

Sour Ales

Historical Tradition

British (and Irish) porters and stouts were traditionally blended from old and new ale. The old ale brought a tart edge to the beer. (*Greene King Olde Suffolk*).

Across northern Germany and the low countries there is also a tradition of sour wheat beers. These appear in several extant varieties:

Gose – a sour and salty beer from Leipzig, Germany. Pretty rare. (*Gose*).

Berliner Weisse – a very light beer from Berlin, Germany. Popular there, hard to find elsewhere. (*Berliner Kindl Weisse*).

Lambic – spontaneously fermented sour wheat ale of Payottenland and the Senne River Valley in Belgium. Extremely complex three year fermentation is the norm. Can become very sour with age, and can be aged for twenty-five years. (*Cantillon Grand Cru Bruocsella*).

Gueze – Blended one year old and three year old lambic. Can become very sour with age, and can be aged for twenty-five years. (*Cantillon, Boon, Giardin, Drei Fontein, Lindemans Cuvee Rene*).

Faro – Sweetened new lambic or Gueze blended with new lambic to sweeten it.

Flanders Brown Ale (Oud Bruin) – A moderately sour, malt oriented brown ale of Flanders (Belgium). Inoculated in oak and aged in stainless. (*Leifmans Goudenband*).

Flanders Red Ale – A sour red ale of Flanders (Belgium). Inoculated and aged in oak. Usually more sour than the Oud Bruin. Fruity, vinous with an acetic (vinegar) 'tang'. (*Rodenbach, Duchess du Bourgogne*).

Interesting domestic sour beer producers:

Jolly Pumpkin, Dexter, MI
New Glarus, New Glarus, WI
Goose Island, Chicago, IL
New Belgium, Fort Collins, CO

Beer Souring Organisms

There are two primary acids in sour ales: acetic acid (vinegar) and lactic acid. Acetic acid has a sensory threshold much higher than lactic acid, a little goes a long way. The primary organisms that produce these acids in beer are:

Brettanomyces – Wild yeast. This is not like the cultured yeast (*Saccharomyces Cerevisiae*) that brewers normally use. Or that normal brewers use, either. Brett. refers to an entire family of yeasts. It is the white film or powder you can see on blueberries, grapes, apples and other fruit. It is also the white film you often get on the surface of cider. Winemakers control brett. with campden tablets – sodium or potassium metabisulfite. Brett. can consume sugars, dextrans, starches, proteins and other yeast. It works slowly but tolerates high alcohol concentrations. It can form a huge yeast colony called a pellicle in the fermenter. Depending on the specific yeast it can impart funky, musty, woody, barnyard, mousy, citrusy, spicy, clovy, smoky, leathery, sweaty, cheesy, bacony, antiseptic, burnt plastic and bandaid-like.

* Troubleshooting tip: Strange flavor, a little tart with thin body and perhaps a gusher ??
Think: Brett. contamination.

Lactobacillus – Lactic acid causing bacteria of the same family as the stuff used to make yogurt. The lactic acid that it produces generally has a clean flavor. The primary use of lactobacillus to brewers is to impart sourness, it produces few flavors.

Acetobacter – Vinegar causing bacteria. Can convert alcohol to acetic acid in the presence of oxygen. Acetic acid has a different flavor than lactic acid, think salad dressing, and a much lower taste threshold. Some acetic acid lends complexity.

Enterobacter – These are the initial players of the fermentation game. They are generally knocked out at 2% alcohol contact, which is good, since they produce poisonous by-products (think e. coli). Not commercially available.

Making sour beer

You have several choices to produce sour beer.

Acidulated malt. This is the route that Guinness Stout takes today. Originally blended with old, sour stout, these days a small portion of the mash includes acidulated malt.

Sour mash. This is the same technique that German lager brewers used in the 1900's to lower the pH of their mashes when they were using underattenuated malt. Mash-in with 90° F water and wait six to twenty-four hours. Your mash will sour. You'll want some way to measure pH for this.

Adding acids. Dope your beer with lactic acid and vinegar. Simple. Tell your friend you've been working on this for three years.

Using sour fruit. Sour cherries work very good at producing a sour beer. And you can always add lemon juice. And to the fermenter, not to the boil.

Using beer-souring organisms. Fortunately there are several commercially available options today, so you only have to ruin one batch of beer at a time. Sour fermentations using these options will proceed through several steps:

- i. Saccharomyces fermentation (2 weeks)
- ii. Lactobacillus infection (3 to 4 months)
- iii. Brettanomyces fermentation (8 months)

White Labs products:

WLP645 Brettanomyces Claussenii

English origin, subtle.

WLP650 Brettanomyces Bruxellensis

Belgian (Brussels) origin. The strain Orval uses to bottle with.

WLP653 Brettanomyces Lambicus

Pronounced character. Also good for Flanders Reds and Browns.

WLP655 Belgian Sour Mix 1

Everything you need – Saccharomyces, brett. and L. Bacillus.

WLP677 Lactobacillus bacteria

The bad boy himself. "White Labs assumes no responsibility for the use of this product."

Wyeast products:

5112 Brettanomyces Bruxellensis

5526 Brettanomyces Lambicus

5733 Pediococcus

A family of lactobacilli. Just as dangerous with it's own disgusting bad habits. Like diacetyl and rope.

5335 Lactobacillus