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WITBIER



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Witbier

by Jamil Zainasheff

Having just arrived in Paris, I was exhausted. I was looking forward to a bed with a cool, fluffy, white pillow, but our room wasn't ready. We wandered down to the local café to have a bite to eat and I found a fluffy pillow of another sort to ease my exhausted state, Blanche de Bruges. On draft, this beer has a huge, white head, which persists until the last drop. Ah, it was beer magic for a weary traveler.

In the 17th and 18th Centuries, witbier (bière blanche in French) was the dominant beer style in Brussels. The breweries in Leuven and Hoegaarden, 15 to 30 miles (24 to 48 km) east of Brussels, supplied witbier to Brussels and other European cities. Of course, as it has been with many unique European beer styles, the damage done during two World Wars and competition from modern lager brewers have had a great impact on smaller breweries. Eventually witbier popularity waned and after World War II the style became virtually extinct. Luckily, Pierre Celis revived the style with Oud Hoegaards Bier, later known and popularized as Hoegaarden in the United States.

The Blanche de Bruges I enjoyed in Paris is a fine example of the Witbier style, with a very light sweetness balanced by a citrusy orange fruitiness and a fairly crisp, refreshing finish. The best examples of the style always seem to have a soft, creamy feel without being cloying or heavy. Witbeer has gentle perfume, spicy, herbal, citrusy notes with none boldly standing out. The flavors and aromas come together to form a light and refreshing beer with a slightly dry and fruity finish. These are moderate alcohol beers in the 4.5 to 5.5% ABV range. Held to the light, they are quite cloudy from starch haze, with a very light straw to light golden color in the background.

The grain bill for a witbier is not as flexible as many other beer styles.

It requires unmalted wheat and continental Pilsner malt as the base. If you can't get those ingredients, you can try malted wheat and North American two-row malt, but the flavor, aroma, mouthfeel and appearance just won't have that soft, slightly sweet and gently grainy character. Additional grains often include oats and a melanoidin rich malt like Munich. I think the addition of 5 to 10% oats is critical for brewing a great witbier. They not only give a slight background complexity to the malt character, they also add quite a bit to mouthfeel. Some describe the character of oats in beer as having a "silky" feel and I agree. The unmalted wheat and oats also add to the cloudy white color of the beer and the persistent head. Munich malt is a common ingredient in many witbier recipes. This is one of the ingredients that could be left out, but I like the way it adds a slight bready note that is warmer in character than the base malts. Added with restraint, Munich, aromatic or melanoidin malt gives a nice little complexity to the beer. Keep the amount to 5% or less. If you over do it, the flavor becomes too strong and works against the soft grainy background.

It is tricky to make a great extract witbier. This is a beer that benefits from all-grain or partial mash brewing to convert the unmalted wheat and oats. If using extract and steeping grains only, you'll need to increase the amount of base malt, as neither the oats nor the unmalted wheat will add any fermentable sugars from steeping alone. To create a starch haze, you can add a tablespoon of wheat flour to the boil.

Witbier can be brewed with a wide variety of hops, but I prefer German noble hops for their gentle, clean, bittering character. While the Beer Judge Certification Program (BJCP) style guide hints at low-hop flavor and aroma being acceptable,

WITBIER by the numbers

OG:	...1.045–1.053 (11.0–12.9 °P)
FG:1.008–1.012 (2.1–3.1 °P)
SRM:2–4
IBU:10–20
ABV:4.5–5.5%



Blanche Oreiller

(5 gallons/19 L, all-grain)

OG = 1.050 (12.4 °P)

FG = 1.011 (2.8 °P)

IBU = 20 SRM: 4 ABV = 5.0%

Ingredients

4.5 lbs. (2.0 kg) flaked wheat (1 °L)
4.9 lbs. (2.2 kg) Pilsner malt (1.6 °L)
1.1 lbs. (0.5 kg) flaked oats (1 °L)
0.25 lb. (113 g) Munich malt (8 °L)
0.5 lb. (227 g) rice hulls
4 AAU Hallertau hops
(1.0 oz/28 g of 4% alpha acids)
(60 mins.)
1.5 oz. (43 g) fresh citrus zest
(5 mins.)
0.4 oz. (11 g) crushed coriander
seed (5 mins.)
0.03 oz. (1 g) dried chamomile
flowers (5 mins.)
Wyeast 3944 (Belgian Witbier),
White Labs WLP400 (Belgian Wit
Ale) or Brewferm Blanche dried
yeast

Step by Step

Mill the grains (including the flaked grains, but excluding the rice hulls). Mix the rice hulls into the grain post milling and dough-in targeting a mash of around 1.5 quarts of water to one pound of grain (a liquor-to-grist ratio of about 3:1 by weight) and a temperature of 122 °F (50 °C). Hold the mash at 122 °F (50 °C) for 15 minutes then raise the temperature over the next 15 minutes to 154 °F (68 °C). Hold until conversion is complete, about 60 to 90 minutes. 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 (25 L) and the gravity is 1.039 (9.7 °P). The total wort boil time is 90 minutes. Add the hops and spices according to the ingredients list. Chill the wort rapidly to 68 °F (20 °C), let the break material settle, rack to the fermenter and aerate thoroughly. Pitch ten grams of properly rehydrated dry yeast or use two liquid yeast packages.

Alternatively make a 2 qt. (2 L) starter using one package of liquid yeast. Begin fermentation at 68 °F (20 °C) slowly raising temperature to 72 °F (22 °C) by the last one-third of fermentation. When finished, carbonate the beer to approximately 2.5 to 3 volumes of CO₂.

Blanche Oreiller

(5 gallons/19 L, partial mash)

OG = 1.050 (12.4 °P)

FG = 1.011 (2.8 °P)

IBU = 20 SRM = 5 ABV = 5.0%

Ingredients

5.5 lbs. (2.5 kg) wheat liquid malt
extract (4 °L)
0.25 lb. (113 g) Munich liquid malt
extract (9 °L)
1.0 lb. (0.45 kg) Pilsner malt (1.6 °L)
1.13 lb. (0.51 kg) flaked oats (1 °L)
4 AAU Hallertau hops
(1.0 oz/28 g of 4% alpha acids)
(60 mins.)
1.5 oz. (43 g) fresh citrus zest
(5 min.)
0.4 oz. (11 g) crushed coriander
seed (5 min.)
0.03 oz. (1 g) dry chamomile
flowers (5 min.)
Wyeast 3944 (Belgian Witbier),
White Labs WLP400 (Belgian Wit
Ale) or Brewferm Blanche dried
yeast

Step by Step

Mill the grains (including the oats) and place loosely in a grain bag (or bags). Avoid packing them too tightly in the bag. Steep the bag in 2 gallons (~8 L) at a temperature of 154 °F (68 °C) for about 60 minutes. Lift the grain bag out of the steeping liquid and rinse with warm water. Allow the bags to drip into the kettle for a few minutes while you add the malt extract. Do not squeeze the bag. Add enough water to the steeping liquor and malt extract to make a pre-boil volume of 5.9 gallons (22 L) and a gravity of 1.043 (10.6 °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. Follow the remaining instructions for the all-grain version.

Blanche Oreiller

(5 gallons/19 L,

extract with grains)

OG = 1.050 (12.4 °P)

FG = 1.011 (2.8 °P)

IBU = 20 SRM = 5 ABV = 5.0%

Ingredients

6.6 lbs. (3 kg) wheat liquid malt
extract (4 °L)
0.25 lb. (113 g) Munich liquid malt
extract (9 °L)
1.1 lb. (0.5 kg) flaked oats (1 °L)
4 AAU Hallertau hops
(1.0 oz/28 g of 4% alpha acids)
(60 mins.)
1.5 oz. (43 g) fresh citrus zest
(5 mins.)
0.4 oz. (11 g) crushed coriander
seed (5 mins.)
0.03 oz (1 g) dry chamomile flowers
(5 mins.)
Wyeast 3944 (Belgian Witbier),
White Labs WLP400 (Belgian Wit
Ale) or Brewferm Blanche dried
yeast

Step by Step

Place the oats loosely in a grain bag. Since the oats will swell, avoid packing them too tightly in the bag. Use more bags if needed. Steep the bag in 2 gallons (~8 L) of 170 °F (77 °C) water for about 30 minutes. Lift the grain bag out of the steeping liquid and rinse with warm water. Allow the bags to drip into the kettle for a few minutes while you add the malt extract. Since this is only oats, squeeze the bags to extract the liquid. Add enough water to the steeping liquor and malt extract to make a pre-boil volume of 5.9 gallons (22 L) and a gravity of 1.043 (10.6 °P). Stir thoroughly to help dissolve the extract and bring to a boil. Follow the remaining instructions for the all-grain and partial mash versions.

you're better off with neither. Hop flavor and aroma in this beer seems to battle with the other subtle spice notes. You absolutely don't want to go with any bold American-type hops. I know it sounds like a good idea to use citrusy American-type hops in a beer that needs some citrus character, but it doesn't work in a witbier. There are too many other flavors in the hops that don't go well with this style. The spices, yeast character and carbonation also add dry, slightly bitter notes and accentuate the hop bitterness. Thus, in order to balance this style, you often need less hop bitterness than you might need in a non-spiced beer.

A common mistake many brewers make when first attempting this style is going overboard on the addition of spices. While the herbal, citrus and spicy notes are obviously present, the best witbiers use those flavors and aromas as subtle highlights to the malt and fermentation character. The flavors and aromas from spices should blend harmoniously with the fermentation-derived esters and phenolics, not overpower them. However, this is often tricky to accomplish, as many spices vary in strength based on the source of the spice. How you add the spices to the beer also makes a big difference.

There are two basic times to add spices to a beer: during the boil or post fermentation. The easiest is to toss them into the boil during the last few minutes, letting heat and the water extract the spice character. This is a good method for many spices because there is no danger of contamination and extraction happens quickly. The drawback is that you don't know how much spice character you're getting until you taste the beer after fermentation. Another issue is that the character of many spices change once heated and can seem "cooked" after a short time in the boil. Even with those potential drawbacks, adding spices late in the boil, as the Belgians do, is a good method for witbier. The alternative is adding spices directly to the beer. Adding spices after the bulk of fermentation is done

“The best way to add citrus character is with fresh citrus. The petrified bits of orange peel often used may be authentic, but fresh zest has a much brighter character.”

allows better precision, as you can taste the beer every few days to see how the flavor and aroma develop. With this method there is some danger of contamination, especially in beers with moderate alcohol levels like witbier. You can also dose the beer with spices boiled gently in a little water.

The best technique for adding spices to witbier is a combination of methods. Add them late in the boil, but use restraint. Start out with an amount you know will not be overwhelming. If it turns out the spicing wasn't enough, you can always bump it up by boiling some spices in a little water and adding them in, or adding dry spices post fermentation.

The best way to add citrus character is with fresh citrus. The petrified bits of orange peel often used may be authentic, but fresh zest has a much brighter character. Select tangerines or oranges (that aren't green) with a nice bold, fresh aroma. If you have a citrus tree, let the fruit ripen longer, building a rich fruit character. Use a citrus zester to peel the very surface of the skin and avoid digging deep into the white pith as it is bitter and lacks citrus character. Measure the zest by weight, targeting about one to two ounces (28 to 57 g) in a 5-gallon (19-L) batch.

Coriander is probably the trickiest of the witbier spices to balance prop-

erly. Not only does the spice intensity vary considerably among suppliers and sources, but how you add it makes a big difference, too. I gently crush the coriander with the back of a heavy spoon to expose the inside of the seeds, which gives it a fairly strong, spicy character versus whole seeds. The level of coriander is probably the area most brewers overshoot, resulting in a really peppery beer. The desired result is a gentle, background spicing, not an overwhelming one. If you have fairly fresh coriander, start with 0.4 oz (11 g) per 5-gallon (19-L) batch added during the last five minutes of the boil.

Randy Mosher, in his book *Radical Brewing*, discusses the use of chamomile as an important part of a witbier recipe. It does not hurt to add the chamomile, and it is quite easy. If you have fresh chamomile, use about 0.25 oz. (7 g); otherwise, use chamomile teabags. Many chamomile teas have additional herbs and spices so only use types with just chamomile flowers. You'll need about three tea bags for a 5-gallon (19-L) batch, although I've used as many as ten bags without it becoming overwhelming. Cut open the bags and toss the flowers into the boil for the last five minutes.

As in most beer styles, the yeast makes a big difference in the character of the beer. I have a very strong preference for Wyeast 3944 (Belgian Witbier) or White Labs WLP400 (Belgian Wit Ale). If you use dried yeast, I've heard that Brewferm Blanche will do a respectable job. Pitch the yeast at 68 °F (20 °C) and hold the temperature steady for the first two-thirds of fermentation. This moderate temperature keeps the esters and phenols from getting out of hand. As the fermentation slows, slowly raise the temperature to 72 °F (22 °C) over the last couple days, which increases the activity of any still-active yeast cells and helps ensure complete attenuation. When you're finished, carbonate to approximately 2.5 to 3 volumes of CO₂. ^{BYO}

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