

STEP MASHING by Mike Retzlaff

Single infusion is by far the most often used method of mashing. However, single infusion mashing doesn't quite get the job done for a number of beer styles. Step infusion consists of adding measured amounts of near boiling water to raise the mash temperature. This can be done several times to accomplish such a mash. There are several calculators on the web and most brewing software packages include one. I had trouble hitting those mash temps with consistency so I was looking for an improvement; something a little better.

I read an article by Jack Schmidling who manufactures the MaltMill[®]. He cobbled together a fan blade and motor which sits on top of his kettle. This keeps the grist moving while direct heat is applied. It looked like a good idea and seemed to fit my needs. I deviated from his plan a bit as I used a windshield wiper motor to drive the fan. I can utilize as many rests as I deem necessary and still never scorch the mash. Step mashing isn't for every beer style but it can enhance a wort in many cases from what is obtained by single infusion. Also this method of mechanically stirring the mash is a lot cheaper and simpler than putting together a RIMS or HERMS rig. With my mixer you have to monitor the heat input but as Jack Schmidling stated, "I really doubt that many RIMS users go to a football game after setting up a mash."

The only problem I've encountered with this method is with mash thickness and volume. Thicker mashes won't bog down my mixer unless I have a mash with more than about 9 lbs. of malt. If I run a mash with 12 lbs. of grain, I have to thin the mash to 1.4 qt. per lb. If I use 8 lbs. of grain, I can use as little as 1 qt. per lb. Sometimes I'll mash in thick and add water to thin the mash as I'm raising the temperature to the next step. This takes advantage of the mash thickness preference of some of the enzymes involved during the different stages of mashing.

Normally I heat my strike water and add the crushed malt to it. I find that I can mix the grist into the water without the dry pockets I used to get when I poured the strike water into the grist. When direct firing the kettle, the mixer creates a vortex and the mash squirts up around the sides while being drawn from the middle. I can check the temp of the mash by sticking my thermometer probe anywhere in the kettle as it doesn't vary more than a degree or so from one area to another. When I get to the next rest temp, I shut off the gas, wait for the burner to "woof", and turn off the mixer. When that rest is complete, I start up the mixer, light the burner and heat to the next rest temp. When I reach the saccharification temp, I shut off the burner, turn off the mixer & remove it, and pour the mash into the mash tun. I usually heat the mash about 2 degrees higher than the desired rest temp as the mash tun will absorb about that much heat before the temperature stabilizes. When the mashing is done, I can transfer it back to the kettle and heat it to a mash-out temp which finishes off the mash regimen before the vorlauf, lauter, and sparge routine.

I use a 5 gallon Igloo water cooler fitted with a bazooka screen as a mash/lauter tun. For those using a combination kettle/mash tun, the mixer doesn't work with a false bottom, but does work with a bazooka screen. If you use a false bottom, step infusion works well - as it does with almost any sort of ice chest.

Everyone has different equipment and many of the techniques available can be applied to your system. Don't be afraid to try the unfamiliar. Step infusion is what got me started in step or program mashing. Step infusion is an excellent way for single

infusion mashers to step up from "normal", improve their brewing, and consequently produce better beer.

Step and step infusion mashing both give you the freedom to utilize the enzymes already available but unusable without mashing at different temperatures. Either are well worth the little extra time required and can reward you with better beer. It works for me and I encourage you to give it a try.



Mixer set up on kettle



Note fan set just above bottom of kettle



Another view of mixer