

## Beginner Mashing

Mashing is the method in which the starches in grain are converted to sugars by enzymes. For beginners we suggest you mash 1 pound of grain instead of the 7 pounds required to make a 5-gallon batch. The wort obtained from mashing

1 pound of grain can be used with a can of malt extract to produce a 5-gallon batch of beer with more body. Mashing temperature range is 150 degrees F. to 155 degrees F.

Other than the equipment you already have used for malt extract recipes, you'll need a colander, a piece of nylon net cloth, large enough to line the colander or your fermenter. You must have a floating thermometer, also.

You'll need 1 pound of crushed 2-row malted barley. To crush or crack the grain (we sell it already crushed) use a rolling pin, coffee grinder or a slow speed blender. Put this in 1 quart of water at 120 degrees F. with  $\frac{1}{2}$  teaspoon of gypsum. Gypsum increases the acidity of your water. Allow this to rest for 15 minutes. During this time enzymes will begin to dissolve proteins, which will contribute to head retention (foam).

While this is resting, bring 2 quarts of water to boiling. Add only enough boiling water to your grain to raise the temperature to 150 degrees F. Use low heat if necessary, stirring to avoid scorching the bottom. Maintain the suggested mashing temperature (150 degrees) for 30 minutes to 1 hour. (Mashing)

During this time enzymes present (diastase: a grouping of alpha and beta amylase enzymes) will

convert available starches to fermentable maltose and less fermentable dextrin, yielding sweetness and body. A longer mashing time will reduce the amount of dextrin. A lower mashing temperature produces more maltose, and the higher temperature ranges produce more dextrin. The mashing temperature will determine the balance of dextrin-maltose ratio. You may test the wort for starch by taking 1 tablespoon of wort and add a drop of iodine to it. No color change indicates a good conversion and the end of mashing. If the color is blue, mash for 15 minutes longer. Discard the tested wort! Iodine kills yeast. Test again.

After mashing is complete, raise the temperature to 160 degrees F. and hold for 15 minutes to finish the process. This increase in temperature slows down the activity of the enzyme, which is converting dextrin (sweet taste) to maltose (fermentable) thus insuring some balance of flavor dextrin in your beer.

While you are mashing, heat 2 quarts of water to 170 degrees with  $\frac{1}{2}$  teaspoon of gypsum. This water will be used to rinse or 'sparge' the grain. Place a colander with the nylon cloth in it over your fermenter, or fit your brew bucket filter bag over the top of your fermenter. Pour the mash into the colander or bag slowly. Sprinkle the hot water over the grain until the, water which passes through the grain, comes out clear. Discard the grain. The mashing is finished. The final gravity of 1.020 or above can be considered good results. Take a reading and record.

Pour the wort back into the pot and bring to a rolling boil. This boil will last an hour. Watch the pot at the beginning as it may suddenly erupt and boil over. Boil uncovered. Add any "bittering" or flavor hops at the beginning of the boil to extract flavor. Bittering

hops need to boil uncovered for at least an hour. If you are going to use a can of hopped malt you do not have to use extra hops unless desired. Aromatic hops are added at the end of the boil, the last 10 minutes. Irish Moss, which helps settling, is added to most recipes for the last 15 minutes. In adding canned malt, check your instructions on the can. Some malts will need to boil 1/2 hour, so add them about 1/2 way through. If a malt can instructions says do NOT boil, add it at the end. Check your recipe to make sure everything has been added.

When finished, strain the wort by pouring it through the nylon cloth or filter bag into the fermenter. Add cool water to make 5 gallons, achieving a final temperature of 70-75 degrees F. If necessary, place the fermenter in a tub of cold water to cool. Fast cooling to 70-75 degrees F. helps to further settling. In our house mashing is a winter job and we set the fermenter outside to cool. Take a hydrometer reading and record. Sprinkle in the yeast when the temperature is correct, and rest 10 minutes, (who, you or the yeast?) stir in. Place the lid, the airlock (with water) and leave to ferment. **NOTE: Discard the boiled hops carefully; they are toxic to your dog.**

**RECIPE from "On to Mashing" by Romanowski See process above.**

**To mash: 1 pound crushed pale malt, 1 teaspoon gypsum**

**Add after mashing for the boil:**

**1 can of malt extract, (plain or hopped)**

**1 oz. hop: leaf or pellets (if using plain malt)**

**Add for the last 15 minutes of boil: ½ teaspoon of Irish moss flake**

**Add at 70 degrees F.: 1 pack ale yeast: stir daily during fermentation**

**References: On to Mashing (Romanowski), The Big Book of Brewing (Line), Advance Home Brewing (Shales) and Tom Mitchell, from experience and Basic Brewing, preceding chapter.**