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RUSSIAN IMPERIAL STOUT



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Russian Imperial Stout

by Jamil Zainasheff

Russian imperial stout was one of the first beer styles that caught my interest. I remember tasting North Coast Old Rasputin as I read and reread the Beer Judge Certification Program (BJCP) style guidelines for the style. I also liked the idea that this was, according to the Courage Brewery, the beer of “Catherine II, Empress of all the Russias” as far back as the late 18th century. How cool is that?

There are two variants of the style, English and American. As you might expect, the American versions are bolder, cleaner and often feature American hops. The English versions are more complex and feature more fermentation character. No matter what the variant, Russian imperial stout is as big, rich, and intensely flavored as a stout can be. A good version of this beer needs to have a big roasted malt character that is reminiscent of coffee, dark chocolate and even tar-like notes. There should also be dark fruits, hops, and warming alcohol, although the alcohol should never be hot or harsh.

Russian imperial stout ranges from dark reddish-brown to jet black. The overall balance is often bittersweet, though some examples might be more bitter and others might be more sweet. Regardless, there is always some sweetness to help balance the substantial bitterness of the roasted grains and hops. The finish ranges from sweet to dry, though the best examples finish closer to balanced. While this is a full-bodied, creamy beer, it should not be syrupy-thick or cloying. Fruity esters range from low to medium-high. It can be a variety of esters, but the ones that really seem to fit well with the style are dark, dried fruit flavors such as raisin, prune and fig.

Late hop character in this style varies from substantial hop character to relatively little. Of course, the amount of hop character present

depends on aging. Young samples tend to be hoppy, while aged beers have progressively less hop character over time.

While this style has a substantial amount of alcohol, it should never be hot or solventy. This is one of the most common mistakes brewers make when brewing a big beer.

You have some flexibility in choosing base malt for Russian imperial stout. Using North American two-row gives the beer a clean, subtle, background-malt character common to many American craft beers. Using North American pale ale malt adds a slightly richer background malt character, somewhat of a light bread note. Again, this is the type of malt character found in many fine North American craft brews. I prefer British pale ale malt for the base. British pale ale malt provides an even greater depth of malt character to the beer, mainly a biscuit-like taste and aroma common in many British beers. In a beer this big and bold, it can handle the extra malt character of British pale ale malt. Extract brewers can use an English pale ale extract if they want a richer malt background or a light color North American malt extract if they want a more subtle taste. All-grain brewers should use a single infusion mash and a low enough mash temperature so that the resulting beer does not end up too viscous. A temperature range of 149 to 154 °F (65 to 68 °C) works well. Use a lower temperature when using lower attenuating yeasts or very high starting gravities. Use a higher temperature when using the higher attenuating yeasts or lower starting gravity beers.

Even when using British pale ale malt for the base grain, the majority of the character that defines Russian imperial stout comes from specialty malts. A traditional British recipe would utilize a fairly simple recipe such as pale, amber and black malts, plus some sort of simple sugar.

RUSSIAN IMPERIAL STOUT by the numbers

OG:1.075–1.115 (18.2–26.9 °P)
FG:1.018–1.030 (4.6–7.6 °P)
SRM:50–90
IBU:50–90
ABV:8.0–12%



The Czar's Revenge

(5 gallons/19 L,

extract with grains)

OG = 1.098 (23.4 °P)

FG = 1.030 (7.5 °P)

IBU = 77 SRM = 61 ABV = 9.2%

Ingredients

11.4 lbs. (5.17 kg) Muntons or similar pale English liquid malt extract
22 oz. (624 g) Great Western roasted barley (500 °L)
14 oz. (397 g) Dingemans Special B (120 °L)
8 oz. (227 g) Briess caramel Munich (60 °L)
7 oz. (198 g) Briess chocolate malt (350 °L)
7 oz. (198 g) Crisp pale chocolate malt (200 °L)
15.99 AAU Horizon hops (1.23 oz./35 g at 13% alpha acids) (60 min.)
8.3 AAU Kent Goldings hops (1.66 oz./47 g at 5% alpha acids) (10 min.)
8.3 AAU Kent Goldings (1.66 oz./47 g at 5% alpha acids) (1 min.)
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale) or Fermentis Safale US-05 yeast

Step by Step

Mill or coarsely crack the specialty malt and place loosely in a grain bag. Avoid packing the grains too tightly in the bag, using more bags if needed. Steep the bag in about 1.5 gallon (~6 liters) of water at roughly 170 °F (77 °C) 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. Do not squeeze the bags. Add enough water to the steeping liquor and malt extract to make a pre-boil volume of 5.9 gallons (22.3 L) and a gravity of 1.084 (20.2 °P). Stir thoroughly to help dissolve the extract and bring to a boil.

The total wort boil time is 60 minutes. Add the bittering hops as soon as the wort begins to boil. Add Irish moss or other kettle finings with according to the recipe's hop schedule. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 16 grams of properly rehydrated dry yeast, three packages of liquid yeast or one package of liquid yeast in a 6-liter starter.

Ferment at 67 °F (19 °C) until the yeast drops clear. Allow the lees to settle and the brew to mature without pressure for another two days after fermentation appears finished. Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar and bottle. Target a carbonation level of 2 to 2.5 volumes. Store the beer in a cool, dark place and allow to age six or more months before drinking.

The Czar's Revenge

(5 gallons/19 L, all-grain)

OG = 1.098 (23.4 °P)

FG = 1.030 (7.5 °P)

IBU = 77 SRM = 61 ABV = 9.2%

Ingredients

17 lbs. (7.71kg) Crisp British pale ale malt or similar (3 °L)
22 oz. (624 g) Great Western roasted barley (500 °L)
14 oz. (397 g) Dingemans Special B (120 °L)
8 oz. (227 g) Briess caramel Munich (60 °L)
7 oz. (198 g) Briess chocolate malt (350 °L)
7 oz. (198 g) Crisp pale chocolate malt (200 °L)
15.99 AAU Horizon hops (1.23 oz./35 g at 13% alpha acids) (60 min.)
8.3 AAU Kent Goldings hops (1.66 oz./47 g at 5% alpha acids) (10 min.)
8.3 AAU Kent Goldings (1.66 oz./47 g at 5% alpha acids) (1 min.)

White Labs WLP001 California Ale, Wyeast 1056 American Ale or Fermentis Safale US-05

Step by Step

Mill the grains and dough-in targeting a mash thickness that will enable your system to achieve the necessary pre-boil volume and gravity. Hold the mash at 154 °F (68 °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 (25 L) and the gravity is 1.076 (18.4 °P). If your system loses efficiency on big beers, start with an additional 4 to 5 lbs. (2 kg) of base malt or make sure you have a couple of pounds (1 kg) or more of malt extract on hand to make up any deficiency in efficiency.

The total wort boil time is 90 minutes. Add the bittering hops with 60 minutes remaining in the boil. Add Irish moss or other kettle finings with according to the recipe's hop schedule. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 16 grams of properly rehydrated dry yeast, three packages of liquid yeast or one package of liquid yeast in a 6-liter starter. Ferment at 67 °F (19 °C) until the yeast drops clear. Allow the lees to settle and the brew to mature without pressure for another two days after fermentation appears finished. Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar and bottle. Target a carbonation level of 2 to 2.5 volumes. Beer will improve over time and should mature six or more months before drinking.

However, this is such a big, rich style with so many variations that there is plenty of room for playing with other specialty grains and rich malt flavors.

Every Russian imperial stout needs roasted malt notes and many examples include caramel malt notes also. The roast, chocolate and coffee character of the style comes from the use of highly kilned grain. I use roasted barley, but the word is that some traditional commercial examples use black malt. A range of 7 to 20% of the grist should be highly kilned grains. Keep in mind that beers at the higher end of the range are somewhat acrid when young and will require considerable aging time. A 50/50 mix of highly kilned and lighter kilned grain, like roast barley and chocolate malt, strikes a nice balance of sharper roasted notes and less burnt coffee/chocolate notes. For caramel flavors, I always use dark crystal (80–150 °L) as it adds those caramelized, raisin-plum notes that go so well in this style. I also likely to include some mid-color crystal (40–60 °L), which adds some caramel flavors and some residual sweetness to help balance the bitterness of the roast grains and hops. Even though you have a lot of leeway, you do not want to add a lot of low color crystal malt (< 30 °L), as it adds sweetness without much caramel character. Also, watch the total amount of crystal malt in your recipe. If the total amount exceeds 10% of the grist, it can result in an overly sweet and heavy beer.

If you are looking for more complexity or increased head retention it is possible to add other malts as well. Wheat malt, Victory®, Munich and more are common additions in many recipes. Just use restraint so the beer does not become saturated with unfermentable dextrins or cloying flavors. Target between 0 and 5% for these additional specialty grains.

Traditional British commercial examples most likely include some simple sugar, which boosts the alcohol without increasing the body or malt character. Sugar isn't really a requirement, although it can be a useful tool if you're having trouble reaching a

proper level of attenuation. In which case, replacing a small portion of the base malt with sugar can help the beer finish a bit drier.

Hop flavor and aroma also varies from minimal to bold. In any interpretation, late hop additions are acceptable, but you need to have some idea of when you will be drinking the beer. The longer the period before drinking, the more the late hops will fade. If you want late hop character a couple years down the road, you will need big late hop additions. Typical hop additions for this style are British or American varieties. You do have plenty of leeway when making your hop choices, including hops from the southern hemisphere. Almost anything is fair game as long as you do not try to build a big German noble hop character or something along those lines. When targeting more of an American interpretation, I like using citrusy or piney American variety hops such as Cascade, Centennial, Columbus and Amarillo® for flavor and aroma. For more of a traditional interpretation, any British hop is fine as long as you feel it has a pleasant character. It is the overall impression that matters. You can bitter with almost any hop as well, but clean, neutral hops are most common.

In order to cut back on the amount of hop material at the end of the boil and subsequent wort loss, I prefer to use high alpha hops. Even so, with the large hop additions of many recipes, you might want to increase your batch size to account for increased loss at the end of the boil. While all Russian imperial stouts should have a medium to aggressively high bitterness, the balance of bitterness versus malt sweetness can range from sweet to boldly bitter. The bitterness to starting gravity ratio (IBU divided by OG) can range anywhere from 0.5 to 1.0 or more, but I like to target in the range of 0.6 to 0.8. Keep in mind that beers designed for long-term aging should target the higher end of the scale, as a good amount of the bitterness can drop out of the beer over time.

Even though this was at one time

a British beer for a Russian court, the resurrection of its popularity in the United States means that a brewer has a number of fermentation choices. The only real must do is avoiding hot, fusel alcohols and an overly sweet finish. If you prefer a cleaner, less fruity, more American ale version, ferment with White Labs WLP001 (California Ale) or Wyeast 1056 (American Ale). You will not have to worry too much about leaving an overly sweet beer with these yeasts either, as they tend to attenuate well even in big beers and at a range of temperatures. If you want a more complex beer, you should consider yeasts that produce more characterful esters and alcohols such as British ale yeasts. Try to stick with the British strains that still attenuate well, such as White Labs WLP007 (Dry English Ale), Wyeast 1028 (London Ale), or Danstar Nottingham if you use dry yeast.

In any case, this is a big beer so make certain you oxygenate the wort and pitch an appropriate amount of clean, healthy yeast. Most of the fermentations should be around the 65 to 70 °F (18 to 21 °C) depending on the yeast strain and recipe. Try to pick a temperature and stick with it, holding the temperature steady throughout fermentation. Holding the temperature steady is important to getting a proper level of attenuation and avoiding off-flavors, especially if you are making a bigger beer. Letting the beer go through large temperature swings can result in the yeast flocculating early or producing solventy and/or overly estery beers.

For this style, it is better to go for a big beer and anticipate aging it for a minimum of six months if not more. Time affects the balance and intensity of flavors, mellowing some of the harsher aspects and exposing some of the more delicate aromas and flavors. With enough time, it is also possible to develop vinous or Port-like qualities, which just add to the beer's complexity. Always try to stash at least a few bottles somewhere safe (where you won't drink them) for at least a year or two. With a really big beer, a decade wouldn't be too much. (BYO)

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