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BELGIAN TRIPEL



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Belgian Tripel

by Jamil Zainasheff

With the popularity and availability of Westmalle Tripel in the United States over the years, it seems hard to believe that my first real taste of Westmalle Tripel was while wandering around Belgium not so long ago. Sitting outdoors at a small café, the warmth of the sun perfectly balanced by a delicate breeze, the waiter brought me a beautiful, golden-hued glass of Westmalle Tripel. I marveled at the rocky white head that sat atop the effervescent beer, creating a “Belgian lace” with each sip. The freshness of the malt flavors made it seem much crisper than samples I found back in the United States.

Belgian tripel ranges from 7.5 to 9.5% ABV with spicy, fruity and subtle alcohol flavors supported by a grainy Pilsner malt character. While there might be a little upfront sweetness, good examples always finish dry with a moderately bitter balance. Carbonation is high and the body exhibits a medium fullness. While the malt flavors are full of Pilsner goodness, fermentation character is really the centerpiece in this style. Tripel is a complex mix of fruity esters (lemon, orange, grapefruit, pear), phenolic spiciness (pepper, clove) and alcohols. These characteristic flavors and aromas come from fermentation, not from the addition of fruits and spices, although there are some brewers that do use spices. If you go down that road, keep the spice additions to a bare minimum. You might try fresh orange peel, lemongrass, coriander or black peppercorns.

One thing to keep in mind, while tripel has a higher than average alcohol concentration, that does not mean it should be hot or solvent-like. Hot or solvent is never an appropriate beer character regardless of its alcoholic strength. The alcohol should be subtle and warming. In the best examples, the alcohol sneaks up on you only

after it has reached your stomach. Many poor examples of this style have a hot alcohol character and finish far too sweet.

The base malt for this style is continental Pilsner malt. Pilsner malt lends a slightly sweet, grainy malt character to the beer. If you can source it, Belgian Pilsner malt is ideal. If you cannot, do not worry, even the Belgian brewers use other continental Pilsner malts. If you are an extract brewer, try to use an extract made from Pilsner malt. While it may seem like it isn't worth the trouble, a beer like this does not have a lot of specialty malts to hide behind, so it is important to use a good quality Pilsner malt extract. Pilsner malt and some table sugar is really all you need, although some brewers add other grains to help differentiate or enhance their beer. Oats, wheat, CaraPils®, aromatic, Vienna, Munich and more show up in various recipes.

I prefer to keep it simple, with no more than one additional malt. Avoid caramel malts, especially those of higher color. Caramel flavor isn't an appropriate character in tripel. If you are going to experiment, focus on the grainy/bready malt flavors instead (such as biscuit, aromatic, Vienna or Munich) and do not add more than 3%. You can experiment with other character grains, but remember this beer is more about the clean Pilsner malt character and fermentation flavors so don't overwhelm them with specialty malts.

Belgian tripel has a medium to medium-light body. Since this is a bigger beer with high starting gravities, all-grain brewers should target a mash temperature around 149 °F (65 °C), which strikes a nice balance between fermentable and non-fermentable sugars. For extract brewers, most light colored extracts are not fermentable enough on their own, but with a portion of simple sugar (table sugar), it

BELGIAN TRIPEL by the numbers

OG:	...1.075–1.085	(18.2–20.5 °P)
FG:1.008–1.014	(2.0–3.6 °P)
SRM:4–5–7
IBU:20–40
ABV:7.5–9.5%



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Strict Observance Tripel (5 gallons/19 L, all-grain)

OG = 1.081 (19.5 °P)

FG = 1.012 (3.0 °P)

IBU = 34 SRM = 5 ABV = 9.2%

Ingredients

12.4 lbs. (5.6 kg) Durst continental Pilsner malt or similar (~1.6 °L)

2.2 lbs. (1 kg) cane or beet sugar (0 °L)

3.5 oz. (100 g) Castle or Dingemans aromatic malt (20 °L)

7.6 AAU Tettnang pellet hops (1.9 oz./54 g of 4% alpha acids) (60 min.)

1.4 AAU Czech Saaz pellet hops (0.4 oz./12 g) 3.5% alpha acids (10 min.)

White Labs WLP530 (Abbey Ale) or Wyeast 3787 (Trappist High Gravity) yeast

Step by Step

I use Durst Pilsner, but Belgian Pilsner malt would be the natural choice for the base malt. The sugar I use is the cheapest grocery store table sugar I can find.

Mill the grains and dough-in targeting a mash of around 1.5 quarts of water to 1 pound of grain (a liquor-to-grist ratio of about 3:1 by weight) and a temperature of 149 °F (65 °C). Hold the mash at 149 °F (65 °C) until enzymatic conversion is complete. Infuse the mash with near boiling water while stirring or with a recirculating mash system raise the temperature to mash out at 168 °F (76 °C). Sparge slowly with 170 °F (77 °C) water, collecting wort until the pre-boil kettle volume is around 6.5 gallons (24.4 L) and the gravity is 1.063 (15.4 °P).

The total wort boil time is 90 minutes, which helps reduce the S-Methyl Methionine (SMM) present in the lightly kilned Pilsner malt and results in less Dimethyl sulfide (DMS) in the finished beer. Add the bittering hops with 60 minutes remaining in the boil. Add the sugar and Irish moss or other kettle fin-

ings with 15 minutes left in the boil. Add the last hop addition 10 minutes before shutting off the burner. Chill the wort rapidly to 64 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly.

You will need three packages of liquid yeast or you can make a 4-L starter from one package. Pitch yeast at 64 °F (18 °C), aerate or oxygenate, and let the temperature rise slowly to 70 °F (21 °C) over the course of one week. Ferment until the yeast drops clear. With healthy yeast, fermentation should be complete in a week, but do not rush it. Rack the beer to a keg and force carbonate or rack to a bottling bucket, add priming sugar, and bottle. Carbonate the beer to approximately three to four volumes and allow it to lager for one month at 45 to 50 °F (7 to 10 °C).

Strict Observance Tripel (5 gallons/19 L, extract with grains or extract only)

OG = 1.081 (19.5 °P)

FG = 1.012 (3.0 °P)

IBU = 34 SRM = 5 ABV = 9.2%

Ingredients

8.5 lbs. (3.9 kg) Pilsner liquid malt extract (~2.3 °L)

2.2 lbs. (1 kg) cane or beet sugar (0 °L)

3.5 oz. (100 g) Castle or Dingemans aromatic malt (20 °L)

7.6 AAU Tettnang pellet hops (1.9 oz./54 g of 4% alpha acids) (60 min.)

1.4 AAU Czech Saaz pellet hops (0.4 oz./12 g) 3.5% alpha acids (10 min.)

White Labs WLP530 (Abbey Ale) or Wyeast 3787 (Trappist High Gravity)

Step by Step

Always choose the freshest extract that fits the beer style. You can consider the aromatic malt optional. You can omit it completely or

replace it with a few ounces of Munich malt extract. If you do use the aromatic malt, it is best to try and get it to convert in a very simple mini mash. Mill or coarsely crack the aromatic malt and add it to 6 oz. (177 mL) of 158 °F (70 °C) water. Mix the grains until completely moist, and then do your best to keep the temperature between 150 and 160 °F (66–71 °C) for 30 minutes to one hour. You can do this by setting the container in a larger pot of hot water or wrapping it in a heating pad set on high. The warmer the temperature, the less time it will take to convert the starches, but don't exceed 160 °F (71 °C) to avoid accidentally denaturing the enzymes in the malt. When done the liquid will taste slightly sweet.

Strain out the grains and rinse with warm water. Add the liquid from the mini mash along with enough water and malt extract to make a pre-boil volume of 5.9 gallons (22.3 L) and a gravity of 1.069 (16.8 °P). Stir thoroughly to help dissolve the extract and bring to a boil.

Once the wort is boiling, add the bittering hops. The total wort boil time is one hour after adding the bittering hops. Add the sugar and Irish moss or other kettle finings with 15 minutes left in the boil. Add the last hop addition just before shutting off the burner. Chill the wort rapidly to 64 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly.

You will need three packages of liquid yeast or you can make a 4-L starter from one package. Pitch yeast at 64 °F (18 °C), aerate or oxygenate, and let the temperature rise slowly to 70 °F (21 °C) over the course of one week. Ferment until the yeast drops clear. Follow the carbonation, conditioning and packaging instructions for the all-grain recipe.

should attenuate enough. You will still want to buy an extract that attenuates well or you will need to make your extract-based wort more fermentable by replacing more of the extract with table or corn sugar. You can use up to 20% table sugar with good results. There is no need to use special sugars. The cheapest grocery store brand is perfect. Beet sugar or cane sugar, it does not matter.

Tripel hop character is usually restrained, with a low to moderate spicy or slightly floral hop aroma and flavor. I prefer to stick with noble hops such as Saaz, Hallertau or Tettnang. Traditionally, breweries also use Styrian Goldings and I think in a pinch other varieties such as Mount Hood, Liberty or Kent Goldings are fine as well. A single, small addition near the end of the boil is about all you can add and still consider the beer a “traditional” example. Many brewers are experimenting with increased aroma and flavor additions, but those experiments may not do well in competition if entered as a classic example.

A good tripel finishes dry, with a firm bitter character. That dryness and bittering comes from alcohols, phenols, carbonation and hops. You can use any of the same hops for bittering and you should strive to balance any residual malt sweetness. The bitterness-to-starting gravity ratio (IBU divided by OG) ranges between 0.25 and 0.5, although most brewers will want to shoot for 0.4 — unless you are getting a very dry finish from fermentation.

There are many great yeast strains for brewing this style, but two of my favorites are White Labs WLP530 (Abbey Ale) and Wyeast 3787 (Trappist High Gravity). Other excellent choices are White Labs WLP500 (Trappist Ale), WLP540 (Abbey IV Ale) yeast, WLP550 (Belgian Ale) yeast and Wyeast 1762 (Abbey II) or 1214 (Belgian Ale) yeast. When selecting yeast, keep in mind that the yeast provide a great deal of the character for this style. The spicy, peppery notes are from yeast-produced phenols and the fruity notes are from yeast-produced esters.

Fermenter height also plays a role in flavor development, with very tall fermenters (like big commercial cylindroconical types) suppressing ester and fusel alcohol production. While you might think this does not apply to your brewing, it does in a roundabout way. Often homebrewers will say, “Brewery X ferments their classic tripel at 88 °F/31 °C, so that is the fermentation temperature I use.” The problem is that the shape of the brewery’s fermenters may be suppressing the production of esters and fusel alcohols. When you use the same fermentation profile in your relatively short fermenter, you end up with fruit salad dissolved in paint thinner.

With most of these yeasts I recommend pitching at a rate of 0.75 million cells per milliliter per degree Plato (see the pitching rate calculator at www.mrmalty.com for help in calculating this for your beer). Pitch the yeast at a cool temperature and allow 12 to 36 hours for the majority of yeast growth, then ramp up the temperature for the rest of fermentation to ensure good attenuation. For example, pitch the yeast at 64 °F (18 °C) and raise the temperature to 70 °F (21 °C) on the second day or slowly let it rise over the course of one week. You may find a higher or lower temperature gives you the ideal result, so do not be afraid to tweak the parameters until you get it right.

One concern when brewing this style is getting enough attenuation. Many brewers go with lower and lower mash temperatures in an attempt to achieve this, but that is not usually the problem. It isn’t that you need to get rid of all the long chain dextrins to make a dry beer. Those dextrins are not sweet and you can have plenty of them present in a nice, dry beer. The important thing is to make sure you ferment out all the simpler sugars completely. If you leave a lot of maltose behind unfermented, then the beer is going to taste sweet, even though it might attenuate well.

If you are having trouble getting a dry beer, one trick that seems to help is waiting until the fermentation is

nearly done before adding the simple sugars. Wait until fermentation has started to slow and then add the sugar. If all else fails, you can pitch an actively fermenting lager yeast, which will consume some sugars that the ale yeast will not. Do not add the yeast if they are not in an active fermentation state, because they will just settle out. Make a small starter and wait until the yeast are at high kräusen before you add it to the beer. The lager yeast won’t add any real flavor at this late stage, but they will consume some additional sugar.

Oxygen is important to yeast health and is necessary for fermentation to reach terminal gravity in a reasonable amount of time. However, too much or too little oxygen can have unintended consequences, so adding the right amount of oxygen is important. That is difficult for many homebrewers, but at least you should try to measure the amount of oxygen you are adding by timing and flow rate. The amount of oxygen needed is a balancing act. Initially adding oxygen reduces the amount of esters yeast produce, but high levels of oxygen also increase the amount of fusel alcohols, which are also a substrate for ester production. So playing around with the amount of oxygen you add makes a difference in your beer.

If you are using air, there is no chance of over-aerating your wort, but there is a chance of under-aerating. If you are using oxygen with a sintered stone, a good starting point for 5 gallons (19 L) is a flow of 1 L per minute for 1 minute. You might go up or down from there, as experience shows you what is right for your brewing. If you find yourself getting stuck fermentations when brewing high gravity beers, you can add a second dose of oxygen between 12 and 18 hours after pitching. The second dose should be about ½ to ¾ the normal amount of oxygen. This will give the yeast the ability to rebuild their cell membranes after having replicated. The yeast will better tolerate the high alcohol environment ahead with the help of this additional oxygen. 

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