All Grain Brewing Instructions

www.MoreBeer.com
1-800-600-0033

Introduction:

Welcome to the next level of brewing! This instruction guide is intended to give an "extract" savvy brewer a basic introduction to all grain brewing. These instructions are for an easy single-infusion all grain process.

Equipment Requirements:

Necessary Equipment:

- **Boil kettle** – capable of collecting 2–3 gallons more than the intended final volume
- **Mash Tun with False Bottom** – vessel at least as big as the intended final volume.
- **Hot liquor tank** – vessel that can hold hot water to sparge with.

Recommended Equipment & Supplies:

Pieces of equipment and supplies that aren't required, but help in the All Grain brewing process include:

- 5.2 Mash pH Stabilizer (*WM58*)
- Sparge Arm/Ring
- Stand to hold the vessels
- Pump (if not gravity from vessel to vessel)
- Mash Paddle
- Grain Mill
- Thermometer

The Mash — *Enzyme Process Converting Starches To Sugars*

Mash Water Calculation:

From your recipe, add up the total pounds of grain to be used. From this number we can figure out how much water we need in the Mash Tun. As a basic rule of thumb we recommend 1.1 quarts of water per pound of malt. When doing this calculation please be aware of how much "dead space" you have under the false bottom and add that water to the needed amount.

- Calculate mash water: _____lbs x 1.1 qts = __ /4 = ____Gallons

Filtering Water:

- Fill your Mash Tun with the amount of calculated mash water. ***Important Note:*** *If you are using water from a municipal source you will want to filter with a carbon activated filter to remove chlorine or chloramines. Carbon filtering also has the advantage of removing any bad flavor that is organic in nature.*

Mash Temperature:

Mash Temperature plays a very important role in flavor of the final beer. Holding a mash temperature between 148° F and 158° F for 60 minutes is sufficient in activating the enzymes that are naturally within the grain. These are the enzymes that turn the starches into sugars. Within that range, the low end (148–152° F) will produce an overall dryer beer, while the high end (154–158° F) will produce a beer with a maltier flavor. The middle range of 151–154° F is a great compromise for most beers. When adding the grain to the water, plan for temperature drops of 9–15° due the grain is sitting at room temperature.

Mashing:

- Calculate the mash temperature you want and figure on a drop of 10° if you are in a warm environment, and 15° if you are in a cold environment.
- Add the grain slowly while stirring. ***Important Note:*** *Always add grain to water, not water to grain to avoid the formation of dough balls.*
- Continuing stirring for a few minutes after the grain has been added to make sure that the entire mash is a consistent temperature and that all dough balls have been eliminated. In most scenarios, letting the mash sit for 60 minutes at 148–160° will result in full enzymatic conversion of the starches to sugars.
- Make sure the lid is placed on the mash to retain heat. If you are brewing in a very cold environment, you might consider insulating the mash vessel, however, in most situations, the large thermal mass of the mash will hold the temperature just fine. If you should miss the temperature, it is easiest to add hot water or cold water to move it a few degrees. ***Important Note:*** *We do not recommend adding flame under the vessel, as it is very easy to scorch the grains, causing off flavors.*

Recirculation:

A little step in between mashing and sparging that helps to clear up the run off from the mash.

- Recirculate by removing wort from the spigot below the false bottom, and adding it back to the top of the grain bed. A pitcher works great for this purpose. Do this until the runoff is nearly free of visible debris, then you can start the sparge.

The Sparge — *Rinsing The Sugars Out Of The Mash And Into The Boil Kettle*

Calculating Sparge Water:

An easy way to calculate sparge water is to plan on using ½ gallon for every pound of grain used in the mash. This simplified calculation ensure you have more sparge water than you will actually need.

Sparge:

Temperature plays a key roll in sparging; it is best to be as close to 170° F without going over. At this temperature, you will dissolve the sugars without leaching tannins from the grain husk.

- To begin the sparging process, open the Hot Liquor tank valve and allow the water to flow onto the grain bed. A simple hose will work for this process, however a stationary sparge arm is a time saving addition.

- Connect a piece of tubing onto the ball valve on the Mash Tun and allow it to run into the boil kettle.
- Open the valve on the bottom of the Mash Tun, allowing the hot sparge water to flow through the mash. Try to get the same flow of water coming into the Mash Tun as wort flowing out of the Mash Tun and into the boil kettle. Keep at least a two-inch layer of water on top of the grain bed to keep incoming sparge water from channeling through the grain.
- We recommend a slow sparge, usually taking 45–60 minutes to insure that there is plenty of time for the sugars to rinse out.

The Boil:

- Sparge until you have collected 1–2 gallons of wort over the final amount you want (depends upon your batch size and boil off rates).
- Add hops and any other ingredients as the recipe calls for.

Overview Of All Grain Brewing:

- Clean and set up all-grain system
- Create recipe
- Calculate mash water _____lbs x 1.1 qts = __ /4 = ____Gallons
- Heat/treat water for mash (152-154F + __F for temp drop) (pH between 6.0-6.5)
- Stir in grains for 3 minutes
- Mash for 60 minutes
- Heat/treat water for sparge
- Sparge for 45–60 minutes
- Collect 1–2 gallons more than final volume
- Proceed as you would in an extract batch