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www.LibationAssociation.org

Libation Association Of Northern Maryland

The Abridged Hop & Grape

Officers:

President– George Bach

Vice Pres– Dave Towson

Treasurer– John Spangler

Secretary– Tony Vacek

Webmaster– Myke Blakeman

Upcoming Beer Competitions:

February- Barleywine Ale- BJCP Cat. 14C
March- Stout- BJCP Cat. 12 A and 12B
April- Wheat Beer- all BJCP Category 17
May- Classic American Pilsner- BJCP Cat 1C
June- California Common (Steam)- Cat. 6C
July- Blonde Ale- BJCP Category 3A
August- American Pale Ale- BJCP Cat. 6A
September- Brown Ale- all BJCP Category 10
October- Oktoberfest/Marzen/Vienna- Cat. 9
November- Annual Wine & Mead Competition
December- No Competition Xmas Party
January 2005- Porter- BJCP Cat. 15A &15B

Quick Extracts:

There are still a number of members who have not paid their dues. Please get those in. We look forward to hearing from you. I paid my dues with money I found in the couch.

M.A.L.T. (Maryland Ale & Lager Technicians) is running a bus trip to Dogfish & Ramshead Pubs located in Rehoboth DE. Feb. 28th. Cost $25.00 Info- mbarbour@erols.com or (301) 627-8172.

The Guild will have a summer picnic @ Patapsco State Park- Shelter 300. Date- July 11th. More info to follow at a future meeting.

Quick note: if you are entering a beer in our competition, please provide a BJCP Style Number.

Next meeting- Feb. 11th

Meeting Notes From Jan. 14th 2004

Seven members attended the meeting. George Bach spoke highly about his attendance at a Guild meeting on Jan. 12th. Ten homebrew clubs were represented. They sponsor many events and have the involvement of local brewers, notably Hugh Sisson. We will be sending them a check for yearly dues ($20.00). It's possible a national homebrew convention will be held in Baltimore next year. If it happens, the Guild will be heavily involved.

Bernie Spangler made his annual motion to send a $50.00 gift certificate to Joanne (Secretary of Box Hill Assoc.). She has always been very helpful to our club. The motion passed.

A brewing session with Jim Wagner of DuClaw's was discussed. It is hoped we can get together at his new facility in Abingdon sometime in the future.

John Spanger gave a Treasurer's Report. Our current balance was $448.00. Money was still owed to Dave Towson and to Box Hill for our December, January and February meetings.

Our Web site is getting rather busy according to Webmaster Myke Blakeman. We had over 300 hits in December, and January was looking just as busy. Hopefully these numbers will translate into new members.

Club flyers will be delivered to Friendship Liquors.

The vote for our style competition in January 2005 went to Porter (Cat. 15A & 15B).

There was one entry for our Dopplebock competition from Bob Spencer. He was the obvious winner. We first sampled Sam Adams Double Bock, Paulener Salvator, and EKU Kulminator 28. The scores were:

Appearance	**22**
Aroma	**22**
Flavor	**13**
Body	**20**
Total Score	**77**
No. of Raters	**6**
Average Score	**12.83**
% of 20 Points	**64.2%**

(continued Pg. 2)

Meeting Notes Continued:

The Open Competition featured two entries. The results:

January 2004
Open Competition
Grand Totals

Brewer	Bernie Spangler[1]	Bob Spencer[2]
Pitcher	1	2
Appearance	22	24
Aroma	22	18
Flavor	22	13
Body	19	20
Total Score	85	75
No. of Raters	6	6
Average Score	14.17	12.50
% of 20 Points	70.8%	62.5%

[1] Holiday Ale
[2] Scottish Export 80

Our meeting adjourned @ 10:15PM.

Secondary Fermenter

Classic American Pilsner – Part Three

In the final part of this series, I will describe in detail the construction of the simple plastic bucket masher to which I have been referring in the first two parts. I initially built this thing out of stuff I had lying around (a 5-gallon bucket from my very first brewing setup, a bit of aluminized bubble wrap that once covered a refrigerated pre-cooked ham, an odd length of beer serving hose, an in-line plastic valve from an abandoned BrewCap rig, a short length of stainless steel braid from a replacement clothes washer hose, a hose clamp, a plastic cable tie, and some scraps of inch-and-a-half-thick styrofoam packing material). The initial cost was nil, thanks to my having a well-stocked "junk box", but there are various substitutions you can make to use different materials. Since then, I have had lots of fun playing with different kinds of insulation to see how much I could reduce heat loss from the masher, and thereby maintain a fairly constant mash temperature. But that was mostly techno-nerd playing. The original masher worked just fine.

However, if you happen to have a 5-gallon picnic cooler lying around that you would care to dedicate to mashing, that would work quite well after a simple modification to either attach an internal filter to the existing faucet, or replace the faucet altogether with a filter and valve assembly. Many all-grain homebrewers mash in these "coolers", and are very pleased with them. I was hoping to have some data on the thermal effectiveness of my "el cheapo" design compared with that of commercial round coolers such as those made by Gott, Igloo, and Rubbermaid, but I have been unable to get it. So I will include later in this article some data I've obtained from testing my design, and you can run the same simple test on an item you may already have, and then compare the numbers before deciding which way to go. If you do this, please let me know the results, as I'd really like to know.

In its simplest form, the masher is just a plastic bucket with a piece of heavy-wall plastic hose force-fit into a too-small hole near the bottom, a filter made from nine inches of washer hose reinforcing braid, and some means of controlling the outflow. It's important to use heavy-wall hose for two reasons. First, it makes a good tight seal when forced into a hole about 85 percent of its diameter (use a 3/8-inch hole for 7/16-inch beer serving tubing, for example), and second, it won't collapse when a hose clamp is tightened to secure the filter on the end inside the bucket. The piece of tubing I had lying around has a 7/16-inch outside diameter and a 3/16-inch bore. Homebrew shops and some beverage stores that sell kegged beer sell this kind of tubing. Ronnie's in Forrest Hill has it, for example. Choose a length that will work well with your intended placement of the masher on a perch above the brewpot into which you'll drain the wort. In my case, a two-foot length worked out nicely.

Start by measuring the outside diameter of the hose you intend to use. Then, select a drill size that is 85 percent of the hose O.D., and drill a hole in the side of the bucket near the bottom. Make the hole as close to the bottom as possible, while leaving room for the filter and hose clamp to fit without binding. Since it can be difficult to judge where the bottom is from the outside of the bucket, I suggest using an awl, nail, or other sharp-pointed object to punch a small hole from the inside of the bucket to locate the spot to be drilled from the outside. Turn the drill very slowly, so as not to melt or rip the plastic. Otherwise, you might not get a good seal. I found that holding the bit in my hand and turning it manually worked well. Once the hole is made and any roughness removed, force one end of the hose through the hole until an inch or so protrudes inside the bucket. This can take quite some effort, and can be a bit hard on the fingers, but stick with it, and you'll get there.

The filter is made from a piece of stainless steel reinforcing braid from a replacement clothes washer hose. Similar devices made from fine screen are sold for a lot more money under the trade names "Easy Masher" and "Bazooka Screen". Home Depot has braid-reinforced washer hoses in various lengths. This stuff makes a very effective strainer for grain particles, and it even works fairly well with hop pellet dust, too. So after cutting it free from the washer hose and using a small piece for your masher, you can use the rest for a hop filter in your brewpot. For the masher, use a piece of braid that will just fit across the bottom of the bucket, and pinch one end shut using either a plastic cable tie, a wrap of solid copper wire, a knot of nylon fishing line, or a hand-made-hand-inserted staple made from solid copper wire. Slip the other end of the filter over the hose inside the masher, and secure it with a small worm-drive hose clamp.

To get good clear wort from the masher, you must control the outflow rate so it is no more than one-quart-per-minute. Draining too fast prevents the grain bed from adequately trapping the really fine stuff, which is essentially flour. So you need some sort of valve on the outlet end of the hose. I happened to have a nice little plastic valve lying around, but two other candidates are aquarium air-control valves, and item number Q67 from Williams Brewing ($3.90 – search for "Q67" at www.williamsbrewing.com). The Williams valve is for 3/8-inch tubing, but you can use it with ¼-inch I.D. beer-line if you first soften the tubing in boiling water for a few minutes before forcing it onto the valve.

The performance of the basic masher, as just described, can be improved considerably by adding some insulation to help maintain the mash within the target temperature range. To demonstrate the effectiveness of various kinds of insulation, I conducted a very simple test with each kind. I used my brewpot to bring three gallons of water to boiling, and then I poured that water into the room-temperature masher (that is, I didn't preheat the masher with hot water). Immediately after pouring the boiling water, I measured its temperature, and then put the lid on the masher. An hour later, I removed the lid, stirred the water, and quickly measured the temperature to see how much it had dropped during the hour. My reason for using boiling water was ease of repeatability. It's very easy

to bring water to boiling without having to continually monitor its temperature. Also, when the boiling water was poured into the masher, it immediately dropped in temperature due to having to heat the plastic bucket. In my case, it dropped to 195 degrees (a good demonstration of the value of preheating the masher before use). You'll find a table of test results right after the following description of the various types of insulation I tested.

In my original design, I used a single covering of aluminized bubble wrap. This is just regular ¼-inch bubble wrap with one surface covered with either aluminum foil or deposited aluminum. It works by a combination of reducing heat loss through conduction (the bubble wrap is a fairly poor heat conductor), and reflecting radiated heat back into the masher (the aluminum covering does that). Nevertheless, enough heat still gets through to make the aluminum surface warm to the touch. But then, another beneficial property of shiny aluminum comes into play: it's a poor heat radiator. So while the aluminum covering is reflecting heat back into the masher, it doesn't re-radiate much of the heat it has absorbed. It can, however, give up its absorbed heat to anything touching it (typically, air), so alternating layers of airspace - aluminum - airspace - aluminum - etc. will improve insulation performance.

When I set out to write this article, I expected to find aluminized bubble wrap readily available at Home Depot stores, but it is not. So I experimented with two types of Frost King brand ductwork insulation that Home Depot does sell. One has a fairly heavy aluminum foil covering over a thin plastic foam sticky backing, and the other has what appears to be aluminized paper covering over 2-inch-thick fiberglass wool batting. The second is about half the price of the first, but it has the disadvantage of being much more bulky, and also quite absorbent. So if you spill sticky wort into it, you're going to have a real mess.

What I finally settled on after testing is two layers of the foil-over-foam insulation, followed by one layer of the original aluminized bubble wrap, and then a one-layer removable blanket of the fiberglass material. (But I don't add the blanket until after the hot mash is in the masher, and the lid is on.) In retrospect, while I think the blanket is worth the modest cost (and I have some of that material left over, if anyone wants it), I would not recommend spending the money for the foil-over-foam insulation. I am convinced that plain quarter-inch bubble wrap covered with ordinary kitchen aluminum foil will work just a well, and cost almost nothing. These materials can be attached very neatly using 2-inch-wide clear plastic packing tape. But you can look at my test data, and then decide for yourself how far you want to go. The configurations tested were: (1) just the bucket with no insulation at all, (2) one layer of aluminized bubble wrap, (3) one layer of foil-over-foam, (4) two layers of foil-over-foam, (5) two layers of foil-over-foam followed by one layer of aluminized bubble wrap, (6) configuration 5 with the fiberglass blanket added, and finally (7) a retest of configuration 6 at actual mashing temperatures.. For all of these tests, the masher sat on an insulating surface, and had insulation covering the lid. I'll explain that more fully in a moment. But first, here are the data.

Configuration	Start °F	End °F	Loss °F
1	195	163	32
2	195	177	18
3	195	177	18
4	195	179	16
5	195	180	15
6	195	182	13
7	158	151	7

I think you can see from these data that the first layer of insulation made a big improvement in heat retention, but successive layers made much smaller improvements. And based on these results,

I suggest using the following five layers in order: quarter-inch bubble wrap, kitchen aluminum foil, quarter-inch bubble wrap, kitchen aluminum foil, quarter-inch bubble wrap, and a removable blanket as previously described. The reason I'd make the last permanent layer out of bubble wrap is for durability; foil tears too easily. If you can find a source of aluminized bubble wrap insulation, then just use two wraps of that (and the removable blanket), and be done with it.

Just before the table of test data, I mentioned having insulation for the bottom and top of the masher. Because both of these surfaces are fairly large, they can lose a substantial amount of heat if not insulated. And providing that insulation is so easy to do, it's silly not to. If you have some styrofoam sheet packing lying around, use that. You can improve the effectiveness somewhat by gluing some kitchen foil to both sides. Put a piece of this under the masher, and another piece on top. Or you can use several layers of bubble wrap or folded newspaper with foil over and under. The objective is to have a poor heat conductor sandwiched between two sheets of aluminum foil. If you have some styrofoam scraps that are too small to use as-is, you can glue several pieces together using ordinary silicone caulking, and you can also use that as an adhesive to attach foil to styrofoam. I didn't have a lid for my plastic bucket, so I made one from a piece of inch-and-a-half-thick styrofoam with foil glued to both sides. Styrofoam can be cut fairly well with an ordinary knife, but you can get a really smooth cut using an electric saber saw equipped with a knife blade (no saw teeth).

Now, here are some tips and reminders that have come to mind as I have been writing this series. And wherever Tony can find room for them, you'll find photos of the finished masher with its insulating lid and base, the filter, and the removable foil-backed-fiberglass insulating blanket.

1. **This might be a biggie, so please take note.** The recipe I gave in part two of this series called for one full ounce of Cluster hops pellets having an alpha acid content of 7.5%. That was based on a published recipe. But when I ran that recipe through ProMash, the program predicted a resulting bitterness that was more than the BJCP limit for the style. So I suggest you cut the Cluster down to between half and three-quarters of an ounce, depending on the actual alpha acid content of the hops you use, and on how bitter you like your beer.

2. While cooking the corn/malt mixture, add boiling water as needed to keep the surface of the mixture looking wet (i.e., shiny). If the mixture gets too dry and thick, it becomes very hard to stir, and it "spits" a lot due to bursting steam bubbles.

3. If you don't have a long-handled brewing spoon to stir the cooking corn/malt mixture, use a clean, stout wooden stick. You need something on which you can get a good grip, and it should be long enough to keep your hand well away from the boiling mixture.

4. Never stop stirring while you are doing the cooking. If you do, the mixture will burn on the bottom of the pot, and it may give a burnt taste to your beer.

5. When you are draining wort from the masher, if you see a steady flow of bubbles coming from the drain valve, that indicates the masher is running dry and drawing-in air. Aeration of hot wort is a bad thing, as it sets the stage for early oxidation of the finished beer. So if you see bubbles before you have collected the full amount of wort, either add more sparge water, or if you've already used all you'd prepared, just quit collecting wort and add some water to the brewpot to make up the difference before you start the boil.

. And that's about it. The masher is easy to build and use, and I've enjoyed using it to produce very clean wort with a sugar extraction efficiency of 80 percent, which is as good as I get with my big

rig. So come on, take the plunge; make some Classic American Pilsner, and find out how much fun it is to take the next step beyond extract brewing.

Happy brewing,
Dave


Filter


Open Masher On Base


Removable Blanket