the no-boil mead] has a very light body, a nice rich bouquet, a strong dry beginning, and a very light finish. #2 [the boiled mead] has good body, a light feathery aroma, a slightly fruity beginning with a strong flowery finish"

Conclusion

Whether you boil your honey or not, there appears to be different benefits associated with either method. No boil methods preserve the delicate honey aromas, while boiling helps clarification, and may make strong mead smoother. This could reduce aging time and would probably be appropriate with strong honeys such as buckwheat, heather, and wildflower.

The CASK Calendar of Club Events and Competitions

Plan your brewing schedule now and hit as many club-only and other competitions as possible.

October - Cider
November - Hefeweizen **(COC)**
December - Stouts

October 22, 2011 - Fifth Virginia Beer Blitz, St. George Brewing Company, Hampton, VA.

You, yes you, can add items to the CASK calendar and keep your fellow club members informed about beer-related happenings in the area!

Either:

1. logon to the CASK Message Board to find out how to add events to the calendar or

2. E-mail information about the event to calendar@colonialalesmiths.org

The Cellar is a publication of CASK,
Colonial Ale Smith and Keggers
P.O. Box 5224
Williamsburg, VA 23188
Editor: Norm Schaeffler

CASK Big Barrel Brews

By Jeff Stuebben, Photos by Jeff Flamm

This started out as an idea, some great beers are aged in ex-bourbon barrels. As CASK has grown, we now had enough brewers to make this a reality. On May 5th, 2011, we brewed an all-grain Belgian style quadruple beer at AleWerks brewery. To source the barrel, we took a trip to A. Smith Bowman distillery in Fredricksburg, VA. In mid-July, we filled the barrel for the first time. It is now aging in a storage unit in Gloucester. On October 1st, we brewed a 2nd beer for the barrel at St.George Brewery. This was an Old ale beer and used the St.George house English yeast strain to ferment. At the end of October, we will be emptying the barrel of the quad and adding in the old ale. The barrel will also move location to Bryan's house for storage, while this second beer ages. This beer should be finished aging sometime in early February. We now are planning the 3rd brew for this barrel and would like to invite all CASK members to submit ideas for the next brew that would benefit from some time in the barrel. Our first beer should be ready for tasting at the November meeting and will surely age well for years to come.

Quad

Ingredients

- 13.00 lb Pilsner (2 Row) Bel (2.0 SRM)
- 1.00 lb Aromatic Malt (26.0 SRM)
- 1.00 lb Caramunich Malt (56.0 SRM)
- 0.50 lb Special B Malt (180.0 SRM)
- 2.00 oz Hallertauer [4.80 %] (60 min)
- 2.00 lb Invert Sugar (0.0 SRM)
- 0.25 lb Candi Sugar, Dark (275.0 SRM)
- 2 Pkgs SafBrew Specialty Ale (DCL Yeast #T-58) Yeast-Ale

OG 1.094(avg)
FG 1.018(avg)

Old Ale

Ingredients

- 14 lbs Pale Malt, Maris Otter (3.0 SRM) Grain 1 84.8 %
- 8.0 oz Caramel/Crystal Malt - 80L (80.0 SRM) Grain 4 3.0 %
- 1.00 oz Goldings, East Kent [5.00 %] - Boil 30.0 min Hop 8 9.8 IBUs
- 2.00 oz Goldings, East Kent [5.00 %] - Boil 60.0 min Hop 7 25.6 IBUs
- 1 lbs Oats, Flaked (1.0 SRM) Grain 2 6.1 %
- 4.0 oz Simpsons Extra Dark (160.0 SRM) Grain 6 1.5 %
- 4.0 oz Roasted Barley (300.0 SRM) Grain 5 1.5 %
- 8.0 oz Biscuit Malt (23.0 SRM) Grain 3 3.0 %
- St George English Yeast

OG 1.076(avg)
FG 1.020(est)