BASIC MASHING EQUIPMENT

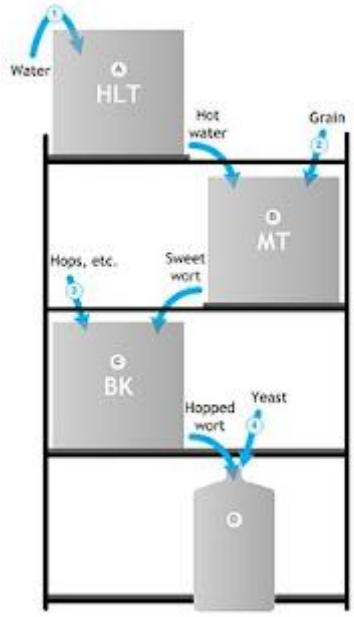
When setting up your Primary Mashing Equipment for the first time, think about the following;

- **Convenient** – One-man operation; minimize the amount of re-jigging and moving equipment
- **Simple** – Gravity fed; i.e. no pumps (for now)
- **Indoor operation** – Use electric heat (vs. gas burning) so you can brew inside.
- **Compact** – Fit within a shed or house with a reasonably small footprint (not to large)
- **Portable** – Pack all the gear into the car and go offsite to brew with friends or if you relocate.
- **Productive** – Brew up to 60-litre batches.
- **Flexible** – Allows experimenting with the design, e.g. add a pump for a Heat Exchanged Recirculation Mash System (HERMS) setup

When making beer, the four **key ingredients** are:

1. **Water** - Water makes up about 95% of the beer so it is quite important – things like pH, mineral and chlorine content are factors
2. **Grain** – When malted, grain contains all the starches that will be converted to sugars; sometimes other cereals like corn or rice are used
3. **Hops** – Hops is a dried flower that adds bitterness and is a natural preservative
4. **Yeast** – Yeast is a living organism that consumes sugars and produces the all-important alcohol

The four key pieces of **brewing equipment are:**



A. **Hot Liquor Tank** (HLT) – This is where water is treated (if needed) and heated. Hot water is transferred from the Hot Liquor Tank to the Mash Tun.

B. **Mash Tun** (MT) – This is where the milled grain is soaked (mashing and lautering) and rinsed (sparging) – this converts the grain's starches into sugars. In this setup the mashing, lautering and sparging is done in the same vessel. The resulting liquid (called "*the sweet wort*") is transferred from the Mash Tun to the Brew Kettle.

C. **Brew Kettle** (BK) – Also called "*the copper*" (because it is traditionally made from copper), this is where the wort is boiled and hops (and sometimes other ingredients) are added. Once cooled, the resulting liquid (called "*the hopped wort*") is transferred from the Brew Kettle to the Fermentor.

D. **Fermentor** – This is where the yeast is added and the fermenting starts – the yeast consumes the various sugars and produces alcohol (actually ethanol, a.k.a. ethyl alcohol, grain alcohol, C_2H_5OH) as well as carbon dioxide (CO_2) gas.

Other helpful pieces of equipment are:

- A mill to crush the grains.
- A chiller to cool the hopped wort.
- A large mug to enjoy the fruits of your labour.