SANFORDS restaurant

Beer Styles

What's a beer style? Simply put, a beer style is a label given to a beer that describes its overall character and often times its origin. It's a name badge that has been achieved over many centuries of brewing, trial and error, marketing, and consumer acceptance. Our styles reflect our spin on the constantly evolving world of beer, with non-geek descriptions broken down for all to understand. Click on any of the styles below to find out more about them, including our recommendations for Food Pairings, Glassware, and Cellaring/Serving Temperatures.

Note: This is not the bible for beer styles, but should be viewed as a work-in-progress and a fun reference that's open to change and interpretation.

Ale Styles

American Ales
American Amber / Red Ale
American Barleywine
American Blonde Ale
American Brown Ale
American Dark Wheat Ale
American Double / Imperial IPA
American Double / Imperial Stout
American IPA
American Pale Ale (APA)
American Pale Wheat Ale
American Porter
American Stout
American Strong Ale
American Wild Ale
Black & Tan
Chile Beer
Cream Ale
Pumpkin Ale
Rye Beer
Wheatwine

Belgian / French Ales
Belgian Dark Ale
Belgian IPA
Belgian Pale Ale
Belgian Strong Dark Ale
Belgian Strong Pale Ale
Bière de Champagne / Bière Brut
Bière de Garde
Dubbel
Faro
Flanders Oud Bruin
Flanders Red Ale
Gueuze
Lambic - Fruit
Lambic - Unblended
Quadrupel (Quad)
Saison / Farmhouse Ale
Tripel
Witbier

Irish Ales
Irish Dry Stout
Irish Red Ale

Russian Ales
Kvass

Scottish Ales
Scotch Ale / Wee Heavy
Scottish Ale
Scottish Gruit / Ancient Herbed Ale

Lager Styles

American Lagers
American Adjunct Lager
American Amber / Red Lager
American Double / Imperial Pilsner
American Malt Liquor
American Pale Lager
California Common / Steam Beer
Light Lager
Low Alcohol Beer

Czech Lagers
Czech Pilsener

European Lagers
Euro Dark Lager
Euro Pale Lager
Euro Strong Lager

German Lagers
Bock
Doppelbock
Dortmunder / Export Lager
Eisbock
German Pilsener
Keller Bier / Zwickel Bier
Maibock / Helles Bock
Munich Dunkel Lager
Munich Helles Lager
Märzen / Oktoberfest
Rauchbier
Schwarzbier
Vienna Lager

Japanese Lagers
Happoshu
Japanese Rice Lager

Finnish Ales
Sahti

German Ales
Altbier
Berliner Weissbier
Dunkelweizen
Gose
Hefeweizen
Kristalweizen
Kölsch
Roggenbier
Weizenbock

English Ales
Baltic Porter
Braggot
English Barleywine
English Bitter
English Brown Ale
English Dark Mild Ale
English India Pale Ale (IPA)
English Pale Ale
English Pale Mild Ale
English Porter
English Stout
English Strong Ale
Extra Special / Strong Bitter (ESB)
Foreign / Export Stout
Milk / Sweet Stout
Oatmeal Stout
Old Ale
Russian Imperial Stout
Winter Warmer

Glassware for Beer

So what's in a beer glass? Hopefully beer, but there's much more to be found. Though some beer novices say "the vast majority of glassware is just marketing," this couldn't be further from the truth. As BeerAdvocates, we feel that beer drinkers deserve better than this. So here's the real deal ...

Sure, there's a marketing component to beer glassware, but one only needs to look beyond the branding to discover that something bigger is taking place. As soon as the beer hits the glass, its color, aroma and taste is altered, your eye candy receptors tune in, and your anticipation is tweaked. Hidden nuances, become more pronounced, colors shimmer, and the enjoyment of the beer simply becomes a better, more complete, experience.

Still think it's just marketing? Well the sophomoric pun "head is good" has a mature side. Scientific studies show that the shape of glassware will impact head development and retention. Why is this important? The foam created by pouring a beer acts as a net for many of the volatiles in a beer. What's a volatile? Compounds that evaporate from beer to create its aroma, such as hop oils, all kinds of yeast fermentation byproducts like alcohol, fusels and fruity esters, spices or other additions. So a glass that promotes a healthy foam head may enhance the trapping of certain volatiles. And as varying levels of head retention and presentation are desired with different styles of beers, different styles of glassware should be used accordingly. Presentation marries science.

So which glassware do you use? The answer can often be overwhelming. In Europe, especially Belgium, each brand of beer will often have its own glass. In fact, some breweries have been known to engineer the glass before the beer, and many bars will also stock unique glassware for every brand of beer they serve, which could be hundreds or thousands. And while it's always a good idea to use glassware designed by the brewery for a specific brand of beer, sometimes this is not an option.

Beer & Brewing Terminology

It's important to know your beer terminology. Here we'll provide you with a growing list of common beer and brewing terms.

Term	Description
Acetaldehyde	Green apple aroma, a byproduct of fermentation.
Additive	Enzymes, preservatives and antioxidants which are added to simplify the brewing process or prolong shelf life.
Adjunct	Fermentable material used as a substitute for traditional grains, to make beer lighter-bodied or cheaper.
Aerobic	An organism, such as top fermenting ale yeast, that needs oxygen to metabolize.
Alcohol	Ethyl alcohol or ethanol. An intoxicating by-product of fermentation, which is caused by yeast acting on sugars in the malt. Alcohol content is expressed as a percentage of volume or weight.
Alcohol by weight	Amount of alcohol in beer measured in terms of the percentage weight of alcohol per volume of beer, i.e., 3.2% alcohol by weights equals 3.2 grams of alcohol per 100 centiliters of beer. (It is approximately 20% less than alcohol by volume.)
Alcohol by volume	Amount of alcohol in beer in terms of percentage volume of alcohol per volume of beer.
Alcoholic	Warming taste of ethanol and higher alcohol's.
Ale	Beers distinguished by use of top fermenting yeast strains, Saccharomyces cerevisiae. The top fermenting yeast perform at warmer temperatures than do yeast's used to brew lager beer, and their byproducts are more evident in taste and aroma. Fruitiness and esters are often part of an ale's character.
All-malt	A relatively new term in America. "All malt" refers to a beer made exclusively with barley malt and without adjuncts.
Amber	Any top or bottom fermented beer having an amber color, that is, between pale and dark.
Anaerobic	An organism, such as a bottom-fermenting lager yeast, that is able to metabolize without oxygen present.
Aroma Hops	Varieties of hop chosen to impart bouquet. (See Hops)
Astringent	A drying, puckering taste; tannic; can be derived from boiling the grains, long mashes, over sparging or sparging with hard water.
Attenuation	Extent to which yeast consumes fermentable sugars (converting them into alcohol and carbon dioxide).
Bacterial	A general term covering off-flavors such as moldy, musty, woody, lactic acid, vinegar, or microbiological spoilage.
Balling Degrees	Scale indicating density of sugars in wort. Devised by C J N Balling.
Barley	A cereal grain that is malted for use in the grist that becomes the mash in the brewing of beer.
Barrel	A unit of measurement used by brewers in some countries. In Britain, a barrel holds 36 imperial gallons (1 imperial gallon = 4.5 liters), or 1.63 hectoliters. In the United States, a barrel holds 31.5 US gallons (1 US gallon = 3.8 liters), or 1.17 hectoliters.
Beer	Name given alcohol-containing beverages produced by fermenting grain, specifically malt, and flavored with hops.
Bitter	Bitterness of hops or malt husks; sensation on back of tongue.
Bitterness	The perception of a bitter flavor, in beer from iso-alpha-acid in solution (derived from hops). It is measured in International Bitterness Units (IBU).
Black malt	Partially malted barley roasted at high temperatures. Black malt gives a dark color and roasted flavor to beer.
Body	Thickness and mouth-filling property of a beer described as "full or thin bodied".
Bottle-conditioning	Secondary fermentation and maturation in the bottle, creating complex aromas and flavors.
Bottom-fermenting yeast	One of the two types of yeast used in brewing. Bottom-fermenting yeast works well at low temperatures and ferments more sugars leaving a crisp, clean taste and then settles to the bottom of the tank. Also referred to as "lager yeast".
Brewhouse	The collective equipment used to make beer.
Brew Kettle	The vessel in which wort from the mash is boiled with hops. Also called a copper.

Brewpub	Pub that makes its own beer and sells at least 50% of it on premises. Also known in Britain as a home-brew house and in Germany as a house brewery.
Bright Beer Tank	See conditioning tank.
Bung	The stopper in the hole in a keg or cask through which the keg or cask is filled and emptied. The hole may also be referred to as a bung or bunghole. Real beer must use a wooden bung.
Butterscotch	See diacetyl.
Cabbagelike	Aroma and taste of cooked vegetables; often a result of wort spoilage bacteria killed by alcohol in fermentation.
CAMRA	The CAMpaign for Real Ale. An organization in England that was founded in 1971 to preserve the production of cask-conditioned beers and ales.
Carbonation	Sparkle caused by carbon dioxide, either created during fermentation or injected later.
Caramel	A cooked sugar that is used to add color and alcohol content to beer. It is often used in place of more expensive malted barley.
Caramel malt	A sweet, coppery-colored malt. Caramel or crystal malt imparts both color and flavor to beer. Caramel malt has a high concentration of unfermentable sugars that sweeten the beer and, contribute to head retention.
Cask	A closed, barrel-shaped container for beer. They come in various sizes and are now usually made of metal. The bung in a cask of "Real" beer or ale must be made of wood to allow the pressure to be relived, as the fermentation of the beer, in the cask, continues.
Cask-conditioning	Secondary fermentation and maturation in the cask at the point of sale. Creates light carbonation.
Chlorophenolic	A plasticlike aroma; caused by chemical combination of chlorine and organic compounds.
Chill haze	Cloudiness caused by precipitation of protein-tannin compound at low temperatures, does not affect flavor.
Chill proof	Beer treated to allow it to withstand cold temperatures without clouding.
Clovelike	Spicy character reminiscent of cloves; characteristic of some wheat beers, or if excessive, may derive from wild yeast.
Conditioning	Period of maturation intended to impart "condition" (natural carbonation). Warm conditioning further develops the complex of flavors. Cold conditioning imparts a clean, round taste.
Conditioning Tank	A vessel in which beer is placed after primary fermentation where the beer matures, clarifies and, is naturally carbonated through secondary fermentation. Also called bright beer tank, serving tank and, secondary tank.
Contract Beer	Beer made by one brewery and then marketed by a company calling itself a brewery. The latter uses the brewing facilities of the former.
Copper	See brew kettle.
Decoction	Exhaustive system of mashing in which portions of the wort are removed, heated, then returned to the original vessel.
Dextrin	The unfermentable carbohydrate produced by the enzymes in barley. It gives the beer flavor, body, and mouthfeel. Lower temperatures produce more dextrin and less sugar. While higher temperatures produce more sugars and less dextrin.
Diacetyl	A volatile compound in beer that contributes to a butterscotch flavor, measured in parts per million.
DMS	Taste and aroma of sweet corn; results from malt, as a result of the short or weak boil of the wort, slow wort chilling, or bacterial infection. -- Dimethyl sulfide, a sulfur compound.
Dosage	The addition of yeast and/or sugar to the cask or bottle to aid secondary fermentation.
Draft (Draught)	The process of dispensing beer from a bright tank, cask or, keg, by hand pump, pressure from an air pump or, injected carbon dioxide inserted into the beer container prior to sealing.
Dry-hopping	The addition of dry hops to fermenting or aging beer to increase its hop character or aroma.
EBC	European Brewing Convention. An EBC scale is used to indicate colors in malts and beers.
Enzymes	Catalysts that are found naturally in the grain. When heated in mash, they convert the starches of the malted barley into maltose, a sugar used in solution and fermented to make beer.
Ester	Volatile flavor compound naturally created in fermentation. Often fruity, flowery or spicy.
Estery	Aroma or flavor reminiscent of flowers or fruits.
Fahrenheit (degrees)	F = ((Cx9)/(5) + 32.
Fermentation	Conversion of sugars into ethyl alcohol and carbon dioxide, through the action of yeast.
Final specific gravity	Specific gravity of a beer when fermentation is complete (that is, all fermentable sugars have been fermented).
Fining	An aid to clarification: a substance that attracts particles that would otherwise remain suspended in the brew.
Filter	The removal of designated impurities by passing the wort through a medium, sometimes made of diatomaceous earth (made up of the microscopic skeletal remains of marine animals). Yeast in suspension

	is often targeted for removal.
Fruity/Estery	Flavor and aroma of bananas, strawberries, apples, or other fruit; from high temperature fermentation and certain yeast strains.
Grainy	Tastes like cereal or raw grain.
Gravity	See specific gravity.
Grist	Brewers' term for milled grains, or the combination of milled grains to be used in a particular brew. Derives from the verb to grind. Also sometimes applied to hops.
Hand Pump	A device for dispensing draft beer using a pump operated by hand. The use of a hand pump allows the cask-conditioned beer to be served without the use of pressurized carbon dioxide.
Hang	Lingering bitterness or harshness.
Hard Cider	A fermented beverage made from apples.
Heat Exchanger	A mechanical device used to rapidly reduce the temperature of the wort.
Hefe	A German word meaning "yeast". Used mostly in conjunction with wheat (weiss) beers to denote that the beer is bottled or kegged with the yeast in suspension (hefe-weiss). These beers are cloudy, frothy and, very refreshing.
Hogshead	Cask holding 54 imperial gallons (243 liters).
Hop back	Sieve-like vessel used to strain out the petals of the hop flowers. Known as a hop jack in the United States.
Hops	Herb added to boiling wort or fermenting beer to impart a bitter aroma and flavor.
Hoppy	Aroma of hops, does not include hop bitterness.
Infusion	Simplest form of mash, in which grains are soaked in water. May be at a single temperature, or with upward or (occasionally) downward changes.
IBU	International Bitterness units. A system of indicating the hop bitterness in finished beer.
Keg	One-half barrel, or 15.5 U. S. gallons. A half keg or, 7.75 U. S. gallons, is referred to as a pony-keg.
Kräusening	The addition of a small proportion of partly fermented wort to a brew during lagering. Stimulates secondary fermentation and imparts a crisp, spritzy character.
Lager	Beers produced with bottom fermenting yeast strains, Saccharomyces uvarum (or carlsbergensis) at colder fermentation temperatures than ales. This cooler environment inhibits the natural production of esters and other byproducts, creating a crisper tasting product.
Lagering	From the German word for storage. Refers to maturation for several weeks or months at cold temperatures (close to 0°C /32°F) to settle residual yeast, impart carbonation and make for clean round flavors.
Lauter	To run the wort from the mash tun. From the German word to clarify. A lauter tun is a separate vessel to do this job. It uses a system of sharp rakes to achieve a very intensive extraction of malt sugars.
Lauter Tun	See mash tun.
Length	The amount of wort brewed each time the brew house is in operation.
Light-Struck	Skunklike smell; from exposure to light.
Liquor	The brewer's word for water used in the brewing process, as included in the mash or, used to sparge the grains after mashing.
Malt (ing)	The process by which barley is steeped in water, germinated ,then kilned to convert insoluble starch to soluble substances and sugar. The foundation ingredient of beer.
Malt Extract	The condensed wort from a mash, consisting of maltose, dextrins and, other dissolved solids. Either as a syrup or powdered sugar, it is used by brewers, in solutions of water and extract, to reconstitute wort for fermentation.
Malt Liquor	A legal term used in the U.S. to designate a fermented beverage of relatively high alcohol content (7%-8% by volume).
Mash	(Verb) To release malt sugars by soaking the grains in water. (Noun) The resultant mixture.
Mash Tun	A tank where grist is soaked in water and heated in order to convert the starch to sugar and extract the sugars and other solubles from the grist.
Maltose	A water soluble, fermentable sugar contained in malt.
Mead	Meads are produced by the fermentation of honey, water, yeast and optional ingredients such as fruit, herbs, and/or spices. According to final gravity, they are categorized as: dry (0.996 to 1009); medium (1010 to 1019); or sweet (1020 or higher). Wine, champagne, sherry, mead, ale or lager yeasts may be used.
Medicinal	Chemical or phenolic character; can be the result of wild yeast, contact with plastic, or sanitizer residue.
Metallic	Tastes tinny, bloodlike or coinlike; may come from bottle caps.
Microbrewery	Small brewery generally producing less than 15,000 barrels per year. Sales primarily off premises.
Mouthfeel	A sensation derived from the consistency or viscosity of a beer, described, for example as thin or full.

Musty	Moldy, mildewy character; can be the result of cork or bacterial infection.
Original gravity	A measurement of the density of fermentable sugars in a mixture of malt and water with which a brewer begins a given batch.
Oxidized	Stale flavor of wet cardboard, paper, rotten pineapple, or sherry, as a result of oxygen as the beer ages or is exposed to high temperatures.
Pasteurization	Heating of beer to 60-79(°C/140-174°F to stabilize it microbiologically. Flash-pasteurization is applied very briefly, for 15-60 seconds by heating the beer as it passes through the pipe. Alternately, the bottled beer can be passed on a conveyor belt through a heated tunnel. This more gradual process takes at least 20 minutes and sometimes much longer.
Phenolic	Flavor and aroma of medicine, plastic, Band-Aids, smoke, or cloves; caused by wild yeast or bacteria, or sanitizer residue.
Pitch	To add yeast to wort.
Plato, degrees	Expresses the specific gravity as the weight of extract in a 100 gram solution at 64°F (17.5°C). Refinement of the Balling scale.
Priming	The addition of sugar at the maturation stage to promote a secondary fermentation.
Pub	An establishment that serves beer and sometimes other alcoholic beverages for consumption on premise. The term originated in England and is the shortened form of "public house".
Publican	The owner or manager of a pub.
Regional specialty brewery	A brewery that produces more than 15,000 barrels of beer annually, with its largest selling product a specialty beer.
Reinheitsgebot	"Purity Law" originating in Bavaria in 1516 and now applied to all German brewers making beer for consumption in their own country. It requires that only malted grains, hops, yeast and water may be used in the brewing.
Saccharomyces cerevisiae	See Top-fermenting yeast.
Saccharomyces uvarum	See Bottom-fermenting yeast.
Saccharomyces carlsbergensis	See Bottom-fermenting yeast.
Salty	Flavor like table salt; experienced on the side of the tongue.
Secondary fermentation	Stage of fermentation occurring in a closed container from several weeks to several months.
Shelf life	Describes the number of days a beer will retain it's peak drinkability. The shelf life for commercially produced beers is usually a maximum of four months.
Solventlike	Reminiscent of acetone or lacquer thinner; caused by high fermentation temperatures.
Sour / Acidic	Vinegarlike or lemonlike; can be caused by bacterial infection.
Specific gravity	A measure of the density of a liquid or solid compared to that of water ((1.000 at 39°F (4°C)).
Sparge	To spray grist with hot water in order to remove soluble sugars (maltose). This takes place at the end of the mash.
Squares	Brewers' term for a square fermenting vessel.
Sweet	Taste like sugar; experienced on the front of the tongue.
Sulfurlike	Reminiscent of rotten eggs or burnt matches; a by-product of some yeast's.
Tart	Taste sensation cause by acidic flavors.
Terminal gravity	Synonym for final specific gravity.
Top-fermenting yeast	One of the two types of yeast used in brewing. Top-fermenting yeast works better at warmer temperatures and are able to tolerate higher alcohol concentrations than bottom-fermenting yeast. It is unable to ferment some sugars, and results in a fruitier, sweeter beer. Also known as "ale yeast".
Tun	Any large vessels used in brewing. In America, "tub" is often preferred.
Units of bitterness	See IBU.
Vinous	Reminiscent of wine.
Winy	Sherrylike flavor; can be caused by warm fermentation or oxidation in very old beer.
Wort	The solution of grain sugars strained from the mash tun. At this stage, regarded as "sweet wort", later as brewed wort, fermenting wort and finally beer.
Wort Chiller	See heat exchanger.
Yeast	A micro-organism of the fungus family. Genus Saccharomyces.
Yeasty	Yeastlike flavor; a result of yeast in suspension or beer sitting too long on sediment.

Hop Guide

Humulus Lupulus (hops) are the flowering cone of a perennial vining plant and a cousin of the cannabis variety (sorry no THC in this stuff) that typically thrives in climates similar to the ones that grapes do. Hop plants are dioecious, meaning the males and females flower on separate plants -- and the female cones are used in the brewing process. Hops are the age old seasoning of the beer, the liquid gargoyles who ward-off spoilage from wild bacteria and bringers of balance to sweet malts. They also lend a hand in head retention, help to clear beer (acting as a natural filter) and please the palate by imparting their unique characters and flavours. Basically, hops put the "bitter" in beer.

The following is a growing list of different hop varieties.

Type	Description
Ahtanum	Ahtanum is an aroma-type cultivar bred by Yakima Chief Ranches. Its name is derived from the area near Yakima where the first hop farm was established in 1869 by Charles Carpenter. (alpha acid: 5.7-6.3% / beta acid: 5.0-6.5%)
Amarillo	Amarillo is an aroma-type cultivar of recent origin, discovered and introduced by Virgil Gamache Farms Inc. (alpha acid: 8-11% / beta acid: 6-7%)
Cascade	Cascade is an aroma-type cultivar which originated as the first commercial hop from the USDA-ARS breeding program. It was bred in 1956 but not released for cultivation until 1972. It reached its peak in 1975 when it produced 13.3% of the total American crop. It was obtained by crossing an English Fuggle with a male plant, which originated from the Russian variety Serebrianka with a Fuggle male plant. A very popular U.S. variety, with a moderate bitterness level and fragrant, flowery aroma. Cascade is often used in highly hopped West Coast ales that have a citrus-floral hop character. (alpha acid: 4.5-6.0% / beta acid: 5.0-7.0%)
Centennial	Centennial is an aroma-type cultivar, bred in 1974 and released in 1990. The genetic composition is 3/4 Brewers Gold, 3/32 Fuggle, 1/16 East Kent Golding, 1/32 Bavarian and 1/16 unknown. A relatively new hop on the market, this hop used to be called CFJ90. Described by some as a "Super Cascade" and we tend to agree, but it's not nearly as "citrusy". Some even use it for aroma as well as bittering. Bitterness is quite clean and can have floral notes depending on the boil time. (alpha acid: 9.5-11.5% / beta acid: 4.0-5.0%)
Chinook	Chinook is a bittering variety with aroma characteristics released in May, 1985. It was bred by crossing a Petham Golding with the USDA 63012 male. A high alpha acid hop with a wonderful herbal, almost smoky character when used as an aromatic during the last few minutes of the boil when dry hoping. Excellent for hopping American-style Pale Ales, especially those brewed to higher gravities. (alpha acid: 12.0-14.0% / beta acid: 3.0-4.0%)
Columbus	This high alpha variety has a pungent aroma and clean bittering. Excellent for bitter ales and American IPA styles, and can be dramatic when dry hopped. (average alpha acid: 12%)
Cluster	Cluster originated from mass selection of the Cluster hop, which is an old American cultivar. It is suggested that they arose from hybridization of varieties, imported by Dutch and English settlers and indigenous male hops. (alpha acid: 5.5-8.5% / beta acid: 4.5-5.5%)
Crystal	Crystal is a triploid aroma-type cultivar, released for commercial production in 1993. It originates from a seedling selection (No. 8309-37) made at Corvallis in 1983 between the colchicine - induced tetraploid 'Hallertau mf' (USDA 21397) and the diploid male downy mildew resistant aroma hop, USDA 21381M. Crystal is a half-sister of Mt. Hood and Liberty. (alpha acid: 4.0-6.0% / beta acid: 5.0-6.7%)
Fuggle	Fuggle is an aroma-type cultivar selected in England as a chance seedling in 1861. It reached its peak in the U.K. in 1949 when 78% of the English crops were grown as Fuggle. It is also marketed as Styrian (Savinja) Golding in the Slovenian Republic. In the USA it is grown in Oregon and Washington State. Superb in English-style ales, and lends a unique character not imparted by the more subtle American-grown Fuggles. (alpha acid: 3.8-5.5% / beta acid: 1.5-2.0%)
Galena	Galena is a bittering-type cultivar which was bred in 1968 from Brewers Gold and an open pollination, i.e. an unknown male plant. It was released for cultivation in 1978. Galena is the most "mellow" hop of the high-alpha varieties, and has replaced Cluster as the most widely

	grown US hop. The bitterness is clean and well balanced. Great general purpose bittering hop. (alpha acid: 12.5-14.0% / beta acid: 7.5-9.0%)
Golding	Golding is a group of aroma-type cultivars originating in England. Over the decades, the group has been changed and widened. Mostly they have been named after villages in East Kent, (Petham, Rothersham, Canterbury, Eastwell) or hop farmers, who grew them (Amos's Early Bird, Cobbs). English Goldings grown in East Kent, are a premium hop, called East Kent Golding and should not be confused with U.K. Goldings, which are grown in other parts such as Kent, Worcestershire, Hampshire and Herefordshire. The cultivar grown in the USA (Oregon and Washington State) is a Canterbury Golding. The premier English aroma hop. Superb in English-style ales, and lend a unique character to fine lagers as well. This hop has a unique spicy aroma and refined flavor. (alpha acid: 4.0-6.0% / beta acid: 2.0-3.0%)
Hallertau mf	Hallertau mf (Mittelfrueh) is an aroma-type cultivar which originated in Germany as a land - race hop. The original Hallertau mf in Germany has been replaced with other Hallertau types with similar quality characteristics. The name indicates that it is a middle to early ripening cultivar. If you are looking to brew an authentic European-style lager, this is the best choice. Mild spicy flavor and aroma. (alpha acid: 3.5-5.5% / beta acid: 3.5-5.5%)
Horizon	Horizon is a high alpha-aroma cultivar, a diploid seedling result of a cross made in 1970 between the USDA 65009 female plant (with Brewers Gold and Early Green lineage) and the male plant 64035M. It was released as a commercial variety in 1998. (alpha acid: 10.2-16.5% / beta acid: 6.5-8.5%)
Liberty	Liberty is a triploid aroma-type cultivar, the result in 1983 of the colchicine induced tetrapcoid female cultivar Hallertau mf and a downy mildew resistant male, USDA 64035M. It is a half-sister to Ultra, Mt. Hood and Crystal. (alpha acid: 3.5-4.5% / beta acid: 3.0-3.5%)
Magnum	Magnum is a bittering/aroma type cultivar, bred in 1980 at Huell, the German Hop Research Instititute, from the American variety Galena and the German male 75/5/3. (alpha acid: 10.0-12.6% / beta acid: 5.0-7.0%)
Mount Hood	Mt. Hood is a triploid aroma-type cultivar, the 1983 result of a cross between the colchicine - induced tetraploid female Hallertau mf (USDA 21397) and the USDA 19058M, male plant. It is a half-sister to Ultra, Liberty and Crystal. An aromatic variety derived from Hallertau with a refined, spicy aroma and clean bittering. A good choice for lagers. (alpha acid: 4.0-6.0% / beta acid: 5.0-7.5%)
Northern Brewer	Northern Brewer is a bittering-type cultivar, bred in 1934 in England from a Canterbury Golding female plant and the male plant OB21. Northern Brewer has been used in the breeding process of many newer varieties. This cultivar is grown in England, Belgium, Germany and the USA. A strong fragrant hop with a rich rough-hewn flavor and aroma, ideal for steam-style beers and ales. Northern Brewer has a unique mint-like evergreen flavor. (alpha acid: 8.0-10.0%/ beta acid: 3.0-5.0%)
Nugget	Nugget is a bittering-type cultivar, bred in 1970 from the USDA 65009 female plant and USDA 63015M. The lineage of Nugget is 5/8 Brewers Gold, 1/8 Early Green, 1/16 Canterbury Golding, 1/32 Bavarian and 5/32 unknown. Nugget is a great bittering hop with a heavy herbal aroma. (alpha acid: 12.5-14.5% / beta acid: 4.0-6.0%)
Perle	Perle is an aroma-type cultivar, bred in 1978 in Germany from Northern Brewer. It is grown in Germany, Belgium and the U. S. A. Perle is a newer variety, originally from Germany but now grown quite successfully in the US. Perle is a medium alpha hop with a very clean, almost minty bitterness and pleasant aroma. (alpha acid: 7.0-9.5% / beta acid: 4.0-5.0%)
Saaz	Saaz is the traditional noble hop for true pilsner beer. Saaz is famous for its spicy, clean bitterness. (average alpha acid: 3.0%)
Satus	Satus is a bittering-type cultivar of recent origin. (alpha acid: 12.5-14.0% / beta acid: 8.5-9.0%)
Simcoe	Simcoe is a bittering/aroma type cultivar bred by Yakima Chief Ranches. (alpha acid: 12.0-14.0% / beta acid: 4.0-5.0%)
Spalt Select	Spalt Select is an aroma – type cultivar, bred in Germany and released for cultivation in the late 1980's. It is grown in Germany in the Hallertau and Spalt areas and in the U.S.A. in Washington State. (alpha acid: 3.5-5.5% / beta acid: 3.0-4.5%)
Sterling	Sterling is an aroma cultivar, a diploid seedling made in 1990 with a 21522 female plant and a 21361 male plant. Its parentage is 1/2 Saazer, 1/4 Cascade, 1/8 64035M (unknown German aroma X open pollination),1/16 Brewers Gold, 1/32 Early Green, and 1/32 unknown. (alpha acid: 4.5-5.0% / beta acid: 5.0-6.0%)
Tettnang	Tettnang is an aroma-type cultivar which originated in the Tettnang hop growing area of Germany as a land-race hop. It is grown in the U.S.A. in Oregon and Washington State.

	The original noble hop from the Tettnang region of Germany, ideal for your finest lagers and wheat beers. This limited availability hop has a fine, pure aroma, that is not present in United States grown Tettnanger. (alpha acid: 4.0-5.0% / beta acid: 3.5-4.5%)
Tomahawk	Tomahawk is a bittering hop of recent origin, bred by Charles Zimmermann. It is the first commercially grown 'Super Alpha' variety. In 1998 it contributed to 11% of the USA hop crop. (alpha acid: 14.0-18.0% / beta acid: 4.5-5.8%)
Ultra	Ultra is a triploid aroma-type cultivar, originated in 1983 from a cross between the colchicine-induced tetraploid Hallertau mf (USDA 21397) and the diploid Saazer-derived male genotype (USDA 21237m). Ultra is the half-sister to Mt. Hood, Liberty and Crystal. Its genetic composition is 4/6 Hallertau mf, 1/6 Saazer, and 1/6 unknown. This cultivar was released for commercial production in March, 1995. (alpha acid: 4.5-5.0% / beta acid: 3.6-4.7%)
US Fuggle	A mild-flavored English-style hop grown in Oregon, with a fragrant wood-like aroma. Milder in character than English Fuggles. This hop imparts a smooth, well rounded hop character. (average alpha acid: 3.9%)
Vanguard	Vanguard is a diploid seedling made in 1982 between USDA 21285, which has Hallertau mf parentage and USDA 64037m. It was released for cultivation in 1997. (alpha acid: 5.0-6.0% / beta acid: 5.0-7.0%)
Warrior	Warrior is a bittering hop of a recent origin, bred by Yakima Chief Ranches. (alpha acid: 15.0-17.0% / beta acid: 4.5-5.5%)
Willamette	Willamette is a triploid aroma-type hop, which originated in the mid 1970's and is a seedling of Fuggle. It is a very popular aroma hop, contributing in 1998 to 18% of the total USA hop crop. A variation on English Fuggle hops grown in Oregon and Washington. Willamette has a fragrant spicy woody aroma. An excellent American aromatic hops for ales and lagers. (alpha acid: 4.0-6.0% / beta acid: 3.5-4.5%)

Malt & Adjunct Guide

Malts (and adjuncts) provide the fermentable sugars that are required to make beer (and to make beer "sweet"). The process of malting converts insoluble starch to soluble starch, reduces complex proteins, generates nutrients for yeast development, and develops enzymes.

The following is a growing list of different malt & adjunct types.

Type	Description
Base Malts	Base malts usually account for a large percent of the total grain bill, with darker-colored specialty malts accounting for 10 to 25% of the grain bill. The only exception is wheat malt, which can make up to 100% of the total grain bill in brewing wheat beers. Base malts and, to some extent, light-colored specialty malts provide most of the enzymatic (diastatic) power to convert starches into fermentable sugars. The base malts provide the highest extract potential. Dark-colored specialty malts, caramelized malts, roasted malts, unmalted barely, and other malted grains are added in smaller quantities to obtain darker colors and to enhance flavor characteristics. Depending on the style of beer brewed, the brewer may use only one or two types of barley malts, or as many as seven or eight. Other grains used in brewing include corn, rye, and oats.
Caramel Malts	Caramel malt is made from green malt that is produced by drying the wet germinated barley at controlled temperatures, causing the starches to convert to sugars and caramelize. The major variable in the process is the roasting temperature, which determines the depth of the color and the degree of caramel flavor. Caramelized malts come in a wide range of colors, from light to very dark amber, and with flavors ranging from a mild sweet caramel to caramel/burnt sugar. It is primarily known for its color control but can also provide body (dextrins), mouthfeel, and some sweetness. Caramel malt will also improve foam stability. Light caramel malts accentuate the soft malt flavor, while darker caramel malts promote a caramel, slightly sweet taste, European in flavor.
Dark Malts	Specialty dark-colored malts have little or no enzyme activity because of high-temperature kilning or roasting. Consequently, specialty malts cannot be used alone in a mash. These malts are used in relatively smaller amounts than light-colored specialty malts because of their strong flavoring and coloring components. Some styles of beers, such as stout and Bock, cannot be made without the use of these specialty malts. Amber and brown malts are examples of specialty dark-colored malts.
Light Malts	Light-colored specialty malts are kilned at higher temperatures than base malts and impart a deeper color and a fuller malt flavor and aroma to the finished beer. Enzyme levels are lower than for base malts. Vienna and Munich malts are examples of specialty light-colored malts.

	Pale Ale malt is most commonly associated with British ales, and has the flavor characteristic of full maltiness. It is well modified, and is well suited to a single temperature infusion mash. It tends to have fewer enzymes, although sufficient enough to allow up to 15% adjuncts in the mash. It also tends to have a lower haze potential, and is less likely to produce DMS, which can lead to a 'sweet creamed corn' aroma. Lager malt is less well modified in the malting process, and so is better suited to a program temperature mash. It typically has a high protein content, and has a thick husk which is rich in polyphenols (tannins), which can lead to protein haze and astringency. The 2-row variety tends to be lower in enzyme and protein levels and has a thinner husk than the 6-row malt, but this quality depends more on the strain of barley used to make the malt.
Roasted Malts	Chocolate malt is not roasted quite as long as black malt; consequently, it is lighter in color – more dark brown – and retains some of the aromatics and flavor of malt's sweetness. It imparts a nutty, roasted flavor to the beer but does not make it as bitter as black malt. There are no enzymes in chocolate malt. Chocolate is an essential ingredient in porters and stouts and can be used in mild ales, brown ales, and old ales, and can be incorporated into the grist of dark lagers. Making black malt involves roasting the malted barley at temperatures so high that they drive off all of the aromatics (malt flavor). There are no enzymes in black malt. In excess, black malt will contribute a dry, burnt flavor to the beer that may be perceived as a bitterness different from that derived from hops.
Corn	Corn products have traditionally been the adjunct of choice among brewers. They are extremely consistent in terms of quality, composition, and availability and produce a spectrum of fermentable sugars and dextrins similar to that produced by malt upon enzymatic conversion. Corn has a sweet, smooth flavor that is compatible with many styles of beer. It is the most popular adjunct used in American breweries. It lowers the protein and polyphenol content of beers, thereby lightening body and reducing haze potential. Corn will provide a somewhat neutral flavor to the finished beer. A "corn" taste may be apparent, making it generally more suited to the sweeter dark beers and lagers than to the drier pale ales. It is, however, one of the best adjuncts to use for full-bodied bitters. Some brewmasters claim that the use of corn (10–20%) will help stabilize the flavor of beer.
Grits	Grits consist of uncooked fragments of starchy endosperm derived from cereal grains. The starch of these adjunct products is in its native form, and is not readily attacked by the malt diastase enzymes during mashing. Consequently, these adjuncts must be processed by boiling in a cereal cooker to bring about solubilization and gelatinization of the starch granules and render them susceptible to diastatic enzyme attack. Unlike in America and Australia, grits are rarely used in British brewing, as cereal cookers are not found in most traditional British breweries.
Malt Extracts	Malt extracts can be used as a sole source of fermentable sugar, or they can be combined with barley malt. The malt extract comes in the form of syrup or dried powder. If the final product is a dried powder, the malt extract has undergone a complete evaporation process by means of "spray-drying," thus removing almost all of the water. For simplicity, use an 85% conversion factor when substituting dried malt for syrup. Syrups are more popular than dried malt extract, possibly because they are less trouble to store. A common problem noticed in malt extract beers is the thin, dry palate, which correlates with a low terminal gravity. Another common problem is the lack of a true "dark malt" flavor in dark beers.
Oats	The high protein, fat, and oil content of oats is theoretically a deterrent to their use in brewing. However, oats have been used in the brewing process, particularly in brewing oatmeal stout.
Refined Starches	Refined starches can be prepared from many cereal grains. In commercial practice, refined wheat starch, potato starch, and cornstarch have been used in breweries; corn starches, in particular, are used in the preparation of glucose syrups. Wheat starch has been employed in breweries in Australia and Canada, where local conditions make it economical to use. However, the most important source of refined starch is corn.
Rice	Rice is currently the second most widely used adjunct material in the U.S. in the production of light-colored lager beers (30). Rice has almost no taste of its own, which is regarded as a positive characteristic since the rice will not interfere with the basic malt character of the beer. It promotes dry, crisp, and snappy flavors and is employed in several premium brands, including Budweiser. Some brewers prefer rice because it has a lower oil content than corn grits. One disadvantage in using rice is the need to use an additional cooking vessel because its gelatinization temperature is too high for adequate starch breakdown during normal mashing. Different types of rice vary widely in their suitability for use in brewing. Short-grain rice is preferred because medium- and long-grain varieties can lead to viscosity problems. In milling rice, a certain proportion of the rice kernels are chipped and broken, rendering them unsuited for table use because of their impaired physical appearance. It is this portion of the broken rice that is designated as "brewer's rice."
Syrups & Sugars	The British are known for their use of syrups and sugars, which are mainly used as nitrogen dilutents. The reduction in proteins leads to shorter fermentation periods, cleaner yeast, and sharper filtration (allowing more beer to be processed with the same amount, or less, of filter aid). Another advantage in using syrups and sugars is that the carbohydrate component can be controlled and custom manufactured to the needs

	of the brewer. Syrups and sugars also allow for shorter boiling times and high-gravity brewing, and they can be used to expand brew house capacity. Finally, syrups and sugars are handled easily in bulk form. Cereal adjuncts need handling systems such as conveyors, dust collectors, and milling operations. Brewing syrups and sugars, having already undergone gelatinization and saccharification, can be added directly to the kettle or can be used in priming, thereby bypassing the mashing operation.
Sugar	Dextrose is also known as corn sugar and is available in the trade in the purified form as a spray dry or as a crystalline powder. Dextrose sugar is added directly to the brew kettle during boiling. Various grades of sucrose are used in the brewing industry. Few brewers today use raw sugar; most prefer the more consistent products of the sugar refiner. Granulated sugar, the normal end product of the refining process, may be added directly to the kettle, but usually is dissolved in a solution before being added. Malto-dextrin is the most complex fraction of the products of starch conversion. It is tasteless, gummy, and hard to dissolve. It is often said to add body (palate fullness) to beer, increase wort viscosity, and add smoothness to the palate of low-malt beers. However, it is easy to increase the dextrin content of grain beers by changing the mash schedule or using dextrin malt. Malto-dextrin is of interest mainly as a supplement to extract brews. Caramel is used in brewing as a flavor and/or coloring agent. For example, many milds and sweet stouts contain caramel for both flavor and color. Caramel may be used either in the kettle or in primings to make minor adjustments to the color of the beer, but the choice of malt grist and the grade of adjuncts added to the kettle will determine the fundamental color of the beer. Invert sugar is a mixture of dextrose (also called glucose) and fructose syrup.
Syrups	The two major syrups used in brewing are sucrose- and starch-based. The sucrose-based syrups have been refined from natural sources such as sugar cane or beets. The starch-based syrups are produced from cereals by hydrolysis using acid, exogenous enzymes, or a combination of the two to produce a range of syrups with different fermentabilities. In recent years, there has been a great development in the range of starch-based syrups produced from corn and wheat. In the U.S., these adjuncts are produced exclusively from yellow corn; while in Europe, they are produced from corn and wheat. The starch-based syrups are commonly referred to as "glucose" syrups. This name is misleading, however, since the syrups contain a large range of sugars, depending on the method of manufacture – dextrose, maltose, maltotriose, maltotetraose, and larger dextrins.
Unmalted Barley	Unmalted barley gives a rich, smooth, "grainy" flavor to beer. Unlike the other adjuncts, unmalted barley will contribute foam (head) retention to the finished beer because of lower levels of proteolysis. However, the nitrogenous and complex proteins that contribute to head retention also contribute to chill haze problems. Clarity problems make unmalted barley inappropriate for light beers, which is one reason why corn and rice are preferred. It is essential in dry stout, e.g., Guinness Stout. Unmalted barley can be employed for as much as 50% of the total grist, but it usually makes up no more than 10 to 15% as an adjunct. High levels of unmalted barley can lead to a slightly harsh taste in the beer. It can also result in insufficient malt enzymes for the necessary hydrolysis of starch, protein, and beta-glucans. Incomplete degradation of beta-glucans can increase wort viscosity and runoff times, which could effect the stability of the finished product. These problems can be alleviated by employing a beta-glucans rest at a range from 45 to 50°C, the temperature optimum of beta-glucanase. Another approach is to incorporate fungal or bacterial beta-glucanases and alpha-amylases to facilitate starch gelatinization in the cooker and mash filtration. Roasting unmalted barley at high temperatures makes roasted barley. Roasted barley is not black in appearance; it is rather a rich, dark brown. It has an assertive, roasted flavor, similar to roasted coffee beans, with a sharp, acrid after-palate, and is especially used in the making of dry stouts and porters. It contributes significantly to the color of the beer, enhances head production and stabilization, and whitens the head on the beer. There are no enzymes in roasted barley. Roasted barley produces a stronger, drier, more bitter taste than roasted malt and is less aromatic and drier, with a more intense burnt flavor than black malt.
Wheat	Wheat malt, for obvious reasons, is essential in making wheat beers. Wheat is also used in malt-based beers (3–5%) because its protein gives the beer a fuller mouthfeel and enhanced beer head stability. On the down side, wheat malt contains considerably more protein than barley malt, often 13 to 18%, and consists primarily of glutens that can result in beer haze. Compared to barley malt it has a slightly higher extract, especially if the malt is milled somewhat finer than barely malt. European wheat malts are usually lower in enzymes than American malts, probably because of the malting techniques or the varieties of wheat used.

Yeast Guide

Yeast are single-celled microorganisms that reproduce by budding. They are biologically classified as fungi and are responsible for converting fermentable sugars into alcohol and other byproducts. There are literally hundreds of varieties and strains of yeast. In the past, there were two types of beer yeast: ale yeast (the "top-fermenting" type, Saccharomyces cerevisiae) and lager yeast (the "bottom-fermenting" type, Saccharomyces uvarum, formerly known as Saccharomyces carlsbergensis). Today, as a result of recent reclassification of Saccharomyces species, both ale and lager yeast strains are considered to be members of S. cerevisiae.

Top-Fermenting Yeast
Ale yeast strains are best used at temperatures ranging from 10 to 25°C, though some strains will not actively ferment below 12°C (33). Ale yeasts are generally regarded as top-fermenting yeasts since they rise to the surface during fermentation, creating a very thick, rich yeast head. That is why the term "top-fermenting" is associated with ale yeasts. Fermentation by ale yeasts at these relatively warmer temperatures produces a beer high in esters, which many regard as a distinctive character of ale beers.

Top-fermenting yeasts are used for brewing ales, porters, stouts, Altbier, Kölsch, and wheat beers.

Bottom-Fermenting Yeast
Lager yeast strains are best used at temperatures ranging from 7 to 15°C. At these temperatures, lager yeasts grow less rapidly than ale yeasts, and with less surface foam they tend to settle out to the bottom of the fermenter as fermentation nears completion. This is why they are often referred to as "bottom" yeasts. The final flavour of the beer will depend a great deal on the strain of lager yeast and the temperatures at which it was fermented.

Some of the lager styles made from bottom-fermenting yeasts are Pilsners, Dortmunders, Märzen, Bocks, and American malt liquors.

Spontaneous Fermentation
Beer that is exposed to the surrounding open air to allow natural/wild yeast and bacteria to literally infect the beer, are spontaneous fermented beers. One of the typical yeasts is the Brettanomyces Lambicus strain. Beers produced in this fashion are sour, non-filtered and inspired by the traditional lambics of the Zenne-region. This brewing method has been practised for decades in the West Flanders region of Belgium.

Byproducts of Yeast
Yeast impact the flavour and aroma of beer more than you might think. The flavour and aroma of beer is very complex, being derived from a vast array of components that arise from a number of sources. Not only do malt, hops, and water have an impact on flavour, so does the synthesis of yeast, which forms byproducts during fermentation and maturation. The most notable of these byproducts are, of course, ethanol (alcohol) and carbon dioxide (CO_2); but in addition, a large number of other flavour compounds are produced such as:

acetaldehyde (green apple aroma)
diacetyl (taste or aroma of buttery, butterscotch)
dimethyl sulfide (DMS) (taste or aroma of sweet corn, cooked veggies)
clove (spicy character reminiscent of cloves)
fruity / estery (flavour and aroma of bananas, strawberries, apples, or other fruit)
medicinal (chemical or phenolic character)
phenolic (flavour and aroma of medicine, plastic, Band-Aids, smoke, or cloves)
solvent (reminiscent of acetone or lacquer thinner)
sulfur (reminiscent of rotten eggs or burnt matches)

There are other yeast byproducts, and some of the listed can be both desired byproducts and/or undesired depending on the beer style or what the brewer was trying to achieve.

History of American Beer

The following is a growing list of key milestones throughout the history of American beer.

Year	Beer Milestone
1587	Virginia colonists brew ale using corn.
1607	First shipment of beer arrives in the Virginia colony from England.
1609	American "Help Wanted" advertisements appear in London seeking brewers for the Virginia Colony.
1612	Adrian Block & Hans Christiansen establish the first known brewery in the New World on the southern tip of New Amsterdam (Manhattan).
1614	The first non-native American is born in New Amsterdam, (perhaps the first non-native American male born in the New World) in Block & Christiansen's brewhouse. Jean Vigne grows up to become the first brewer born in the New World.
1620	Pilgrims arrive in Plymouth in the Colony of Massachusetts aboard the Mayflower. Beer is extremely short on board ship and the seamen force the passengers ashore to ensure that they will have sufficient beer for their return trip to England.
1632	The West India Company builds a brewery on Brewers Street in New Amsterdam led by Governor Van Twiller.
1633	Peter Ninuit establishes a brewery at Market Field on Manhattan Island.
1634	Samuel Cole is the first to be licensed in Boston to operate a tavern.
1637	First authoritatively recorded brewery in the Massachusetts Bay Colony under the control of Captain Sedgwick.
1639	Sergeant Bauleton is placed in charge of a brewhouse in Providence, Rhode Island.
1670	Samuel Wentworth of Portsmouth obtains the first license to brew beer in New Hampshire.
1683	William Penn's colony erects a brewery at Peonshury near Bristol, Pennsylvania. William Frampton erects the first brewery in Philadelphia on Front Street between Walnut and Spruce at the Dock Street Creek.
1734	Mary Lisle, the first known "brewster" in America, takes over her late fathers Edinburgh Brewhouse in Philadelphia, which she operates until 1751.
1738	Major William Horton builds the first brewery in the deep south at Jekyll Island, Georgia.
1754	George Washington enters a beer recipe in his notebook.
1762	*The Theory and Practice of Brewing* by Michael Combrune is published. This is the first attempt to establish rules and principles for the art of brewing.
1765	The British Army builds a brewery at Fort Pitt (Pittsburgh, PA). The first brewery west of the Allegheny mountains. A brewery is built in the French colonial settlement of Kaskaskia in what is now Illinois. It is the first brewery outside the 13 colonies.
1772	A mixture of dark to light malts called "Porter" is concocted in England. Exports begin to America but it fails to gain popularity.
1774	Robert Smith begins a modest ale brewing venture at Saint John & Noble Streets in Philadelphia. Through relocations and buy outs, the Robert Smith brand will survive until 1986 - 212 years. The Single Brothers Brewery and Distillery opens in the Noravian religious settlement of Salem, North Carolina.
1775	Revolutionary War measures by Congress include rationing to each soldier one quart of Spruce Beer or Cider per man per day.
1789	George Washington presents his "buy American" policy indicating he will only drink porter made in America. Massachusetts passes an Act encouraging the manufacture and consumption of beer and ale.
1792	New Hampshire agrees not to tax brewing property.
1793	Philadelphia produces more beer than all the other seaports in the country.
1808	Nembers of the Congregational Church in Moreau, Saratoga County, New York form a temperance society.
1810	132 operating breweries produce 185,000 barrels of beer. Population of the country is 7 million.

	Jacques Delassas de St. Vrain begins brewing in St. Louis, Missouri (brewery destroyed by fire in 1812).
1815	*The American Brewer and Maltster* by Joseph Cappinger is published.
1819	A steam engine built by Thomas Holloway is installed in the brewery of Frances Perot in Philadelphia. This is the first engine to be used in beer production in America. Nathan Lyman starts the first brewery in Rochester, New York.
1820	Brewers report business off due to increased consumption of whiskey.
1826	American Society for the Promotion of Temperance formed in Boston (also known as the American Temperance Society).
1829	American Temperance Society has 100,000 members. David G. Yuengling opens a brewery in the Pennsylvania coal town of Pottsville. It continues in 1995 as the oldest operating brewery in the United States, still owned by the Yuengling family.
1830	Jacob Roos builds the first brewery in Buffalo, New York.
1832	Secretary of War Lewis Cass cancels the ration of liquor to the military.
1833	William Lill & Co. (Heas & Sulzer) start the first commercial brewery in Chicago and produce 600 barrels of ale in their first year. Membership in the country's five thousand temperance societies exceeds one and one quarter million.
1836	United States Temperance Union meets in Saratoga, New York and changes name to American Temperance Union. Principle of total abstinence or "Teetotalism" is introduced.
1837	Rice and Kroener establish the first brewery in Evansville, Indiana.
1840	Philadelphia brewer John Wagner introduces lager beer.
1844	The Fortmann and Company Brewery introduces lager beer to Cincinnati. Jacob Best starts a brewery in Milwaukee which later becomes the Pabst Brewing Co.
1846	Maine passes prohibition law.
1847	John Huck and John Schneider start the first lager beer brewery in Chicago.
1848	John Roesele starts a lager beer brewery in Boston. Unrest in Germany causes many Germans to emigrate to America.
1849	August Krug forms a brewery in Milwaukee which evolved into the Schlitz Brewery. Adam Schuppert Brewery at Stockton and Jackson Streets in San Francisco becomes California's first brewery.
1850	Mathias Frahm establishes Davenport, Iowa's first brewery. 431 breweries in the country produce 750,000 barrels of beer (31 gallons per barrel). The population is 23 million.
1852	George Schneider starts a brewery in St. Louis, Missouri. This brewery is the seed of the Anheuser-Busch Brewery. San Francisco has 350 bar rooms to serve the hard-drinking population of 36,000. Henry Saxer starts a brewing business (City Brewery) in Portland, Oregon Territory. This brewery was later owned by Henry Weinhard. Prohibition comes to Vermont. Prohibition adopted in Massachusetts (repealed in 1868). Rhode Island enacts prohibition (repealed in 1863). Territory of Minnesota enacts a short-lived prohibition.
1853	Prohibition voted in for Michigan.
1854	Prohibition begins in Connecticut.
1855	German brewer William Menger starts a lager beer brewery in San Antonio, Texas. This is the first brewery in that city. Prohibition adopted in New York, New Hampshire, Delaware, Indiana, Iowa, and the Nebraska Territory.
1856	The Benedictine Society of Saint Vincent's Abbey opens a commercial brewery in their Monastery near Latrobe, Pennsylvania.
1857	The largest brewery in the West is the Chicago brewery of William Lill and Michael Diversey.
1859	Solomon, Taecher & Co. start Colorado's first brewery, the Rocky Mountain Brewery.
1860	1269 breweries produce over one million barrels of beer for a population of 31 million. New York and Pennsylvania

	account for 85% of the production.
1861	Internal Revenue System introduced.
1862	Ernest Weisgerber builds Idaho's first brewery (in Lewistown). Internal Revenue Act taxes beer at the rate of one dollar per barrel to help finance the government during the Civil War. 37 New York breweries form an association that would officially become the United States Brewers Association in 1864.
1863	161,607 barrels of beer are produced in the New England states. Thomas Smith, Christian Ritcher, and Henry Gilbert found the first brewery in Montana Territory (Virginia City).
1865	Mathew Vassar, a prominent Poughkeepsie, New York brewer, founds Vassar College, the first privately endowed school for women. National Temperance Society and Publication House formed in Saratoga, New York.
1866	Internal Revenue issues stamp regulations requiring application of tax stamps to barrels of beer leaving the brewery. Levin & Co.'s pioneer Brewery in Tucson is the first to operate in the Arizona Territory.
1867	Prohibition efforts in Iowa and New York fail. 3700 breweries in operation in America producing 6 million barrels of beer.
1868	John Siebel opens a brewing school which later becomes the Siebel Institute of Technology. Publication of the monthly magazine *The American Brewer* begins in January.
1869	Prohibition Party organized in Chicago. Another prohibition law enacted in Massachusetts (repealed 1875). Best Brewing Co. (later Pabst) begins expansion in Milwaukee with the purchase of Charles T. Melms' Brewery.
1871	A number of Chicago breweries destroyed by fire started by Mrs. O'Leary's cow: Doyle & Co., Huck, Jerusalem, Lill & Diversey, Metz, Mueller, Sands, and K. G. Schmidt.
1872	Anheuser adopts A and Eagle trademark. First brewery workers' strike in New York City. Prohibitionist presidential candidate James Black draws 5608 votes.
1873	4131 breweries (record number) produce 9 million barrels of beer. Adolphus Busch begins bottling of beer for large scale shipments at the Anheuser Brewery in St. Louis (bottling was not new - only the magnitude of this venture).
1874	Woman's Christian Temperance Union formed.
1875	First lager beer in California brewed by Boca Brewing Co. in Boca.
1876	Louis Pasteur publishes "Studies on Beer" showing how yeast organisms can be controlled.
1877	George Ehret of New York is the largest brewer in the country.
1879	Ballantine adopts three ring trademark.
1880	Frederick Salem authors "Beer, Its History and Its Economic Value as a National Beverage." The book is his argument for beer as a temperance measure. It offers the motto "Beer against Whisky." Internal Revenue Department records indicate 2830 ale and lager breweries in operation. U. S. Brewers Academy established.
1880-1910	Number of breweries declines. Improved methods of production and distribution mean fewer breweries can manufacture more beer. By 1910 number of breweries drops to around 1500.
1882	National Brewers' and Distillers' Association formed.
1884	Adolphus Busch of St. Louis and Otto Koehler establish the Lone Star Brewing Co. in San Antonio, Texas.
1885	An injunction closes the John Walruff Brewery in Lawrence, Kansas which had flaunted prohibition laws for five years. He appeals on the basis that prohibition laws constitute illegal confiscation of property.
1886	John Walruff wins appeal in lower courts. Case taken to Supreme Court. National Union of the Brewers of the United States established. Abraham Cohen establishes the first brewery in Alaska at Juneau.

1887	United States Supreme Court rules in John Walruff case that Kansas was not depriving Walruff of his property, but merely abating a nuisance and prohibiting the injurious use of that property. Master Brewers' Association organized. Tuscarora Advertising Company formed in Coshocton, Ohio producing a wide variety of advertising items.
1888	Standard Advertising Company founded by H. D. Beach in Coschocton, Ohio in competition with Tuscarora Advertising. Brewery employees strike in New York, Chicago, and Milwaukee. A British syndicate under the name New York Breweries Co. is formed through the purchase of H. Claussen & Son Brewing Co. and Flanagan, Nay & Co.
1889	One of the first big brewery mergers takes place. Franz Falk Brewing Co. and Jung and Borchert in Milwaukee merge to form Falk, Jung & Borchert Brewing Co. This brewery was taken over four years later by Pabst. A British syndicate proposes a plan to merge Schlitz, Pabst, and Blatz in Milwaukee. Schlitz and Pabst decline the offer. Blatz sells part of its business to Milwaukee and Chicago Breweries Ltd. Eighteen St. Louis breweries merge into the English syndicate St. Louis Brewing Association.
1890	Six New Orleans brewers combine to form the New Orleans Brewing Co.
1892	British syndicates start price wars. Prices in Chicago decrease from $6.00 per barrel to $3.50 and $4.00 per barrel. Crown cap invented by William Painter of Crown Cork and Seal Co. in Baltimore. Wood pulp coaster invented by Robert Smith of Dresden, Germany.
1893	Anti-Saloon League founded by Rev. Howard Hyde Russell with the goal of suppressing the saloon.
1898	Beer barrel tax raised to $2.00 during Spanish American War. Beer sales decline. The Royal Brewery is the first to operate in Hawaii.
1899	The Pittsburgh Brewing Company formed by the consolidation of twenty one Pittsburgh brewers.
1900	Woman's Christian Temperance Union member Carrie Nation does a hatchet job on the Carey Hotel in Wichita, Kansas.
1901	Ten Boston brewers merge into Massachusetts Breweries Company, Ltd. Sixteen Baltimore brewers consolidate into the Gottlieb-Bauernschmidt-Straus Brewing Company. Barrel tax on beer reduced to $1.60.
1902	Barrel tax on beer reduced to $1.00.
1905	Independent Brewing Company formed by fifteen Pittsburgh breweries.
1909	United States Brewers Association yearbook discusses the problems of poor conditions in saloons and the need for a cleanup.
1912	Nine states vote dry.
1913	Webb-Kenyon bill passed prohibiting the interstate shipment of alcoholic beverages to dry states.
1914	Resolution to prohibit liquor through a constitutional amendment loses in the House due to lack of required two-thirds majority vote (197 for, 190 against). Fourteen states dry. Secretary of Navy Josephus Daniels orders prohibition of alcohol on Naval ships and Naval installations.
1916	Twenty-three states dry. Six San Francisco breweries consolidate.
1917	District of Columbia passes a prohibition law. Distilleries closed by Food Control Law.
1919	18th Amendment to the U.S. Constitution ratified on January 16 calling for national prohibition to take effect one year from the date of ratification. House of Representatives Bill No. 6810 presented in May by Rep. Volstead establishing the apparatus for the enforcement of prohibition. The bill was passed October 10, vetoed by President Wilson on October 27. The veto was subsequently overridden by Congressional vote.
1920s	Near beers brewed during prohibition: Pablo by Pabst, Famo by Schlitz, Vivo by Miller, Lux-O by Stroh and Bevo by Anheuser.-Busch.

1920	Association Against the Prohibition Amendment organized by William H. Stayton.
1921	300 million gallons of "near beer" produced.
1922	Prohibitionist Volstead defeated in Minnesota elections. Anthony & Kuhn Brewery of St. Louis sold to a laundry.
1923	The Moderation League is formed.
1926	Montana votes to repeal the state prohibition enforcement law. Other states follow suit.
1929	The Women's Organization for National Prohibition Reform started.
1930	The Crusaders formed protesting the lawlessness, crime, and corruption brought on by Prohibition. American Brewers Association formed.
1931	American Legion votes for a referendum of national prohibition.
1932	86 million gallons of near beer produced.
1933	The Cullen Bill is passed in March allowing states which did not have state prohibition laws to sell 3.2% beer. It also instituted a $5.00 per barrel tax on beer. On April 7, 1933 the legalization of beer takes effect via the 21st Amendment repealing the 18th. 31 brewers back in operation by June.
1934	756 brewers back in operation.
1935	Canned beer introduced by American Can Company and Krueger Brewing Co. of Newark, New Jersey on June 24. Schlitz introduces cone top can produced by Continental Can Company. Falstaff Brewing Co. of St. Louis leases the Krug Brewing Company of Omaha, Nebraska. This touches off a wave of acquisitions by large brewers.
1936	United Brewers Industrial Foundation formed. Brewing Industry, Inc. formed.
1940	Beer production at level of preprohibition years with half the number of breweries in operation as in 1910. Barrel tax raised from $5.00 to $6.00.
1941	All brewers' associations united under the United States Brewers' Association.
1943	Brewers are required to allocate 15% of their production for military use.
1944	Barrel tax raised to $8.00.
1949-1958	185 breweries close down or sell out.
1950	407 breweries in operation.
1951	Anheuser-Busch of St. Louis builds a new brewery in Newark, New Jersey starting a trend for expansion of breweries. Barrel tax raised to $9.00.
1953	Anheuser-Busch buys the St. Louis Cardinals baseball team.
1954	First l6oz can introduced by Schlitz.
1959	Aluminum can introduced by Coors of Golden, Colorado.
1960	Aluminum can top introduced.
1961	230 breweries in operation. Only 140 are independently run.
1962	Tab top can introduced by Pittsburgh Brewing Company.
1964	Haffenreffer brews the last beer in Boston. After 300 years of brewing history, the Commonwealth of Massachusetts found itself without an operating brewery.
1965	"Ring Pull" can introduced.
1969	Canned beer outsells bottled beer for the first time. Fritz Maytag takes ownership of the Anchor Brewing Co. in San Francisco, CA. It is not obvious at the time, but a revolution has begun. He brews high quality beer for non-main stream tastes.
1970	A small group of collectors of brewery advertising items form the first club in the nation devoted to that hobby - The Eastern Coast Breweriana Association (ECBA).
1971	Philip Morris Co. acquires Miller Brewing Co.
1972	State of Oregon becomes the first state to adopt a container deposit law.
1977	The first ale is served in a new brewery in Sonoma, CA. Jack McAuliffe's venture is short lived, but the New Albion Brewery will become known as America's first "Micro Brewery", or "Craft Brewery".

	President Jimmy Carter's brother debuts his "Billy Beer."
1978	Homebrewing made federally legal in the United States.
1981	First ever Great American Beer Festival (GABF) is held in Colorado -- now America's oldest and largest beer tasting and competition.
1982	For the first time since prohibition, a brewery is allowed to open that not only sells its' beer at its' own bar on premises, but serves food to boot. In Bert Grant's Yakima Brewing and Malting Co., Inc., the Brew Pub is born.
1983	In January, 51 brewing concerns are operating a total of 80 breweries. This is the low water mark for breweries in the 20th century. The top six breweries (Anheuser-Busch, Miller, Heileman, Stroh, Coors, and Pabst) control 92% of U. S. beer production.
1984	44 Brewing concerns are operating a total of 83 breweries. Micro Breweries begin to spread: Riley-Lyon (AR): Boulder (CO); Snake River (ID); Millstream (IA); Columbia River (OR); Kessler (MT); Chesapeake Bay (VA). Manhatten Brewing Co., in New York City's SOHO section, becomes the first Brew Pub on the east coast. Jim Koch establishes the Boston Beer Company.
1990	307 years after William Frampton opened his brewery on Philadelphia's Dock Street Creek, he is memorialized through the opening of the Dock Street Brewing Co. Producing 31,000 bbls. of beer, the Sierra Nevada Brewery in Chico, CA becomes the first start up micro brewery to break out of that classification (considered 25,000 bbl or less).
1994	It becomes legal to put the alcohol content of beer on containers. California begins the year with 84 Micro Breweries or Brewpubs in operation - one more than there were breweries in the nation 10 years earlier. Attendees at the Woman's Christian Temperance Union convention are admonished to recapture the spirit of Carrie Nation. Year end production figures rank the top 5 brewers as: Anheuser.Busch (87.5 million bbls.); Miller (42.6 million bbls.); Adolph Coors (20.3 million bbls.); Stroh's (11.8 million bbls.); G. Heileman (8.4 million bbls.)
1995	Approximately 500 breweries are operating in the United States, and they are estimated to increase at a rate of 3 or 4 per week. Todd Alstrom writes his first beer review on a napkin in Northampton, MA; Berkshire's Steel Rail Extra Pale Ale.
1996	1,102 craft breweries produce 5.3 million barrels; a record 333 new brewpubs and microbreweries open in one year. BeerAdvocate.com launches.
1997	1,315 craft breweries produce 5.5 million barrels of beer.
1998	1,376 craft breweries produce 5.5 million barrels of beer. A crowded industry feels the strain of such a large number of producers and begins to correct itself, resulting in the closing of many brewpubs and microbreweries across the nation.
1999	1,147 craft breweries produce 5.8 million barrels as the craftbrewing industry begins a period of more stable, consistent growth.
2000	1,147 craft breweries produce 6.1 million barrels of beer.
2001	1,458 breweries produce 6.2 million barrels of beer. Annual dollar volume for craft beer is $3.4 billion. US brewing industry total is $51 billion.

Get to Know Your Alcohol (By Volume)

Alcohol By Volume
Alcohol by volume (ABV) simply represents what portion of the total volume of liquid is alcohol. Our liquid of choice is, of course, beer. And to determine the ABV of a beer, a brewer typically uses what's called a hydrometer, which is an instrument that aids in measuring the density of liquid in relation to water (it essentially free-floats in a cylinder or liquid). The hydrometer will be calibrated to read 1.000 in water (at 60°F), and the denser the liquid (example: add sugar to the liquid), the higher the hydrometer reading.

Okay, so how does this relate to beer? Well, before yeast cells are introduced to ferment beer, the liquid is called "wort (pronounced wert)," and it's full of all kinds of sugars that were previously extracted from the grain. A brewer will take a hydrometer measurement of the wort (at 60°F) to determine what's called the original gravity (OG). Then yeast is pitched into the wort, and fermentation begins. As the yeast cells eat the sugar in the wort, they create two wonderful by-products: carbonation (CO2) and alcohol. And once the brewer has determined that our hungry yeast have had enough (could be days, weeks or months), s/he'll go ahead and pull another hydrometer reading (at 60°F) and record what's called the final gravity (FG).

Notice that all measurements were taken at 60°F. That's because the temperature of the liquid will impact the hydrometers' measurement of the liquid, and the hydrometer was calibrated with water at 60°F. So in order to maintain controlled calculations ... you get it. Otherwise you'd need to make adjustments in calculations, and we don't want to worry about that.

Calculating the ABV
Say our brewer crafted a high-alcohol beer. The OG measured at 1.080, and the beer stopped fermentation with a FG measurement of 1.011. Simply subtract the FG from the OG and multiply by 131.

1.080 - 1.011 = 0.069 x 131 = 9.039%

So we've got a 9 percent alcohol by volume beer. Easy!

Alcohol By Weight
Although alcohol by volume is becoming more of a standard in the U.S., don't be fooled. Often brewers throughout the U.S. and a few parts of the world will still use what's called alcohol by weight (ABW). If you purchase a beer that has ABW listed instead of ABV, the alcohol content is going to actually be higher than you might think. To convert ABW to ABV, simply multiply the ABW by 1.25. So a 7 percent ABW beer would be a 9 percent ABV beer. If for some reason you want to convert from ABV to ABW, multiply the ABV percent by 0.80.

Often brewpubs will list the OG (sometimes called SG: specific gravity) and the FG of their beers but no estimated alcohol by volume content. Using the extremely simple formulas above, not only can you work out the alcohol by volumes of the beers, but you'll impress the hell out of your friends.

Knowing your alcohol helps you to better appreciate beer ... and now you know.

Respect beer.

How To Store Beer

Wine is not the only drink that can be aged for maturation. Many beers benefit from extended aging. We're not talking about your average beer with a mere shelf life of 3-6 months, tops -- before quality begins to degrade. We're talking about beers that beg for maturation and strict storage like vintage beers, barleywines, imperial stouts, Belgian strong ales, lambics, old ales and so on. Ideally, any type of beer that can be laid-down for a year or two, or even more, in order to build a slew of complexities and thus further its character in a positive way.

If you're interested in starting your own beer cellar it's actually pretty easy. First, you'll need to maintain enough patience and will-power to not drink them too early. This, beyond anything else, is the public enemy number one to your attempts. There's nothing worse than thinking about that special beer, just sitting there, as it whispers its sweet song to the pleasure portion of the brain, "Drink me".

Next, you'll need to buy at least two of each beer. One of the beers you'll want to drink immediately so you'll have a comparison in which to judge the aged one - taking some notes if you want. The other beer should be cellared for at least a year.

Now there's a lot of debate surrounding storing a beer upright vs. laying it down like a wine, specifically towards corked bottles. Some "experts" have faith in the old school wine way, that a corked beer should be kept on its side in order to keep the cork from drying out, while others believe that it doesn't really matter. In our opinion, ALL beer should be stored upright. Here's why we believe so, along with some other interesting facts about storage and cork:

1. Cork cells are impregnated with a waxy material, called suberin, that is almost impermeable to water or gases. Cork is also buoyant due to the presence of trapped air in the cavities of the waterproof dead cells. When cut these cells act as suction-cups and become adhesive, thus making them ideal bottle stoppers.
2. Natural cork is sometimes prone to drying out, however we've never had any problems -- even with beers aged 10+ years upright. Today's modern plastic/synthetic, screw cap, agglomerated, technical and capsulated corks are a lot less prone to shrinkage, to the point where it's not even worth worrying about. If a beer has been both corked and capped or corked then waxed, cork shrinkage is definitely not a major concern.
3. The inside of the bottle already contains its own humidity level, and as a result will not dry out the portion of the cork inside the bottle if stored properly. So the idea of laying a beer down to ensure that the liquid touches the cork to prevent drying is a moot point -- remember "almost impermeable to water", the cork is not going to act like a sponge. It's the cork exposed to the open air that should be of concern, however an ample amount of humidity is all that is required to stop any exposed cork from drying out during long-term storage.
4. Cork problems are usually a sign of a bad cork or a cork that has passed its lifespan, not necessarily a sign of poor storage. Agglomerated corks last for about 1-3 years before beginning to disintegrate. Plastic corks eventually lose their elasticity, too. We suggest contacting the brewery to find out what type of cork they used, and its expected lifespan.
5. Long storage of a beer on its side can create a yeast ring (or water-mark) inside the bottle, which will not settle. Storing a beer upright will ensure that the yeast compacts to the bottom of the bottle.
6. The upright storage method decreases the amount of exposed beer thus slowing oxidation of the beer.
7. Another real good reason for not storing a beer on its side is that long exposure to the cork (especially non-taint treated natural cork) can impart cork flavours within the beer. The alcohol in beer draws out that mouldy/musty character of the cork and in fact can taint the beer. In our opinion this doesn't add any wanted complexity to the beer. Natural cork can also harbour certain fungal bacterias which are believed to create an off-flavour compound called 2,4,6, Trichloroanisole or simply TCA, which renders its victim lifeless and dull to the taste.
8. Many vintage beers are kept on beer shelves for quite some time before being sold. Don't you think beer stores would shelve their corked beers like wine, if they were meant to be laid-down like wine?
9. We've spoken to dozens of brewers, who all recommend the upright method of beer storage. Even world-renowned brewers like Chimay and Riva suggest that you store all of their beers upright.
10. Just because a self-proclaimed "beer expert" recommends that beer be laid-down like wine, doesn't mean that they are 100% correct. There's more than one opinion in the world, and opinions change over time.

So now you have a better understanding on how to store a beer. Next, where to store? First, beer should never come into contact with heat or light. Both will wreak havoc on your delicate stash of brews, and we're sure everyone has heard of the term "skunky". This is often a sign of a "light struck" beer.

We recommend that you store your beer in a cool area, away from direct light, sources of heat and in a constant temperature environment. Speaking of which, temperature is very important, and a major factor in the storing and serving aspects of beer. It also can become a real balancing act. Beer benefits from cool constant temperatures; usually around 50-55 degrees F is ideal for most beers, and most beer collectors. Higher temperatures and you'll risk shortening the lifespan of your beer, lower and you'll induce chill haze (cloudy). For you beer geeks out there, we'll break it down a bit further ...

There are 3 storage temperatures used to lay beer down for maturation and/or storage. Not only will you want store your beers at these specific temperatures, but also you'll want to serve them at the same. Your strong beers (like barleywines, tripels, dark ales) will be their happiest at room temperature (55-60F), most of your standard ales (like bitters, IPAs, dobbelbocks, lambics, stouts, etc) will be at cellar temperature (50-55F) and your lighter beers (like lagers, pilsners, wheat beers, milds, etc) will be at a refrigerated temperature (45-50F).

How to Review a Beer

Obviously it'll be near impossible to regulate some of the above temperatures, unless you have a second fridge for beer or a cool basement. A compromise is to at least store those beers that are ideal at slightly higher temperature in a closet, away from light and environmental changes, or stay within the 50-55F range. As you get into beer cellaring, you'll probably see many variations of these recommended temperatures, but ours are good averages to go by.

Note on refrigerators: Long-term use is not recommended. Refrigerators are designed to keep food dry, so dehydration of cork can become an issue (laid-down or upright). Corked beers that you wish to age long-term should be kept in a cellar, where moderate humidity levels might be more appropriate.

Cool. Now that you have an idea as to what to cellar and how, what can you expect a year or more down the road when you've patiently waiting to crack open your aging beers? The answer = who knows? There are way too many variables that come to play, on top of the variations within the different styles. Some beers age very well, others don't. Some beers need only a year, while others can age for 25+ years. And, many breweries have no idea what their beer will taste like years down the road, while others can make pretty damn good predictions. It's all part of the fun.

Some final advice: if you cellared your beer too cold, then serve it immediately you'll get less carbonation, less aroma and less flavour. You'll also risk numbing your palate. Use the store temp = serve temp rule and you'll be fine.

How To Taste Beer

When analyzing a beer, you can't just swill it down, burp and say "it's great" or "it's crap." And, even though tasting is an individual art, there are a few steps, which if followed, will take your beer tasting to a blissful level.

Look
Take pause and marvel at its greatness before you partake of it. Raise the beer in front of you, but don't hold your beer to direct light as this will dilute its true color. Describe its color, its head and its consistency.

Agitate
Swirl your beer, gently in the glass. This will pull out aromas, slight nuances, loosen & stimulate carbonation and test head retention.

Smell
90-95% of what you experience is through you sense of smell. Breathe thru your nose with two quick sniffs, then with your mouth open, then thru your mouth only (nose and mouth are connected in the experience). Let olfaction guide you. Agitate again if need be, and ensure that you are in an area that has no overpowering aromas. Enjoy its bouquet.

Taste
Now sip the beer. Resist swallowing immediately. Let it wander and explore your entire palate. Let your taste buds speak. Note the mouthfeel, the consistency of the liquid's body, and breathe out during the process of tasting. This process of exhaling is called "retro-olfaction" and will release retained stimulations at the mucus and mouthfeel level, but at a higher temperature. At times this will be the same as the olfactory process if not different and complimentary. Try to detect any sweetness, salty flavors, acids and general bitterness. Explain what they are, or what they are similar to.

Also, try tasting the beer after it warms a bit (just a bit mind you). Really cold beer tends to mask some of the flavors. As a beer warms, its true flavors will pull through, become more pronounced.

First ...
This info is long overdue, and I was amazed at how little info there actually was on "reviewing beer." There's some pro-stuff, but nothing for the average beer lover. So I hope that everyone finds this useful in his or her beer adventures.

I've had the idea for this for a while now, but I'd like to send some props out to Abe Kabakoff, of the Trailhead Brewing Company, for giving me the kick-in-the-ass that I needed to get this thing started. I plan on revising the how to as my thoughts on the topic continue to form and I collect more people from within the industry.

And now for something complete different ...

Stop, think and drink!

One day you might find yourself enjoying a beer, when all of the sudden you begin to have an opinion on the beer, beyond just enjoying it - or not, as the case might be. From there, you might decide to discuss it with others or take some notes. But before you do: *stop, think and drink!* Although taste is very subjective, there are ways to compose your thoughts and remain as objective as possible. The following tips will allow you to evaluate a beer, while respecting what the brewer was trying to achieve.

Note: you don't need to be a beer geek to follow these tips either.

Respect brewers
Behind each beer is a person with feelings and pride. Beer might be their passion, livelihood or entire life. Even if you don't like a beer, at the very least have some respect and be constructive with your criticism.

Form your own opinion
It's important to not be influenced by others when reviewing a beer. Everyone is going to have a different experience, so make sure your opinions are your own. Don't allow others to lead you before you review the beer yourself - this includes reading on-line reviews of the beer that you're about to review.

Keep style in mind
Say you don't like light beers. We suggest that you do one of two things: 1) don't review them if you know you already don't like them - your opinion will be tainted. 2) Review with an open mind and for what the beer is trying to be, not what you think the beer should be or pit it against the kick-ass India Pale Ale that you had earlier. It's also important to note that a beery character that you might not like, could be "to style," and shouldn't be deemed a flaw. Example: buttery notes (diacetyl) in a Scotch Ale or ESB, the vinegary sourness in a Lambic, or the intense smokiness in a Rauchbier.

Know your beer styles, checkout our Beer Styles section for more info. And if you really want to geek out, study to become a certified beer judge: www.bjcp.org - in general, a great reference, but keep in mind that these guidelines are but one opinion (like our styles are) and in place for pro-judging a fests and homebrew competitions.

Senses
Flavor and aroma are tightly connected, so make sure you have your senses in check. Don't attempt to review a beer if your senses are out of whack, like: you've got a cold, burnt your tongue with coffee in the morning, just ate a plate of atomic wings, tasted too many beers already, you're exhausted or simply in a bad mood. Taste buds can get ruined and tired, so be flexible and try a beer more than once.

Smoking
Speaking of senses, never review a beer in a smoky environment or while smoking. Smoking inhibits your sense of smell and taste in a major way, and smoking (first- or second-hand) can damage your senses, sometimes permanently.

What to look for
There are five categories to evaluating a beer with your review:

Appearance - Note the beer's color, carbonation, head and its retention. Is it clear or cloudy? Does it look lackluster and dull or alive and inviting?

Smell - Bring the beer to your nose. Note the beer's aromatic qualities. Malts: sweet, roasty, smoky, toasty, chocolaty, nutty, caramelly, biscuity? Hops: dank / resiny, herbal, perfumy, spicy, leafy, grassy, floral, piney, citrusy? Yeast will also create aromas. You might get fruity or flowery aromas (esters) from ales and very clean aromas from lagers, which will allow the malt and hop subtleties to pull through.

Taste - Take a deep sip of the beer. Note any flavors, or interpretations of flavors, that you might discover. The descriptions will be similar to

what you smell. Is the beer built-well? Is there a balance between the ingredients? Was the beer brewed with a specific dominance of character in mind? How does it fit the style?

Mouthfeel - Take another sip and let it wander. Note how the beer feels on the palate and its body. Light, heavy, chewy, thin / watery, smooth or coarse? Was the beer flat, over-carbonated?

Drinkability - The beer's overall ease of consumption and your overall impression of the beer. Would you have another?

Temperature
Many drink their beer too damn cold. Cold temperatures will numb the taste buds and literally masks the beer's true flavors, aromas and nuances. Use color (malts) and alcohol content to determine the best drinking temperatures. Try around 40-50 degrees F for paler or lower alcohol beers, and 50-60 degrees F for darker or higher alcohol beers.

Glassware (clean)
Is important. Instead of listing out the hows and whys, checkout our Glassware for Beer section. If you're at home, stock up on some of the basics, otherwise do the best you can.

Serving preparation
As mentioned, clean glassware is a must. You should take note to not review a beer if: you know that the tap lines are dirty or your sample is from a recapped or abused growler sample - like a growler shipped across the US or growler that is poured into bottles and recapped to ship to multiple reviewers.

Order
Many suggest that beers should be tasted from the old "lightest to darkest" heuristic method. While this generally works, today it's dated and flawed. Sure, malt flavors will intensify with increasing kilning temperatures, but often times color has nothing to do with tasting a beer. Color can be an indication of what you might be in for, but for the most part, and with most drinkers, it's psychological. You'll want to consider two things: alcohol content and hop levels. Keep your hoppy and high alcohol beers towards the end so you don't ruin your palate early in the tasting. Exceptions to this might be certain specialty ingredients that have very bold and distinct characters, like: smoked malts in Rauchbiers, intense fruit beers, or the wild yeast and bacteria used in Lambics - all of which can be light in color, hence the flaw. You'll want to save these for the end as well.

Don't review a "bad" beer
Not a beer that you simply don't like, but rather a beer you know to be spoiled due to reasons outside of the brewer's control - like a skunked beer and beer past its prime. If you come across a beer like this, alert whoever you purchased it from and send a note to the brewer. Using your review to bitch about it won't help anyone.

Don't review at beer fests
If you're planning on taking notes at a beer fest, don't. With small sample sizes (usually 1 to 4ozs), loud environments, slew of smells, and tasting of numerous beer styles back-to-back, beer fests are not the ideal environment in which to review a beer. Doing so does a disservice to the brewer and could mislead others. It's also not a good idea to have multiple people review from the same small serving or review by cell-phone light at night.

Don't review from samplers
Along the same lines as beer fests, many brewpubs and beer bars offer samplers - typically 4ozs servings of a range of offerings. You shouldn't review these either. Between the presentation and sample size, samplers are simply not worthy of reviews. You're not going to get to know a beer off of a single 4oz sample.

Don't review while intoxicated
You should always practice moderation when drinking, but never review a beer if you're intoxicated. Your judgment will be clouded, as will your senses.

Cleanse the palate
It's highly recommended that you have some water as well as plain bread, crackers or even air-popped popcorn on hand to cleanse the palate between beers and to help stave off inebriation. Avoid salty and greasy foods or anything that could overpower the senses - you want to clean/scrub the palate, not destroy it.

Take notes
Many view this as a rather geeky practice, but note taking can really help you to learn more about beer, train your palate and broaden your

How to Host a Beer-Tasting Party

Beer is a wonderful social lubricant, and what better way to apply it than hosting your own beer tasting party! Not only are they fun, but they can be very educational and enlightening – as the world of beer often is.

Step One: What Beer To Buy?
First, who will be attending? If they are potential converts to the world of better beer, then cross them over with lighter styles, like lagers/pilsners, golden/blonde ales and perhaps finish things off with a light pale ale or even a dry Irish stout – aka "crossover" beers. Steer clear of over-the-top hoppy and high alcohol beers. The idea of a crossover beer is that it should be similar to the beer you are trying to crossover from. You want to wean them off of their current beer, or ease them into beer ... not spook them into running back to their beverage of choice. Who knows, after a few different brews they may want to try something a bit bolder.

If those attending have an adventurous palate, then just buy whatever you want. If you experience a mental block, start off by thinking of a theme which will not only make it easier to pick the beers, but it'll make your beer tasting party much more exciting. Some themes might be: "Oktoberfest" (round up as many of these fest beers as possible), "Taste of Belgium" (Belgian beers on their own, or pairing Belgian beer with cheeses and chocolates), "Big Beer Bash" (hearty, high alcohol beers), "A Winter Warmer" (winter warmers, spiced beers) or our personal favorite, "The Shit Beer Showdown" (a selection of American macro lagers) ... you get the idea.

Step Two: Handling and Storing the Beer
Handle your beer with love and kid gloves. Beer should be stored in a consistent environment, away from heat and light which could spoil your beer. Ideally you'll want to store your beer in the fridge, upright and between 45ºF and 55ºF.

Step Three: Serving the Beer
Temperature: Americans drink their beer too damn cold, typically at 30ºF to 40ºF. The coldness tends to numb the taste buds and literally masks the beer's true flavors, aromas and nuances. This is fine for most mass-produced American shit beer, which requires one to have numbed senses, but not ideal for real beer. You can break serving temperatures into three general levels: 55ºF-60ºF (strong beers, like barleywines, dark ales), 50ºF-55ºF (standard ales, like bitters, IPAs, dobbelbocks, abbey ales, lambics, stouts, etc.) and 45ºF-50ºF (lighter beers, like lagers, pilsners, wheat beers, milds, etc.). Usually the higher the alcohol, the higher the temperature and the lower the alcohol, the lower the temperature.

Glassware: Normally, we recommend that you always use the appropriate glassware for any given beer, or style of beer, however in the case of a tasting party it might be difficult to obtain enough glassware for everyone. So feel free to break out the wine glasses, standard pint glasses or whatever you have. Do not use plastic or paper cups.

Step Four: Tasting the Beer
Order: Many "beer experts" suggest that beers should be tasted from lightest to darkest. This is flawed. Color has nothing to do with your "tasting a beer." Sure, color is often an indication of what you might be in for, but for the most part and with most drinkers, it's psychological. In our own experience you'll want to consider two things: alcohol content and hop levels. Keep your hoppy and high alcohol beers towards the end so you don't ruin your palate early in the tasting.

Be Vocal: Share your thoughts, describe what you're tasting. If you have trouble finding the words, remember that beer is essentially a food, so try to identify similar food like qualities that you can use to describe the beer, such as: banana, caramel, citrus, toast, coffee, chocolate, etc. ... it's all in beer. You get the idea.

Cleanse the Palate: It's highly recommended that you have some water as well as bread, crackers and even popcorn on hand to cleanse the palate between beers and to help stave off inebriation. Avoid salty foods or anything that could overpower the senses – you want to clean the palate, not destroy it.

Finally, something important to note: Beer tasting is very much an individual experience, and everything about it is highly subjective. There are no beer experts, just beer drinkers with opinions.

How to Prepare for a Beer Festival

by: **Alström Bros**

When people ask us what we do for a living, and they find out that we basically drink beer and write about it, they become instantly jealous. It is insanely awesome to do what you love, and make money doing it. And, if it happens to involve beer ... ah-ha-ha-ha-ha-ha!

Well, despite the general belief that it must be fun and easy to drink beer for a living, it is not. Well okay, it is, very much so, but there is a lot of work involved. For instance, we recently attended the 2001 Great American Beer Festival in Denver, CO. The GABF is a 3 day event with 4 sessions, 4 hours long each. There was something like 1,488 beers to be had too, from 325 breweries. On average we drank beer for 15 hours a day (around 20 pints a day). We do not give a rats-ass how tough you think you are. That kind of drinking will knock you on your ass if you are not in shape. "In shape?!" you say. You bet your fat ass in shape! We follow a strict regimen when preparing for festivals of this magnitude, loosening it up a bit for our normal day-to-day drinking. Check this out:

Tolerance. This is key, and all of the following will, in some part, contribute to it. We start the process by building up our alcohol tolerance, by drinking at least 6-10 beers a day. This is not a limit, but rather a base to get your body used to the alcohol and its effects.

Sleep. At least 8 hours of sound sleep. How can you drink if you are fainting like a sissy?

Hydrate. Probably the most important part. You cannot get enough water in your system. It helps to detoxify and counteracts the alcohol stripping water from your system. Water is your friend.

Eat. This will not only replenish the system, but it will help to absorb the alcohol so you do not get drunk, too quickly. Taking some vitamin/mineral supplements never hurts either. No one wants to witness a weak, depleted beer drinker in action.

Moderation. Life is not a frat party and nobody is impressed by beer drinking antics. Appreciate what you are drinking and always practice moderation with your drinking. Know your buzz level and maintain it. Exceed it and you will only run into problems.

Milk Thistle. Used for thousands of years, this bad-ass herb, if taken correctly, promotes the protection of your liver by aiding in the detoxification process and stimulating the production of new lever cells. It is also an antioxidant, more powerful than vitamin C and E. Note: Before using this patron saint of the liver, consult your doctor or pharmacist.

Do not smoke. You might think that you look cool puffing on that cigarette (cancer stick) while sipping a beer, but you are actually helping to dull your sense of smell and taste. Perhaps even causing permanent damage. It is said that it can take as long as you smoked for your senses to return to normal, if that. We Beer Advocates need our palates intact so we can accurately smell, taste and talk about beer.

I am not an alcoholic. Damn straight. The politically correct term is "champion of beer" and we individually chant this every night before we go to bed.

Respect. Always, always respect beer. Nobody likes a jackass.