

A Bit More on Mashing by Mike Retzlaff

There are many ingredients we can put in our next batch of beer. Malted grains are usual but some beers benefit by using adjuncts. Some of these ingredients need to be mashed while others don't require any mashing at all. Sugars, in their various forms are usually added directly to the kettle. Malt extracts are produced through conversion of malts at the "factory" whether they come to us as powder or syrup.

Crystal/caramel malts are stewed and have been converted in sealed roasting drums. They don't require further mashing and can be steeped or added to the mash.

Flaked grains have been rolled between steam drums; the heat ruptures the cell walls and makes the starch available to the enzymes. They need to be mashed.

Torrified grains are processed in a similar manner to puffed breakfast cereals. The processing ruptures the cell walls so that the starches can be quickly hydrolyzed and available for enzyme conversion. They need mashing.

Some raw grains can be crushed and added to a normal mash while other sources of starch have cell walls which can't be degraded at normal mash temperatures. These are the candidates for a cereal mash which involves cooking. Raw corn (maize), for example, will gelatinize around 164°, raw rice at 170°, while raw barley and raw wheat will gelatinize between 126° and 147°. Raw barley and raw wheat can go into the mash as-crushed while the corn and rice require cooking. Differences exist among starches because various plants have a different ratio of amylopectin (branched starch) to amylose (straight-chained starch).

Cereal cooking can involve boiling, steaming, or any number of ways to heat the cereal to a high temperature in a moisture laden atmosphere. Commercial adjunct beer brewers have a dedicated cereal cooker in the brewery for this purpose although it is usually a pressure cooker which delivers quicker processing.

When cooking, keep in mind that you don't salt the water or worry about the grist coming out al dente, sticky, or any other similar concern. You aren't preparing a meal for the family table; you're breaking down cell walls. Once cooked, simply add this "porridge" to your mash but watch the temp; don't overshoot the main mash temperature with this infusion.

There are many starch sources which can be used in brewing. Among them are potatoes, yams, tapioca, taro, turnips, beets, millet, milo, oats, buckwheat, beans, etc. A leisurely stroll through the produce section or the rice & beans aisle of your local supermarket will convince you that the list is almost endless. Some really exotic

brews can be made this way and the only thing to hold you back is a lack of imagination. Skeptical? Consider what goes into Pumpkin Ale!

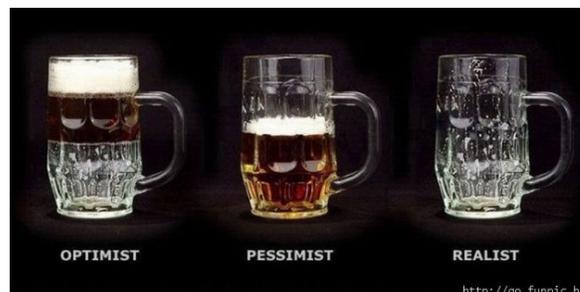
Heavily roasted grains and malts such as roast barley, chocolate malt, and black patent malt, do not require mashing as they contain no convertible starch. They are used, even in extract beers, for flavor, color, and aroma; they can be steeped. In the mash, they're just along for the ride; well, sort of; more on that in a minute.

Simply knowing that roasted grains don't need mashing can work in your favor. If you're making a Stout, Porter, or other beer loaded with roasted grains or malts, you can hold out all of that grist until the end of the mash. This can subdue much of the acrid flavors from the charred hulls of the grain. I started using de-bittered black malt many years ago to tone down that "bite." The Weyermann Carafa Special series of roasted malts falls into that category. Briess Malting has gotten into the act by producing Black Prinz® and Midnight Wheat; both hull-less black malts. Many styles really require a bit of "bite" so blending of roasted malts is a good way to reach your goal without casting the baby out with the bathwater; recipe formulation is still important.

Along the same lines, another trick is using roasted malts and grains to set the mash pH in lieu of adjusting your water chemistry. Roasted grains are more acidic than normal malts so you can stir in a portion to get the mash pH just right and the remainder of the crushed, roasted grains can be mixed into the mash just before the lauter and sparge.

This technique can also work for BIAB or for the extract brewer in a mini-mash. It just takes a little trial and error testing to determine the right amount to include in either regimen. After conversion of the mash, add the rest of the roasted grains to the steep in a separate mesh bag.

This is a jumble of many little odds and ends which I couldn't seem to fit into the several articles I've written on mashing. I've included these thoughts here so they don't get lost. This makes for a somewhat disjointed read but I promise there's something here that eventually you'll find useful.



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