

MASH BREWING

This is the traditional method of brewing. The basic raw ingredient is malted barley which contains soluble starches. These starches are not fermentable and will not yield beer unless they are converted to fermentable sugars.

The method described here is for a simple mash brew. Other, more complicated mashing methods can be used to obtain specific effects in a beer. These methods are described in several good home brewing books.

You can use any of the malt extract recipes in the following pages. Simply substitute pale malted grain (lager grain) for the light malt extract. You will need to make the substitution at the rate of about 1.3kg of grain for each 1kg of malt extract.

PREPARATION STAGE

1. Clean and sterilize your equipment.
2. Put the yeast aside for the fermentation stage.
3. Take the malted grain that is to be mashed and crush or crack it such that the grains are all broken open. It is not necessary to crush any more than this. This is easily done by placing the grain in a thick plastic bag and rolling it firmly with a rolling pin.

Hint: Your home brew shop might be able to crack your grain for you. As these grains start to go stale after they

are crushed, it is better if your requirements are prepared to order shortly before you intend to brew.

PRE-COOKING STAGE

1. Maize or corn grits, pearl barley and plain rice require cooking before mashing. If any are included in your recipe, wash them thoroughly with clean water then put them in a cooking pot with plenty of water.
2. Bring to the boil stirring frequently to avoid sticking.
3. Boil gently with the lid off, stirring occasionally until the grain has gelatinized. At this point, the mixture will be semi-clear and gluey. It is now ready for mashing.

MASHING STAGE

1. Measure the correct amount of water for mashing into your mash tun, brewers urn or heating vessel. Use about three to four litres for every kg of solids to be mashed if you can't handle this amount, use as much as you can, the effect might be different but it will still work. Heat this water to 68 degrees C.
2. Add the crushed grain and other grain adjuncts (ie. flaked barley and the cooked adjuncts from above) to the mashing water.
3. Gently reheat this mixture back up to 68 degrees C stirring frequently to avoid sticking or hot spots.

Hint: Stir thoroughly to spread the heat evenly before taking the temperature.

4. Hold the mixture between 65 and 69 degrees C for 1.5 hours. You will need to check the temperature periodically, stirring and applying heat as necessary.

Hint: Alternatively, you could transfer this hot mixture to an Esky type container which can be sealed up and left overnight to mash. In fact, this alternative is favoured by many experienced mash brewers.

SPARGING STAGE

5. Heat some additional water to 75 degrees C for sparging or washing the fermentable sugars out of the mash. You will need about the same amount as you used in the mash.

6. Gently pour the liquid in the mash vessel through a fine strainer into a collecting vessel.

Hint: It is good to try to get a really clear run-off in this process so line the strainer with some suitable gauze cloth to assist in the filtering. Return the first cloudy run-off for re-filtering.

7. Add some sparging water to the remaining mash solids, swirl very gently and pour through the strainer trying not to disturb the collected solids which act as a filter.

8. Repeat the process several times.

9. Clean out the heating vessel and discard the spent grain. Return the wort to it and add any other

ingredients that need to be boiled.

You now have a sweet wort that is ready to be cooked. The following stages are exactly the same as described under the MALT EXTRACT BREWING on previous pages.

COOKING STAGE

1. Set aside the finishing hops. Weigh or measure the other ingredients and mix them thoroughly with water in your brewers urn or boiling vessel. Include any ingredients you have mashed. Use up to 10-12 litres of water. If your vessel is smaller, use as much water as you can without overflowing during boiling, or divide the mix into two and cook each part separately.

Hint: Additives listed after the yeast in each recipe go in during or after fermentation. Do not boil them. Follow the directions on each packet.

2. Bring the mixture to the boil and keep it at a rolling boil for 30-45 minutes stirring frequently.
3. At the end of the boiling stage, add the finishing hops to the pot and turn off the heat.
4. Allow this mixture to cool and then strain it into the fermenter. A nylon mesh straining bag is a useful aid for this. Add enough water to bring the volume up to about 23 litres. Vary the amounts of hot and cold water you use to obtain a final temperature in the range 25-30 degrees C.

That is all you have to do that is different from KIT BREWING. From now on the fermentation and bottling stages are the same.

FERMENTATION STAGE

1. Sprinkle the yeast onto the top of the brew.

Hint: Be sure that the wort temperature is not more than about 35 degrees C when the yeast is added. Refer also to the notes on YEAST STARTERS.

2. Seal the fermenter, fit the airlock and half fill it with clean water.

3. Allow the brew to ferment trying to keep the temperature in the fermenter reasonably constant and trying to avoid it falling below about 18 degrees C.

Hint: If you are using a closed fermenter with an airlock, you can safely ignore any instruction to keep the brew over 25 degrees C. Refer to the notes on BREWING TEMPERATURE for more information.

4. Fermentation is finished when gas stops bubbling out through the airlock and the brew itself begins to clear. Allow a further 24-48 hours for the brew to clear thoroughly.

Hint: If you are using a hydrometer, the final reading for most good quality beers will usually be in the range 1.005-1.008. Final figures lower than this indicate a thin beer. Additional malt and adjuncts will generally cause final readings to be in the range 1.008-1.020.

BOTTLING STAGE

1. Clean and sterilize bottles.
 2. Add 7g of sugar to each bottle then fill to within 50 mm of the top.
- Hint:** It is beneficial to dissolve the priming sugar and, if you wish, add finings at this stage. Use a priming and fining kit to do this accurately. Refer to the notes on PRIMING for more information.
3. Cap each bottle with a crown seal and give it a good shake.
 4. Stand the bottles in a warm place for about a week, then store for at least another two weeks before sampling.

Hint: Bottle ageing will make an amazing difference to the quality of your brew. Read the notes on MATURATION for more on this subject.

ADVANCED TECHNIQUES

The method described above is a simple one that enables you to do a mash brew without special equipment. There are better techniques that involve several stages in the heating process resting at particular temperatures to allow proteins and starches to undergo desirable conversions.

There are several good books that describe these techniques in detail. These books include "The Complete Joy of Home Brewing" by Charlie Papazian and "The Complete Handbook of Home Brewing" by

Dave Miller. Charlie Papazian's "Homebrewer's Companion" is another excellent advanced book.

Improvements in the sparging process can also be made by the use of a special vessel. Called a lauter tun, it has a tap at the bottom with a partition above the tap that is perforated with hundreds of small (3mm) holes. This acts as a filter plate during the sparging process.

If the vessel has an electric kettle element and simmerstat fitted below the filter plate, mashing can be carried out in this vessel as well. If not, the hot mashed liquor can be transferred to it for sparging.

The sparging is then done by allowing the liquor to gently run out the tap. The tap opening is adjusted to regulate the rate of flow through the filter which should be very slow. Sparging water is sprinkled onto the top of the solids retained by the filter plate and allowed to gently filter through.

You could make your own mash/lauter tun like the one illustrated here. All you need is two food grade plastic pails, a tap, an electric kettle type heating element, a simmerstat and some coathanger wire. The illustration below shows you how. Electrical parts and advice on assembly are available from shops that sell stove elements.

COMBINED MASH & LAUTER TUN

