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AMERICAN WHEAT/RYE



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American Wheat/Rye

by Jamil Zainasheff

the other day, my neighbor stopped by and as usual, I offered him a beer. He asked for something “light and refreshing,” so I offered him a bottle of a fine commercial American wheat beer. Even though it is an American-style wheat beer, the label says “hefeweizen” and my neighbor balked, “I don’t like hefeweizen. I don’t like all those weird wheat beer flavors.”

I used to try to explain the differences between wheat beer styles and how wheat adds little flavor. Most of the flavor in other wheat-based styles, such as German hefeweizen and Belgian witbier, come from fermentation and other ingredients. Of course, my explanation left most folks with a glassed over look. I think it adds to the confusion when breweries label American wheat beer as hefeweizen. Labeling a beer hefeweizen may even scare some consumers away if they do not care for the characteristic flavors of a hefe. American wheat beer is vastly different from traditional hefeweizen. Yes, the grist is similar, but fermentation and hopping are dramatically different. American wheat has none of the spicy phenols and fruity esters of a hefeweizen and it often has more hop character as well.

Some brewers make the same mistake as many consumers, by assuming that American wheat beer should be similar to German hefeweizen. While this style can have a light fruity character (up to a moderate level of fruitiness), the fruitiness should never be pronounced and banana-like as in a German hefeweizen. As for the spicy phenolic note of a German hefeweizen, there should be none in American wheat. American rye can have a very slight spicy note from the rye, but it is never as strong or clove-like as that which comes from German hefeweizen yeast. Some commercial examples of

American wheat include Widmer Hefeweizen from Widmer Brothers Brewing and Mueller Unfiltered Wheat from Springfield Brewing Company in Springfield, Missouri.

American wheat or rye beer should always be easy drinking and refreshing. This is a moderate alcohol beer (4 to 5.5% ABV) with medium-light to medium body and medium to high carbonation. Appearance ranges from straw to light gold and from clear to hazy. Good examples can vary widely from sweet to dry, but they all exhibit some grainy wheat or rye character reminiscent of crackers. The hop flavor and aroma are also variable, with some versions having no hop character, while others have a noticeable citrus, spice or floral flair. While some examples might feature prominent hoppiness, it should not overwhelm the wheat or rye character to the point where the beer drifts into the world of India pale ale. American wheat and rye should be even more balanced, easier drinking, light and refreshing.

The grist for this style is very simple: a blend of North American two-row, wheat, and sometimes rye. You want the beer to have a subtle bready note, similar to crackers or white bread. One trick that I find useful in this style is replacing a portion of the North American two-row with continental Pilsner malt (around 1/4th of the total grist). Pilsner malt lends a slightly sweet, grainy malt character to a beer. If you are an extract brewer, use a wheat extract that uses Pilsner malt for the non-wheat portion. A beer like this does not have specialty malts to hide behind, so little tricks like this can stand out in a crowd. When all the other beers at the table have the same malt note, one with a touch of grainy flavor and aroma stands out as more “wheaty.” I would not use something like British pale ale malt, but I would consider replacing some of the North

AMERICAN WHEAT/RYE by the numbers

OG:	1.040–1.055	(10–13.6)
FG:	1.008–1.013	(2.1–3.3 °P)
SRM:3–6
IBU:15–30
ABV:4–5.5%



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American Wheat

(5 gallons/19 L, all-grain)

OG = 1.052 (12.8 °P)

FG = 1.012 (3.0 °P)

IBU = 20 SRM = 4 ABV = 5.3%

Ingredients

5 lbs. 5 oz. (2.4 kg) Great Western wheat malt (or similar) (2 °L)
2 lbs. 10 oz. (1.2 kg) Great Western American two-row malt (or similar) (2 °L)
2 lbs. 10 oz. (1.2 kg) Durst continental Pilsner malt or similar (2 °L)
4.15 AAU Willamette pellet hops (0.83 oz./24 g of 5% alpha acids) (60 min.)
2.25 AAU Centennial pellet hops (0.25 oz./7 g of 9% alpha acids) (0 min.)
1.25 Willamette pellet hops (0.25 oz./7 g of 5% alpha acids) (0 min.)
White Labs WLP320 (American Hefeweizen), Wyeast 1010 (American Wheat) or Fermentis Safale US-05 yeast

Step by Step

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 152 °F (67 °C). Hold the mash at 152 °F (67 °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 1.040 (10 °P).

The total boil time will be 90 minutes. 30 minutes after the wort starts boiling, add the bittering hops. Add the hops according to the ingredient schedule. Chill the wort rapidly to 65 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly. Use 9 grams of rehy-

drated dry yeast, two liquid yeast packages, or use a starter. Ferment at 65 °F (18 °C). Carbonate to approximately 2.5 volumes.

American Wheat (5 gallons/19 L, extract)

OG = 1.052 (12.8 °P)

FG = 1.012 (3.0 °P)

IBU = 20 SRM = 5 ABV = 5.3%

Ingredients

7 lbs. (3.2 kg) Briess wheat liquid malt extract or similar (3 °L)
4.15 AAU Willamette pellet hops (0.83 oz./24 g of 5% alpha acids) (60 min.)
2.25 AAU Centennial pellet hops (0.25 oz./7 g of 9% alpha acids) (0 min.)
1.25 Willamette pellet hops (0.25 oz./7 g of 5% alpha acids) (0 min.)
White Labs White Labs WLP320 (American Hefeweizen), Wyeast 010 (American Wheat) or Fermentis Safale US-05 yeast

Step by Step

Mix enough water with the malt extract to make a pre-boil volume of 5.9 gallons (22.3 L) and a gravity of 1.044 (11 °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 Irish moss or other kettle finings with 15 minutes left in the boil. Add the last hop additions just before shutting off the burner. Chill the wort rapidly to 65 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly. Follow the remaining instructions for the all-grain version.

American Rye

(5 gallons/19 L, all-grain)

OG = 1.055 (13.6 °P)

FG = 1.013 (3.4 °P)

IBU = 26 SRM = 5 ABV = 5.5%

Ingredients

5.5 lbs. (2.5 kg) Great Western American two-row malt (2 °L)
3.75 lbs. (1.7 kg) Briess rye malt (4 °L)
3 lbs. (1.4 kg) Great Western wheat malt (2 °L)
3.25 AAU Simcoe® pellet hops (0.25 oz./7 g of 13% alpha acids) (60 min.)
3.5 AAU Amarillo® pellet hops (0.35 oz./10 g of 10% alpha acids) (15 min.)
4.55 AAU Simcoe® pellet hops (0.35 oz./10 g of 13% alpha acids) (15 min.)
5 AAU Amarillo® pellet hops (0.5 oz./14 g of 10% alpha acids) (0 min.)
White Labs WLP320 (American Hefeweizen) or Wyeast 1010 (American Wheat)

Step by Step

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 152 °F (67 °C). Hold the mash at 152 °F (67 °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 5.9 gallons (22.3 L) and the gravity is 1.047 (11.7 °P). Once the wort is boiling, add the bittering hops. The total wort boil time is one hour after adding the bittering hops. Add the hops according to the ingredient schedule. Chill the wort rapidly to 65 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly.

Use 10 grams of rehydrated dry yeast, two liquid yeast packages or make a starter. Ferment at 65 °F (18 °C). Carbonate to approximately 2.5 volumes.

American two-row with North American pale ale malt. The pale ale malt is kilned a little darker and adds some biscuit notes. If you go this route, keep it to less than 1/8th of the total grist. That is all you need for American wheat. If you are making a rye version, you can swap out rye for wheat in whatever portion you feel is right. I like to replace about half of the wheat with rye, for a subtle spicy rye note and a touch of silkiness to the mouthfeel. If you really want the rye character to stand out, use rye for 50% of the total grist.

Many brewers want to add specialty grains to this style, such as crystal, biscuit, aromatic malts. You should avoid the urge to add specialty grains, as they can add too much sweetness or too much malt character for this style. If you are not getting enough malt character from just North American two-row and wheat/rye, then you should review your fermentation. Poor fermentation will result in a beer that is “flabby” and it masks the character of the grain. High quality malt is only apparent when you have high quality fermentation. Keep in mind this beer is more about the clean wheat/rye malt character and fermentation flavors so don't hide that with specialty malts. Almost any specialty grain is too much in this style.

American wheat/rye has a medium to medium-light body. All-grain brewers should target a mash temperature around 152 °F (67 °C), which strikes a nice balance between fermentable and non-fermentable sugars. For extract brewers, most light colored extracts will ferment out to the right level. If your extract does not attenuate enough, you should first review your fermentation parameters. Some brewers worry about protein rests when using wheat, but I do not find it necessary. Keep in mind wheat and rye malt is huskless, so if your equipment is prone to stuck mashes, you might want to add a volume of rice hulls equal to the volume of wheat and rye used.

While hop character in American wheat is usually restrained, it can range up to moderate levels with a

floral, spicy or citrus hop aroma and flavor. While it is not required, most brewers tend to use less hop character in wheat versions and more hop character in rye versions. You can stick with citrusy American hop character (e.g., Cascade, Amarillo®, Centennial), but almost any pleasant hop flavor and aroma will work well. My friend Mike McDole likes to use American wheat as a testing ground for new hops. Whatever the hop variety, the clean and easy background of American wheat beer allows the hop character to come through. This is sometimes a problem in making a great American wheat/rye beer. It can

“ A bittering addition at the beginning of the boil is all that is required. If you want more hop character, you can follow it with one or two small additions later in the boil.”

be too easy to overwhelm the malt and fermentation character with hops. You want the drinker to still get at least a hint of the wheat or rye character, balanced in there with the hop bittering, flavor and aroma. A bittering addition at the beginning of the boil is all that is required. If you want more hop character, you can follow it with one or two small additions later in the boil. One or two 1/4 to 1/2 ounce (7 to 14 g) additions per 5 gallon (19 L) batch is plenty. While you can dry hop this beer, be careful that it doesn't send it over the top. Remember, this is not a West Coast pale ale or an IPA. When making this as a rye version, you can go with a bit more hop character. I'm not sure why, but the idea

of rye tends to make everyone go with more of everything.

Bittering ranges from subtle to firm. If you are making a rye version, the drier the finish, the more the rye character will stand out. Too much or too little bitterness or sweetness can impact drinkability and send the beer into a different style. The bitterness-to-starting gravity ratio (IBU divided by OG) ranges widely, between 0.3 and 0.7, although most brewers will want to shoot for 0.4.

The right fermentation character for this style is clean and neutral. While esters are present, they should not be over the top. Any American-type strain should give acceptable results and even lager yeasts will perform adequately. However, the best choice is the American wheat strains from White Labs (WLP320 American Hefeweizen Ale) and Wyeast (1010 American Wheat). These yeasts provide the right balance of attenuation, have a restrained ester production and give a light crispness to the finish. I have heard that these strains are derivatives of Kölsch yeast and if you cannot source them, a Kölsch strain is an excellent choice. Other American-type yeasts like White Labs WLP001 California Ale, Wyeast 1056 American Ale or Fermentis Safale US-05 provide a decent result, but they tend to lack the subtle fruitiness and refreshing crispness that the American wheat and Kölsch yeasts provide. Whatever yeast you use, remember that your fermentation conditions affect what flavors and aromas the yeast produce. Pitching rate, oxygen level, nutrients, and temperature are like dials on your control panel of fermentation flavor. Starting with a healthy pitch of yeast, aerating or oxygenating, and controlling temperatures is key to getting a well attenuated beer that allows the subtle malt flavors to shine through. With these American wheat yeasts I like to ferment in the mid-60s Fahrenheit (~18 °C). 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. 

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