Brewing Glossary

ABV *(Alcohol by volume)* - ABV is the standard measurement used to describe the alcoholic strength of a beer. In Montana the strongest beer we are allowed to brew is 14%.

Adjunct- Any non-malt sugar source added to increase gravity and add flavor. Some examples used by the KH include honey in the Hellgate Hefe, and brown sugar in Cold Smoke. Depending on how fermentable the adjunct is it can either increase or decrease the mouth-feel of a beer.

Ale (Top Fermenting) - Saccharomyces cerivisiae is a species of brewers *yeast* which prefers warmer temperatures (70's) during fermentation. Due to higher temperatures ales ferment quicker than *lagers* and tend to have a more fruity and complex flavor profiles than *lagers*.

Alpha Acids- Alpha acids are the group of compounds found in *hops* which impart bitterness to the beer. Alpha acids need to be boiled to dissolve in *wort*. The longer *hops* are boiled the more A.A. gets dissolved in the beer. It is for this reason that bittering hops are added at the start of the boil.

Amylase- Amylases are enzymes that break starches down into small, simple sugars. Alpha and Beta amylase are the two main *enzymes* found in barley malt. They operate differently and the brewer can control which *enzyme* is most active by varying the temperature of the mash.

Brite Beer- Beer that has been filtered or allowed to settle, so the beer is clear and has no suspended *yeast* or haze, is referred to as brite beer.

B.B.T. (Brite Beer Tank)-A dish-bottomed vessel which is used to hold *brite* beer. The level of carbonation can be adjusted in this vessel.

Barley- *Hordeum vulgaris*, or barley is the most common grain used in modern brewing. The barley kernel has three main parts; the *husk*, the *embryo*, and the starchy *endosperm*.

Base Malt- Base malt, sometimes called kilned malt, is malt that has been dried in a kiln at relatively low temperatures so as not to inactivate the *enzymes*. All beer must contain some base malt so the *enzymes* can convert the *starches* to *sugars*.

Beer- A fermented alcoholic beverage which the primary source of sugar comes from a starchy grain. Unlike vintners, brewers must take an extra step to convert the *starch* to *sugars* using *enzymes*.

Caramel Malt (Crystal malt)-Caramel or crystal malt is produced by heating wet malt to higher temperatures than *base malts*. The heat and moisture cause the *starches* to caramelize. These malts add color, flavor and body to a beer. They also add sweetness to a beer, since *yeast* cannot ferment the complex *sugars* in the malt.

Endosperm- Making up the majority of a barley kernel the endosperm is mostly *starch* but it contains all the raw material needed to make a new *barley* plant.

Enzyme- Enzymes are biological catalysts. They help chemical reactions go faster or make them happen when they normally would not. Brewers use the enzymes present in *malt* to turn starch into sugars that the yeast can eat. The word 'Enzyme' literally means 'inside yeast' and they were first discovered by studying beer *fermentation*.

Fermentation- In brewing fermentation is the process by which, in the absence of oxygen, *yeast* convert glucose (sugar) into ethanol (alcohol), carbon dioxide, and flavor compounds.

Fermenting Vessel- Fermenting vessels or FV's have a cone shaped bottom and, as the name implies, is where *wort* is turned into *beer* by the fermentation action of *yeast*. The cone shaped bottom helps brewers collect yeast to be used in later batches.

Gravity- In brewing terminology gravity refers to the density of the *wort*. The more *sugars* dissolved in the *wort* the higher the gravity. As beer ferments the gravity will drop as dense *sugars* are turned into carbon dioxide and ethanol. Brewers can estimate the ABV of a beer by comparing the difference in the measured gravities taken at the beginning and the end of *fermentation*.

Grist- The grist is all the grains that are added to the *mash* to make beer. Just about any grain malted or not can and has been used at some time to make beer.

Hops- Mmmm hops. Hops (Humulus lupulus) are members of the canibaceae family and one of the prime ingredients of modern beer styles. Hops can add bitterness or aroma to a beer depending on how long they are boiled. Another beneficial property of hops is that they act as a preservative, inhibiting the growth of bacteria and wild yeast. Brewers yeast has evolved to tolerate high hop levels.

Husk- Barley, unlike wheat, has a papery husk that surrounds the kernel. The presence of a husk acts as a natural filter which greatly aids the *lautering* process allowing the brewers to separate the solids (*grist*) from the liquid (*wort*) in the brewing process.

I.B.U. (International Bitterness Unit) - The standard measurement of bitterness in a beer. One IBU is one milligram of *alpha acids* dissolved in one liter of beer. The standard human palate cannot perceive more than 80-100 IBU's.

Lager (Bottom Fermenting)-Saccromyces pastorianus is the other main species of yeast used by brewers. Lager yeasts can tolerate lower temperatures than ale yeasts and are usually fermented at temperatures in the 50's. The colder temps make for a slower ferment and the beers are usually conditioned (lagered) for a few months after fermentation is complete. This produces a beer flavor that is crisp and not as complex as ale's.

Lauter- Lautering is the separation of the solids, called *grist*, from the liquid *wort*. It is the second step in the brewing process.

Lauter Tun- The lauter tun is a vessel with a false slotted bottom used to separate the *grist* from the *wort*, just like filtering coffee.

Malt- Malt is made by taking grain and wetting it. This starts the germination process and the embryo starts making *enzymes* to break down the starchy *endosperm*. The process is halted by heating and drying out the grains. The end product, malt, now has all the enzymes it needs to make wort.

Mash- Mash is a mixture of grist and water and is the first step of the brewing process. The main goal of the mash step is to convert starch into sugars. By carefully controlling the temperature of the mash brewers can activate and deactivate specific enzymes thereby influencing many properties of the finished beer.

Mash Tun- The mash tun is the vessel where the *grist* and the water are mixed.

Roasted Malt- Roasted malts are base malts that have been roasted after the malting process. The roasting process destroys all the enzymes and sugars in the malt, so they are added to contribute flavor and color to the beer. Depending on the level of roasting they can contribute chocolaty, coffee-like, or burnt flavors.

Starch- Starch is molecule that many plants use to store energy. It is made up of many molecules of the sugar glucose linked together like beads on a string. In the mash tun brewers use barley malt's natural enzymes to convert starch into sugar.

Sugar- There are many different types of sugars, but yeast can only use a few simple sugars as an energy source. Luckily the main sugar components of wort, glucose, maltose, and maltotriose, are easily fermented by yeast. There are many more complex sugars present but since the yeast cannot ferment them they remain, contributing body and sweetness to the finished beer.

Whirlpool-This is the final step in the brewing process. After boiling, the beer is transferred to the whirlpool in such a way that the beer is spinning around in the vessel. This causes all the solids (hops and coagulated proteins) to form a pile in the center of the vessel. We can then draw off nice clear wort from the side of the vessel.

Wort – Wort is the sweet liquid produced by the brewing process. Brewers do not make beer, they make wort. The yeast then turns the wort into beer.

Yeast- Yeast is a group of single celled fungi which are found just about everywhere, but brewers, vintners and bakers use only a few species of yeast to produce their products. Yeast is capable of surviving without oxygen by fermenting simple sugars into alcohol and carbon dioxide. Although yeasts occur naturally on all grains, brewers yeast in most closely related to yeast which live on the human skin.