



RAUCHBIER



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BY GORDON STRONG

RAUCHBIER

Some very localized brewing regions developed their own beer styles featuring smoked malt of some sort.

RAUCHBIER BY THE NUMBERS

OG:	1.050–1.057
FG:	1.012–1.016
SRM:	12–22
IBU:	20–30
ABV:	4.8–6.0%



I used to drink much more smoked beer but I kind of lost a taste for them after a serious house fire in 2014. It's kind of hard to enjoy a beer when it reminds you of burning house. But now that some time has passed, I'm finding myself missing the classic smoked Märzen-style lagers of Bamberg, the German rauchbier. Time to ease myself back into the saddle, it seems.

The 2015 Beer Judge Certification Program (BJCP) Style Guidelines groups rauchbier in Category 6 (Amber Malty European Lager) along with Märzen and dunkles bock. Rauchbier is style 6B in the guidelines. This grouping is not without controversy since in the 2008 BJCP Style Guidelines, rauchbier was grouped with smoked beers. However, in the 2015 guidelines, the decision was made to reserve the smoked-beer category (Category 32) for specialty-type beers.

Grouping rauchbier with other amber lagers was based on the profile of the base beer and the well-established nature of the style. Yes, smoked beers can dominate the palate when compared against the other beers, but judges should save them for the last beers in the flight. We wanted to emphasize the base style of the beer (Märzen) more than the smoked nature of the beer, so we let the experimental-type beers be grouped together in the smoked-beer category.

HISTORY

At one point in time, all beers were smoked since malt was dried over fires using a variety of fuel source (wood or straw, typically). The smoke clung to the husks of the malt and survived the brewing process to be part of the final character of the beer.

Coal was considered undesirable for drying malt due to the impurities, however, the purified form of coal (coke) was acceptable. The use of indirect-fired kilns made the fuel source somewhat

moot, but during the 1700s, the smoky character of most beers was eliminated.

The invention of the drum roaster in the early 1800s allowed the production of darker malts, notably black patent malt. This allowed beers to have a darker color without using the traditional brown malts that had a smoky character. It also somewhat substituted a related roasted or burnt flavor for the classic smoke character.

Some very localized brewing regions developed their own beer styles featuring smoked malt of some sort. Grodziskie (Grätzer) from modern Poland is made from oak-smoked wheat malt, for instance. Lichtenhainer was a historical sour wheat beer from central Germany that used smoked barley malt in its production; it was popular in the late 1800s. Alaskan Brewing Company in modern times has made an alder-smoked porter. There are many other examples of individual beer styles with a smoky character.

The Franconia region of northern Bavaria in the southern part of Germany is one of the most densely populated brewery regions of the world. Breweries within the city of Bamberg in Franconia have produced several types of smoked beer, but the most famous one is the smoked-amber lager known as rauchbier (smoke beer). It is basically a beechwood-smoked Märzen, which is the historical type of beer that was traditionally served at Oktoberfest celebrations until the 1990s, but that survives as the export version of Oktoberfest that is commonly found in the United States.

The development of the actual rauchbier style is poorly documented, so I don't want to make the claim that this style has come down unchanged since the days when smoked malts were common. That claim would be absurd since the base Märzen style traces back to the mid-1800s, by which time smoke was removed from most beer styles.

Some breweries in Bamberg (such as

BELGIAN DARK STRONG ALE



(5 gallons/19 L, all-grain)

OG = 1.091 FG = 1.015

IBU = 24 SRM = 26 ABV = 10.2%

INGREDIENTS

7 lbs. (3.2 kg) Pilsner malt
3 lbs. (1.4 kg) pale ale malt
2 lbs. (0.91 kg) Munich malt
2 lbs. (0.91 kg) dark Munich malt
1 lb. (454 g) aromatic malt
1 lb. (454 g) crystal malt (40 °L)
2 oz. (57 g) chocolate malt
1 lb. (454 g) dark candi syrup
(0 min.)
1 lb. (454 g) amber (brown) sugar
(0 min.)
5 AAU Saaz hops (60 min.)
(1 oz./28 g at 5% alpha acids)
3.6 AAU Styrian Goldings hops
(10 min.) (1 oz./28 g at 3.6% alpha
acids)
0.5 oz. (14 g) Saaz hops (5 min.)
Wyeast 3787 (Trappist High
Gravity) or White Labs WLP500
(Monastery Ale) or LalBrew Abbaye
Belgian Ale yeast
1 cup corn sugar (for priming)

STEP BY STEP

This recipe uses reverse osmosis (RO) water. Adjust all brewing water to a pH of 5.5 using phosphoric acid. Add 1 tsp. of calcium chloride directly to the mash.

This recipe uses a step mash. Mash in the Pilsner, pale ale, Munich, dark Munich, and aromatic malts at 144 °F (62 °C) in 23 qts. (22 L) water. Hold for 45 minutes. Raise the temperature to 158 °F (70 °C) and hold for 15 minutes. Add crystal and chocolate malt. Begin recirculating and raise temperature to 168 °F (76 °C) and recirculate for 15 minutes. Sparge slowly and collect 6.5 gallons (24.5 L) of wort.

Boil the wort for 90 minutes, adding hops at the times indicated in the recipe. Add the sugars at the end of the boil and stir to dissolve.

Chill the wort to 64 °C (18 °F), pitch the yeast, and ferment until complete. Allow the beer to free rise in temperature during fermentation.

Rack the beer, prime and bottle (or cask) condition, or keg and force carbonate the beer.

BELGIAN DARK STRONG ALE



(5 gallons/19 L, extract
with grains)

OG = 1.091 FG = 1.015

IBU = 24 SRM = 26 ABV = 10.2%

INGREDIENTS

6.5 lbs. (2.9 kg) pale liquid malt
extract
3.25 lbs. (1.5 kg) Munich liquid
malt extract
1 lb. (454 g) crystal malt (40 °L)
2 oz. (57 g) chocolate malt
1 lb. (454 g) dark candi syrup
(0 min.)
1 lb. (454 g) amber (brown) sugar
(0 min.)
5 AAU Saaz hops (60 min.)
(1 oz./28 g at 5% alpha acids)
3.6 AAU Styrian Goldings hops
(10 min.) (1 oz./28 g at 3.6% alpha
acids)
0.5 oz. (14 g) Saaz hops (5 min.)
Wyeast 3787 (Trappist High
Gravity) or White Labs WLP500
(Monastery Ale) or LalBrew Abbaye
Belgian Ale yeast
1 cup corn sugar (for priming)

STEP BY STEP

Start with 6.5 gallons (24.5 L) of water in the brew kettle; heat to 158 °F (70 °C).

Turn off the heat. Add the crystal and chocolate malt in a mesh bag and steep for 30 minutes. Remove and rinse grains gently.

Add the malt extracts and stir thoroughly to dissolve completely. Turn the heat back on and bring to a boil. Follow the all-grain recipe's step by step for boil, fermentation, and packaging instructions.

Schlenkerla) produce their own smoked malt, but Weyermann Malts of Bamberg produces the best known beechwood-smoked Vienna-style malt, known simply as rauchmalz (smoked malt). Bestmalz in Heidelberg, Germany also produces a smoked malt using beechwood from Franconia.

SENSORY PROFILE

The two most important sensory features of a rauchbier is that it has beechwood-smoke character and is a malty-amber lager. The color is a bit more variable than the underlying Märzen style, with some versions being coppery-brown (the iconic Schlenkerla commercial version is quite dark, but it is somewhat of an outlier stylistically with regards to color). The head can be tinted a little darker than a Märzen as well, with a cream to tan color. The beer should be very clear.

The character of the smoke is important, mostly in that it should have a refined character and not be acrid, greasy, creosote-like, or harsh. As much as it can be described this way, the smoke should have a clean character – it should be smoky or woody, perhaps reminiscent of bacon or other desirable smoked products but not sulfury, rubbery, or phenolic. The smoke should be apparent in the aroma and flavor, but the intensity of the smoke is quite variable and up to the brewer's discretion. Judges should not penalize a rauchbier for not being a smoke bomb – balance and drinkability are vital.

The remaining aspects of the beer are similar to a Märzen; malty-rich with a toasted character and restrained bitterness in the balance. The malty-yet-dry finish encourages another drink, as with the best German lagers. The malt profile should be richly malty but not really sweet, and the toasted aspects should not veer into the roasted or burnt world since this tends to make the smoke character seem less clean and also isn't really right for the base style.

The bitterness level should be enough to prevent the malt from seeming sweet, but while still allowing the maltiness to be primary in the balance. Late hops are low, and tend to have a typical German noble hop profile – floral, spicy, and/or herbal. The hop flavor

and aroma should not really stand out, and should be supportive of the malt and smoke. It is certainly acceptable to not have any late hop character evident, depending on the level of perceptible smoke.

The body should not be too heavy – medium is a typical level. Carbonation is moderate as well. Drinkability is important as in all German lagers, so the smooth lager character without harsh astringency is critical. Fermentation byproducts such as buttery diacetyl, fruity esters, and green apple or latex paint-like acetaldehyde should not be present. A clean fermentation character and smooth lager profile are characteristic of the style.

The beer is average strength, roughly 5 to 6% alcohol by volume. Stronger versions exist, but those are more like bock beers than Märzen types. I think lower alcohol versions are enjoyable, but aren't really traditional as these are based on fest-type beers, which are at the higher end of the normal strength range for beer.

The aftertaste should carry through the dominant flavors of smoke and rich malt, but should have a pleasant dryness. These beers are not crisp like a Pilsner, so the flavor should linger a bit longer on the palate. The balance of flavors should provide some interest to the drinker, where savoring the flavor is encouraged. The malty flavors tend to take the edge off the smoke impression so that the beer can be enjoyed in quantity.

BREWING INGREDIENTS AND METHODS

Rauchmalz is a required ingredient for the style, and can be used in varying quantities up to 100% of the grist. It is basically a Vienna-style malt, so a first step in developing a rauchbier recipe is often adapting an existing Märzen recipe by swapping rauchmalz for the Vienna and Pilsner malts. Depending on the freshness and age of the malt, the smoke intensity can be quite strong so those who prefer a lighter smoke character may want to use the lower end of the range, perhaps 20% of the grist.

There are other types of smoked malt available, such as the oak-smoked



Photo by Bernt Rostad

wheat malt used in Grodziskie, cherry-smoked barley malt, and peat-smoked distiller's malt. Avoid using these and other types of smoked malt in this style of beer as the smoke character will not be typical for the style.

Additional maltiness is needed in the style to support the smoke character, so more malty base grains like Munich, dark Munich, and aromatic malts can be used. The beer shouldn't be overly sweet, so caramel-type malts are generally to be avoided although some darker CaraMunich is often used for color adjustment and to provide a light sweetness. Final color adjustment through the use of darker Carafa-type malts is typical, although the huskless varieties should be used to avoid introducing overly burnt flavors.

The best-known German examples (Schlenkerla and Spezial) use double-decoction mashes, which tend to emphasize the malty character of the beer while also increasing color. Step mashes are also a traditional technique that can be used, although recipes using step mashes probably should have a higher percentage of Munich-type malts to compensate for the reduced Maillard reactions in the mash.

More intensive mash programs like I mentioned help with developing

the right level of fermentability of the wort while retaining sufficient dextrins to give the beer a pleasant body. This fermentability allows the yeast to properly attenuate the beer so that it isn't thick or syrupy sweet. I think that's the hallmark of good German beer, that it can be dry while not being thin or watery. Otherwise, you wouldn't be able to drink it a liter at a time ...

German or Czech noble hops are common in German lagers, and this style is no exception. Hallertauer, Tettnanger, or Saaz would be fine choices, as would the US-grown equiv-

with Ayinger (White Labs WLP833) is another good choice since it makes a very malty beer. A normal German fermentation regimen followed by sufficient lagering is appropriate – nothing special here. Ferment around 50 °F (10 °C) until complete and lager at near-freezing temperatures for at least four to six weeks.

HOMEBREW EXAMPLE

My recipe is targeting a balanced level of smoke, with a little more than half the grist being rauchmalz (I tend to use Weyermann). I'm using a step mash

beer drops clear and is smooth on your palate. I find that keeping lagering as close to freezing as possible lets the process go faster and will produce better results.

This is a more balanced and restrained version of the style, which is something that I would like to drink. If I was planning the beer for competition, I might develop a different recipe that was a bit stronger and used a higher percentage of rauchmalz in the grist. Beers that taste good while judging an ounce or two at a time aren't always the same ones that taste good

“ Rauchmalz is a required ingredient for the style, and can be used in varying quantities up to 100% of the grist.”

alents (Santiam, Liberty, Crystal, Mt. Hood, Vanguard, Ultra, Sterling). Most of the hop usage should be as a bittering addition, with only a token amount used for flavor or aroma, if at all. The hops selected should not interfere with the malt and smoke profile.

Normally I don't say much about water, but I would like to make one point. Smoke is a phenol, so extra care should be taken about chlorine in your water. Chlorine and phenols combine to create chlorophenolic compounds, which are very strong and medicinal. They do not go away, and can ruin your beer. So take care to use chlorine-free water, either by charcoal-filtering your municipal water supply, using natural spring water, or to use some form of deionized water such as reverse osmosis water. While you're at it, avoiding sulfur compounds in the water would be helpful, so if you add any water salts, limit yourself to calcium chloride. Sulfur and smoke isn't a desirable combination, as it reminds you of burnt matches.

A clean German lager yeast is traditional. I personally like the Weihenstephan W34/70 lager strain, but any yeast that doesn't throw much sulfur and favors malty styles is desirable. This is a widely used yeast strain that is available from multiple suppliers. The German Bock strain associated

in this recipe, so it should be easier to produce than using a double decoction. The rest of my grist is very similar to what I use for a Märzen, with the addition of a bit of Carafa® III Special to darken the color a bit. I'm not looking to go very dark, but I would like a bit of a reddish copper hue to be apparent.

I'm using multiple malt flavor boosting choices in the grist to help support the smoke without getting sweet. While Munich malt is fairly common, I like adding dark Munich (like Weyermann Munich II) and aromatic malts to increase the malt intensity and get the deeper malt flavors that are often elusive for homebrewers looking to produce the richness found in commercial German beers.

I'm shooting for a beer at the low end of the style in bitterness and gravity since I'm not trying to go huge on the smoke character. I think they tend to scale with each other to preserve the balance the style requires. Using classic German hops is an obvious move, as is keeping the late hopping very light. Again, very much like a classic Märzen.

A classic German yeast selection, fermentation, and lagering program complete the recipe. While I have quoted specific times, you should really let fermentation run until complete, and then let lagering proceed until the

a pint at a time. Since smoke can build on your palate, I'm acting with some self-imposed restraint.