BASIC ALL-GRAIN BREWING

All grain brewing can seem like a complicated and daunting process. However, it's not that bad. Let's keep it simple, shall we?

First, you will need a brewing kettle of at least 7.5 gallons capacity. This is because you cannot do a partial boil (boil 3 gallons and then add water to make 5 gallons) when doing a full mash. You will also need some form of a false bottom for the mash. A false bottom allows sparge water to run through the grain bed and exit the mash vessel (mash tun).

Mashing is a careful temperature-controlled process where crushed malted grain is soaked in hot water, which takes about an hour. This process is what converts starches in the grain into sugar. Without sugar, you can have no fermentation. After the sugar is produced, you will have a sweet, grainy porridge which must have the sugar, flavor and color rinsed out of it in a process called sparging.

Sparging is a rinsing process like brewing coffee. The term "brewing" comes from this rinsing process. The hot water percolating through the grain extracts the desired flavors and sugars. The sweet amber liquid which runs out of the mash is the base for making beer.

To make malt extract from the resulting liquid, the water is simply evaporated to concentrate the sugars into a syrup. To make beer from the syrup, water is put back into the concentrate to get back to the original strength. This dilution is like reconstituting frozen orange juice by adding water. So, when you do an all grain beer, you are producing your own extract and avoiding the additional step of adding water.

Here is a brief description of the process:

- For the mash, place 10 lb. of grain into 3 gallons of 165°F water (called strike water) and let stand for 1 hour. Stir the mixture to make sure there are no "dumplings" or dry pockets. The cold grain will drop the temperature of the mixture to about 155°F. Do not let the mixture get above 160°F as this will destroy the enzymes in the grain, which must be present to convert the starches in the grain to fermentable sugars. If the desired temperature is not attained at first, simply add cold, or hot water to adjust the mash temperature as required.
- Cover and wait. Constant stirring is not necessary during the mashing period. You do not need to heat the mash; it will maintain a high enough temperature because it is

such a large and dense mixture.

- Sparge the mash through a sparging unit with a false bottom to rinse the sugars out of the grain with HOT (over 170°F) water. Add the hot sparge water slowly, so as not to disturb the grain bed: the grain bed is your filter! Allow an inch or two of sparge water to stand on top of the grain bed, adding additional water as it percolates through the mash. The heavier, sugar-laden water will exit the bottom of the mash and be collected in your brewing kettle.
- It is important that your sparging unit have straight, solid sides and the liquid should only exit from the bottom. Take a gallon or two of the first runoff and pour it gently back through the mash to leave the chunky stuff in the mash. You want the sparge water to be forced *through* the mash, not *around* it.
- Continue to sparge until the exiting liquid runs clear and is no longer sweet. This may take 30 minutes to an hour.
- After sparging you will have from 6 to 7 gallons of unhopped beer wort which will need to be boiled down to 5 or 6 gallons. The remainder of the process is just like extract brewing.

Not too terrible, right?

CHEERS!