Belgian beers

## History

* Pre dated the country of Belgian (born an independent democracy in 1830) Brewing was already established in the abbeys across the country. Though Napoleon took power of the territory he squashed the churches of the region and brewing ceased. After Napoleon was defeated at Waterloo just south of Brussels (the current Belgium capital) the Abbeys quickly resumed the brewing tradition; Westmalle 1836, Westvleteren 1839, Chimay 1850, Schaapskooi 1881 (lost accreditation 1999), Rochefort 1892, Orval 1926, Achel 1998.
* Brewing began by Sumerians and Babylonians around 10,000 years ago
* Came to Europe around 5,000 BC in Greece and Rome very popular until Wine replaced it as a beverage of choice
* Brewing began in what would become Belgian approximately 2,000 years ago originally produced on farms by women. At that time the Gaul’s came up with the idea of replacing pottery by wooden barrels to manufacture and store beer.
* After the fall of the Roman Empire, the church took control of the land. The monks took an interest in beer, and breweries were set up in every abbey.
* In the 14th century, as Brabant was under German authority, the use of hop was imposed for the manufacturing of beer. This improved considerably the quality of beer as it permitted a better control of the fermentation process and control of the bacterial development.
* At that time, it was generally considered that drinking beer was safer than drinking water, as cholera could be transmitted by water, while the dangerous bacteria were eliminated in the brewing process.
* Monistic brewing is known to have existed as far back as the 6th century. St Benedict on whose rules the whole monistic system is based encouraged Abbeys to contribute to their local community, so on public health concerns alone brewing beer was considered a noble act.
* Brewing beer in Abbeys outside of Belgium survived until very recently (the last being 1996).
* The styles were originally derived by the practice known in England as party gyle brewing where the first running’s were used for a primary stronger beer (Tripel ) then the second running’s were collected to make a lower gravity beer (Dubbel). This method is no longer practiced by the Belgian brewers.
* Belgium at its height in 1900 (Population 6.7 million) there were 3,223 breweries, by 1920 the number was down to around 2,000 and in 1940 there were around 1,000. Today there are 125 breweries (Population 10.2 million) and Pilsner accounts for 70% of the beer sold (INBEV is a Belgian based Company).
* Belgium breweries historically fermented in open vessels and only recently have switched over to closed vessels.

Beer Styles

We know the styles based as BJCP categories 16 and 18; while also encompassing most of category 17 (sour beers)

* **Category 16 Belgian and French ale**
  + 16A Wit beer
* OG: 1.044 – 1.052
* IBUs: 10 – 20
* FG: 1.008 – 1.012
* SRM: 2 – 4
* ABV: 4.5 – 5.5%
* Traits; often comprised of roughly 50% un-malted wheat and spices mainly coriander and sweet orange peel
* Classic examples; Hoegarden, Bells Winter White, Unibroue Blanche de Chambly, Non Classic Blue Moon
  + 16B Belgian Pale Ale
* OG: 1.048 – 1.054
* IBUs: 20 – 30
* FG: 1.010 – 1.014
* SRM: 8 – 14
* ABV: 4.8 – 5.5%
* Traits; Pilsner malt gives a grainy flavor accompanied by a Fruity/peppery sensation derived from the yeast, Hop character is restrained. More common in the Flemish regions considered every day drinking beers.
* Classic examples; DeKonik, Palm and Palm speciale, Bells Belgian Ale, Ommegang Rare Vos
  + 16C Saison
* OG: 1.048 – 1.065
* IBUs: 20 – 35
* FG: 1.002 – 1.012
* SRM: 5 – 14
* ABV: 5 – 7%
* Traits; predates the Trappist ales, also referred to as Farmhouse Ales, pale or pilsner malt is usually the main component and often contains some wheat. Use of local ingredients encouraged, High fruitiness with low hop aroma, low to medium hop flavor spicy or earthy in origin.
* Classic examples; Saison DuPont, New Belgian Saison, Ommegang Hennepin
  + 16D Bier de Garde
* OG: 1.060 – 1.080
* IBUs: 18 – 28
* FG: 1.008 – 1.016
* SRM: 6 – 19
* ABV: 6 – 8.5%
* Traits; predominant malt sweetness toasty toffee and caramel notes finish will be medium to dry and hop character will be low to medium will often have a musty cellar like quality. A good beer for aging
* Classic examples; Jenlain (amber) & Biere de Printemps (blond), Ch’Ti Brun (brown) & Blond, Brasseurs Biere de Garde Lost Abbey Avente Garde, Jolly Pumpkin Biere de Mars (Sour ale)
  + 16E Belgian Specialty Ale
* Creativity is the only limit in brewing this style; examples include
* Blond Trappist table beer
* Artisanal Blond
* Artisanal Amber
* Artisanal Brown
* Belgian-style Barleywines
* Trappist Quadrupels
* Belgian Spiced Christmas Beers
* Belgian Stout
* Belgian IPA
* Strong and/or Dark Saison
* Fruit-based Flanders Red/Brown
* Traits; Belgian beers that don’t fit another category in other words being unique.
* Classic commercial examples; Orval, Unibroue Ephemere, Maudite, Don de Dieu, Le Trappe Quadrupel, New Belgium 1555 Black Ale, Russian River Temptation, Lost Abbey Cuvee de Tomme and Devotion

# Category 17 Sour Beers

* + 17A Berliner Weisse; not Belgian but shown for completeness of category
  + 17B Flanders Red Ale
* OG: 1.048 – 1.057
* IBUs: 10 – 25
* FG: 1.002 – 1.012
* SRM: 10 – 16
* ABV: 4.6 – 6.5%
* Traits;
* Classic examples
  + 17C Flanders Brown Ale/Oud Bruin
* OG: 1.040 – 1.074
* IBUs: 20 – 25
* FG: 1.008 – 1.012
* SRM: 15 – 22
* ABV: 4 – 8%
* Traits;
* Classic examples
  + 17D Straight (Unblended) Lambic
* OG: 1.040 – 1.054
* IBUs: 0 – 10
* FG: 1.001 – 1.010
* SRM: 3 – 7
* ABV: 5 – 6.5%
* Traits;
* Classic examples
  + 17E Gueuze
* OG: 1.040 – 1.060
* IBUs: 0 – 10
* FG: 1.000 – 1.006
* SRM: 3 – 7
* ABV: 5 – 8%
* Traits;
* Classic examples
  + 17F Fruit Lambic
* OG: 1.040 – 1.060
* IBUs: 0 – 10
* FG: 1.000 – 1.010
* SRM: 3 – 7 (varies w/ fruit) ABV: 5 – 7%
* Traits;
* Classic examples

# Category 18 Belgian Strong Ale

* + 18A Belgian Blond Ale
* OG: 1.062 – 1.075
* IBUs: 15 – 30
* FG: 1.008 – 1.018
* SRM: 4 – 7
* ABV: 6 – 7.5%
* Traits; Lightest of the Belgian strong ales not as bold and Earthier. Finishes medium to dry. Predominantly Pilsner malt, expect high carbonation some citrus fruit and spicy notes from the yeast maybe present. Similar character to a Tripel or Golden strong but a bit cleaner (lager like) and less bitter.
* Classic examples; Leffe Blonde, Affligm Blonde, Troubadour Blond Ale
  + 18B Belgian Dubbel
* OG: 1.062 – 1.075
* IBUs: 15 – 25
* FG: 1.008 – 1.018
* SRM: 10 – 17
* ABV: 6 – 7.6%
* Traits; rich malty sweetness with hints of chocolate and dark pit fruit/ raisin. Fruity esters. Some alcohol warming is appropriate. Base malt can be pilsner or pale. Some caramel malt almost always presents (Special B being a popular choice). Dark Candi Syrup also very commonly used.
* Classic examples; Westmalle Dubbel, Corsondunk Abbey Brown, New Belgian Dubbel, Allagash Dubbel
  + 18C Belgian Tripel
* OG: 1.075 – 1.085
* IBUs: 20 – 40
* FG: 1.008 – 1.014
* SRM: 4.5 – 7
* ABV: 7.5 – 9.5%
* Traits; Spicy peppery and fruity aromatics, soft malt character coupled with a peppery and fruity flavor the finish is dry alcohol is present but not solvent like. Pilsner malt often makes up 100% of the grain bill with added beet or cane sugar. Hops will also lend to the spicy character being Saaz, Spalt or another variety known for a peppery profile. The beer will be well attenuated and highly carbonated 3-4.5 volumes CO2
* Classic examples; Westmalle Tripel, Chimay Cinq Cents (White label), Unibroue La Fin du Monde, Dragonmead Final Absolution
  + 18D Belgian Golden Strong
* OG: 1.070 – 1.095
* IBUs: 22 – 35
* FG: 1.005 – 1.016
* SRM: 3 – 6
* ABV: 7.5 – 10.5%
* Traits; complex flavor profile containing a soft malt character married with fruitiness (Pear Apricot, apple) and often spiciness that is general a trait of the yeast and fermentation temps. With a sweet dry finish. Pilsner malt is often the base with simple sugars of to 10%. Highly carbonated 3-4.5 volumes and highly attenuated.
* Classic examples; Duvel, Piraat, North Coast Pranqster
  + 18E Belgian Dark Strong Ale
* OG: 1.075 – 1.110
* IBUs: 20 – 35
* FG: 1.010 – 1.024
* SRM: 12 – 22
* ABV: 8 – 11%
* Traits; complex rich malty, significant esters often has an alcohol warmness and sweet finish... Typically uses Belgian candi syrup (often caramelized)
* Classic examples; Westvleteren 12 (yellow cab), Rochefort 10 (blue cap),Rochefort 8 (green cap), Lost Abbey Judgment day
* Styles were more or less defined by Michael Jackson (as I understand)



Brew Like a Monk

**Here are some Common Themes and techniques that run through Belgian beers.**

Before you begin have the end in mind. Decide what it is you are aiming to do.

For instance are you trying to clone a particular beer? Are you looking to extract a unique flavor or trait? Are you looking to gain better knowledge of a Belgian yeast strain?

# Ingredients

**Base Malt;** you can’t go wrong with an Authentic Belgian Pilsner malt such as Castle or Thomas Fawcett. Most Belgian beers use Pilsner malt as the base regardless of the final color. German Pilsner malt Weyermans for example tends to finish dryer,

**Specialty malts;** Most Tripel and Golden Strong styles are 100% Pilsner. When making other styles these additional malts are popular choices; Un-malted wheat and oats for Wit and Saisons. Munich, Vienna, Cara Vienne, are popular in Belgian Pale Ales, Aromatic malt and Special B malt are often used in Dubbels and strong ales.

**Hops;** local hops are usually the choice of Belgian brewers these will include Styrian Goldings, Saaz, Halertauer as a first choice; Fuggles, East Kent Goldings, Spalt and Vanguard hops will also work well in recipies.

**Water;** Water is often thought of as the soul of the beer for the Belgian Monks. When Chimay brewery was destroyed there beer was made offsite at another brewery during this time the water from the Chimay Artisanal wells was collected and trucked to the new brewing site for use to make their beer. The water runs the gamut from soft to hard depending on the region. If water is something that you wish to emulate for the style being brewed here is a chart that will get you started.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Calcium** | **Magnesium** | | **Sodium** | **Sulfate** | **Chloride** | **Bicarbonate** |
| [Antwerp, Belgium](http://www.beersmith.com/Water/water_0.htm) | 90 ppm | | 11 ppm | 37 ppm | 84 ppm | 57 ppm | 76 ppm |
| Chimay water | 70 ppm | | 7.0 ppm | 21 ppm | 21 ppm | 21 ppm | 216 ppm |
| Duvel | 68 ppm | | 8.0 ppm | 33 ppm | 70 ppm | 60 ppm | 143 ppm |

# Yeast

There is no doubt that yeast is a major player in the flavor profile of Belgian beer. Generally it is often referred to as spicy, fruity, phenolic producing flavors of orange, lemon grapefruit, tangerine, apricot, pear, apple, banana, clove to name a few. Also to add further complexity the results will be drastically different based on fermentation temperature. It is no secret that many Belgian breweries use the famous Westmalle yeast, yet because the fermentation temperature is different among these breweries the resulting beers taste very different. Belgian yeast has many of the same attributes as Wheat beer yeasts hence many of the fruity esters that come out in the beer.

There is a huge variety of yeast available and I recommend you become familiar with them and use them to your advantage. Below are some of my favorites and what you can expect from them.

**White Labs 500 Trappist;** Will produce a high alcohol tolerant beer with spicy esters I find it doesn’t flocculate as well as some others, the spicy character good for tripels and Golden Strong

**White Labs 530 Suspected to be Westmalle;** This is nice yeast that flocculates better than 500 and also produces more fruit esters, great for Belgian pales and Belgian strong

**White Labs 550 Belgian Ale;** Leans more to the fruity end of the phenolic spectrum, flocculates better than 500 and produces an earthier finished product. I prefer this for most all styles except Saisons

**White Labs 565 Saison;** makes a great saisons flocculates well but can be a finicky fermenter, make sure you keep a close eye on the mash temps and your fermentation temp. I have added additional Amylase enzyme in the primary fermenter with good results

**Strain Sources**  
White Labs and Wyeast don’t officially list the source of their yeast strains. This is because strains change over time and, unless the brewer closely follows the fermentation profile of the brewery — including pitching rates, aeration levels, fermentation temperatures and conditioning practices — he or she will not necessarily get the same profile from the yeast as the commercial brewer did. However, because home brewers are curious, they have provided some information.

**Achouffe — Wyeast 3522** (Belgian Ardennes) and White Labs WLP550 (Belgian Ale)  
**Chimay — Wyeast 1214** (Belgian Ale) and White Labs WLP500 (Trappist Ale)  
**Du Bocq (Corsendonk) — Wyeast 3538** (Leuven Pale Ale)  
**Duvel Moortgat — Wyeast1388** (Belgian Strong Ale) and **White Labs WLP570** (Belgian Golden Ale)  
**Rochefort — Wyeast 1762** (Belgian Abbey II) and White **Labs WLP540** (Belgian Abbey IV)  
**Orval — White Labs WLP510** (Bastogne Belgian Ale)  
**Unibroue — Wyeast 3864** (Canadian/Belgian)  
**Westmalle — Wyeast 3787** (Trappist High Gravity) and **White Labs WLP530** (Abbey Ale)

# Process

Mashing; Mash at low temps 145-149 for a longer than normal time 1.5 to 2 hours

Hopping generally follows a 2/3 hops at 60 minutes and 1/3 at 20 minutes. Late kettle hopping and dry hopping isn’t traditional (but Belgian brewing is all about creating your own thing so go for it if that is what you like)

Because you’re using Pilsner malts you should boil longer to reduce DMS or alternately cool extremely fast as DMS precursors develop from 140 to 90 degrees F.

## Fermentation

Another important factor in recreating Authentic styles is the fermentation temperature while many Belgian beers will allow the temp to rise into the 80’s and above towards the middle/end of the ferment it is important to start the temp low 62-64 and then slowly ramp the temp up in order to prevent band aid and solvent flavors. Also keep in mind that the wort temp is usually 4-15 degrees higher than the room temp.

## Sugar

Sugar is an essential ingredient in many Belgian beers. Lighter beer tends to use straight refined beet sugar while the darker and stronger beers will use Belgian Candi Syrups. These syrups give the beer a dark pit fruit, caramel and rummy taste. While Belgians use these sugars pretty exclusively I recommend you go wild using all kinds of different sugars such as Turbinado, Honey, Brown, Rice, Agave, and whatever else you can find.

I like to add my sugar once the fermentation is about 1/3 of the way through but many add it to the boil kettle. There is info on the web about making Candi syrup at home.

## Packaging and aging

The Carbonation level of Belgian beers is usually higher than most other beer on average 3.5-4.5 volumes of CO2 when bottling is good practice to use thicker walled bottles to avoid a dangerous situation.

Many Belgian beers improve with age and it is beneficial to allow the beer to bottle condition. Also the yeast will often be stressed from the high gravity fermentation process so it is a good practice to introduce fresh yeast at bottling.

## Additional references

<http://www.belgium-mapped-out.com/breweries.html> Nice map of Belgian breweries.

<http://beer.made.in/Belgium/list.htm> List of Belgian Beer by styles

<http://www.beerhunter.com/documents/19133-000224.html> Michael Jackson site

<http://66.147.244.74/~belgium1/top-10s/top-10-u-s-brewers-of-belgian-style-beer/> Nice site describing the top 10 American Belgian style breweries

<http://www.brewlikeamonk.com/> Stan’s book where most of my information came

<http://www.homebrewersassociation.org/forum/index.php?topic=10972.0>

<http://byo.com/yeast/item/1664-yeast-strains-for-belgian-strong-ales> BYO article

<http://www.mrmalty.com/yeast.htm> Great source for Belgian yeast

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Available on Whit Labs Website