

Yeast: An Overview

Yeast are the unsung heroes of the beer world. With the focus paid to hops and malt in this age of IPA, it's easy to forget about the stuff that's actually making the beer. You know, those tiny little creatures that almost magically transform our sticky sweet wort into the glorious beverage we love. Well, yeast, now's your time to shine.

What exactly are yeast?

Yeast are the microscopic organisms that brewers add to their wort (pre-fermented beer) in order for fermentation to occur. More precisely speaking, they are fungi of the genus *Saccharomyces*, which translates to “sugar fungus.” That about says it all. These little guys *love* sugar, which makes wort a very happy place indeed. Brewers typically use one of two different species within the *Saccharomyces* genus. *Saccharomyces cerevisiae* ferments best in the 55-75°F range and produces ales. *Saccharomyces pastorianus* ferments best at lower temperatures (around 45-55°F) and produces lagers.

What do yeast do?

Yeast take care of fermentation, the process in which the yeast consume the sugar in wort and metabolize it into alcohol and carbon dioxide. In addition to generating these outputs, some yeasts leave behind substantial flavor that can define beer's character.

Certain yeast-derived flavors are essential to producing specific styles of beer, like the banana and clove-like aroma of Bavarian hefeweizen or the peppery bite of Belgian tripel, among many others. Generally speaking, fruity yeast flavors (like the banana-like ones in your hefeweizen) are part of a group called **esters**, while spicy or plasticky flavors (like the clove-like ones in your hefeweizen or the peppercorn-like ones in many Belgian ales) belong to a group called **phenols**. Those esters and phenols, along with the acidic bite of **carbonation** and the astringency of a variety of **alcohols**, define the bulk of the yeast flavor than can be found in most ales. Lagers generally contain low levels of esters and phenols, so yeast character is less overt than in ales.

Strains

Within the two main species of brewing yeast, there are dozens of strains available to brewers. Each strain has its own ester and phenol production rates, fermentation temperature preferences, alcohol tolerances, and attenuation rates (the amount of sugars that the yeast will consume). All of these will have an impact on the effect the yeast has on the final product. Yeast strains are commercially available for purchase from laboratories that specialize in propagating yeast for use by homebrewers and commercial brewers alike. There are yeast strains available to accommodate styles from each of the world's major brewing traditions. Here are some broad yeast flavor generalizations that you can apply to beer styles from around the world [this list is far from comprehensive, but it's a start!]:

American (American pale ale, American IPA, American stout)

American beer styles typically display no spiciness from phenols and only a small amount of fruity esters. American ale yeasts are often lauded for being “clean,” or free from prominent esters, phenols, or harsh alcohols.

British (bitter, mild, English IPA, porter, brown ale)

British yeast strains tend to have a fruity ester profile, including apple or pear-like aromatics. Light butteriness from a flavor compound called diacetyl is not uncommon.

Belgian (dubbel, tripel, saison, Belgian strong pale ale)

These beer styles are known for having very high levels of both esters and phenols, leaving a lot of bright fruity flavor alongside an assertive clove or black pepper-like spiciness from yeast. Belgian yeasts also tend to have higher attenuation rates, so beers will be drier and higher in alcohol than they would if they were fermented with other strains.

German Wheat Ales (hefeweizen, dunkelweizen, weizenbock)

Germany is perhaps most famous for its lagers, but its wheat beers are also widely prized. The yeast used for these beers is known for producing banana and clove like ester and phenol aromatics. The yeast is also partially responsible for the hazy cloudiness generally found in these beers.

Note: wild yeast and bacteria of other genres are increasingly used for fermentation, too. Look for a round-up in LVEducation soon!