Mash/Lauter Tun Design and Construction Choices for Homebrewers

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MashTun vs. Lauter Tun

• Mash Tun- A brewing vessel designed to hold a mash at a constant or increasing temperature
• Lauter Tun- A brewing vessel designed to filter wort from spent grains of a mash after conversion
• Homebrewers commonly use a dual-purpose mash/lauter vessel
Mashing Mechanisms

- Single Temperature Infusion
- Step Mash
  - Multiple Infusions
  - Decoction
  - Applied heat
Vessel Requirements

• Needs to hold an appropriate amount of liquid
• Aspect ratio and volume will determine depth of grain bed
• Needs to be able to maintain temperature over the period of a rest
Some Common Vessel Choices

- Food-grade Plastic Buckets
Some Common Vessel Choices

• Insulated Bucket
Cylindrical Coolers
Rectangular Coolers
Converted Kegs
Kettle-based Mash Tuns
Purpose-built Mash Vessels
Less Popular Choices…
Lautering Mechanism

- Strainer

- Requires scooping of hot mash from mash tun into strainer

- Many brewers are concerned about the effects of ‘Hot-side Aeration’
Lautering Mechanism

• Bucket-in-a-bucket
Lautering Mechanism

• Purpose-built False Bottom
  – Plastic or metal
  – Hinged
  – Legs or Domed
  – Outlet above or below
False Bottoms
False Bottoms
Manifolds
Manifolds
Metal Hose Braid
Sources for Metal Braid
Sparging

- No Sparge
- Batch Sparge
- Fly Sparge (or Continuous Sparge)
No Sparge

- Calculate strike water volume and gravity of extract expected.
- Mash
- Drain off high-gravity wort
- Top off to reach final, pre-boil volume
Lautering Considerations

• Because you are draining the mash tun completely in one step, the choice of lauterung technology is not particularly critical.

• So long as you don’t have dry patches in your grainbed, false bottom, manifold or braid should all perform equally well.
Batch Sparge

- Mash
- Drain off high-gravity wort until dry
- Add hot sparge water and stir to combine
- Drain off lower-gravity wort until dry
- Repeat until satisfied…
Lautering Considerations

• The sparge operation is a diffusion process, rather than a rinsing process.
• Like with No Sparge, all of the wort is drained in one step.
• Like with No Sparge, any of the lautering choices should work equally well.
Last note on batch sparging

• substantial amount of sugar is present and diffuses into sparge water in the last sparge operation
• pH of sparge water never rises to the level that husk tannins are extracted
• ‘impossible to oversparge’
Fly Sparge

• Continuously rinsing the grain bed to extract as much sugar from the grain as practical
• Slow sparging can take up to an hour
• Many brewers do a mashout to denature enzymes to combat further conversion during sparge
Fly Sparge

• Water is added uniformly across the top of the grain bed, at the same rate as wort is run off
• As sparge water trickles down through filter bed, it rinses away interstitial sugars
• Wort drawn continuously off the bottom of the grain filter bed
Lautering Considerations

• Sparge water must be uniformly distributed across top of grainbed
Lautering Considerations

• Uniform distribution of sparge water and uniform distributed collection discourage channeling
• Because water flows through the path of least resistance, if channels form, sparge will not collect sugar from other portions of grain bed
• Efficiency will suffer
• Most breweries use false bottom and sparge arm
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