

Hank Speaks... So Listen

by Hank Bienert

A recent discussion with a friend in the brewing business brought up this question and I wanted to share what very informed folks (Breiss Malting) have to say. If you don't want to know "why" but rather only "what", drop to the last couple of pages:

The Row Less Traveled

2-Row or 6-Row malt? You've probably asked yourself that question before. Or not. Some brewers are 2-Row purists. Others prefer a more flexible ingredient toolbox. But whatever camp you fall in, there may be times you ask that question out of necessity. Cost. Availability. Existing inventory. Whatever the reason, you'd really like to know how and if a 6-Row malt will perform differently than its 2-Row counterpart.

Before we discuss the differences between the two, here's something to ponder over a pint or two: you'll be in good company when you brew with 6-Row malt—base and specialties alike.

A significant percent of 6-Row malt is used by American craft breweries of all sizes to produce excellent, award-winning, beers. German Bocks, Belgian-style Ales, Scottish Ales. You name it, it's being successfully brewed by talented American brewers with domestically produced 6-Row malt. Every year Breiss customers win gold, silver and bronze medals in brewing competitions. Many use some, or even all, 6-Row malts.

Breiss has been sourcing and malting only North American-grown varieties of 2-Row and 6-Row malting barley for decades. That experience has taught us to detect just about every nuance in their raw forms, during the malting process, and in the brewhouse. So here's a little of what we know about the physical characteristics, analytical characteristics, and color and flavor characteristics of 2-Row and 6-Row specialty malts that might help you decide.

Physical Characteristics

Rare is the description of 2-Row and 6-Row malts that doesn't include, respectively, "plump" and "grainy". These descriptions, however, are generalities that don't apply carte blanche to all 2-Row and 6-Row malts. So we'll address two general statements and when they don't apply.

#1) "2-Row malt is more plump than 6-Row malt." Not always. It depends upon the quality of the crop. Yes, a good crop of 2-Row malting barley will be more plump than a good crop of 6-Row. But weather has been known to wreak havoc on malting barley crops throughout the world. When that happens, crop quality is poor and 2-Row malt could under-perform—in terms of flavor, yield and color—compared to 6-Row malt that's made from a good crop of 6-Row malting barley.

Why is 2-Row more plump, generally, than 6-Row? The two types of malting barley get their name from the way the kernels grow on the stalk. Two rows of kernels grow on a 2-Row stalk and six rows of kernels grow on a 6-Row stalk. The 2-row kernels simply have more room. The picture at the top shows the size of the two types in relation to each other.

#2) "6-Row malt delivers a more "grainy" flavor than 2-Row." Not necessarily. Plus, this only applies to base malts. That's because such high temperatures are used to develop flavor and color in specialty malts, that any original barley flavor becomes history. We'll discuss color and flavor of 2-Row and 6-Row specialty malts later.

That being said, the same crop quality issues that affect "plump" affect flavor. When both 2-Row and 6-Row base malts are made from high quality raw barley, 2-Row base malts tend to have a more clean and smoother flavor profile as compared to 6-Row base malts. But a poor crop of 2-Row malting barley can reverse that.

The other important note to make is that flavor differences between 2-Row and 6-Row malts are more detectable in lighter flavored, lightly hopped beers. When you don't have flavor masking by specialty malts or hops, that's when you may want to reach for 2-Row base malts. When a beer's flavor intensity is at about the level of an Oktoberfest or beyond, or when a beer is more heavily hopped, the difference between the two malts becomes negligible.

Analytical Characteristics

Protein. We can see "plump" and taste "flavor." But it takes modern testing equipment to determine how malt will perform in the brewhouse. And that verifies that 6-Row malts tend to be 1 to 1-1/2 percent higher in protein than 2-Row on a dry basis. North American varieties of 2-Row malting barley average 12% protein on a dry basis. North American varieties of 6-Row malting barley average 13% on a dry basis.

Some of the additional protein comes from the higher husk content of 6-Row malting barley. Because it's more plump, 2-Row malt has less husk in relation to its size than 6-Row malt. Since husk contains protein, some of the additional protein in 6-Row comes from its extra husk.

The resulting S/T ratio in malts produced from North American varieties of 2-Row and 6-Row malting barley are very similar.

Here's an interesting characteristic about the husk of 6-Row malting barley: it sticks to the kernel better than 2-Row! Why does that matter? Well, 6-Row barley that is handled more simply hangs onto its husk better than 2-Row. For instance, specialty malts that are more highly roasted or undergo several processes to develop unique flavor will in general have more husk intact when made from 6-Row rather than 2-Row malting barley.

Enzymes. As a rule of thumb, 6-Row base malts have higher Diastatic Power (DP) than 2-Row, and slightly lower alpha amylase. Newer varieties of North American 2-Row malting barley, however, are starting to bridge this gap.

Because 6-Row is an enzyme animal, you may want to use it as a base malt when the grist includes large quantities of non- or low-enzymatic specialty malts. Flavor and color in 2-Row and 6-Row specialty malts

- 1) Base malts. We've already discussed flavor. What about color? No difference. Let's move on.
- 2) Highly temp kilned malts. Now it gets interesting. The slightly higher protein content of 6-Row malting barley makes it develop color faster when high temperatures are applied during the specialty malting process. Why? And why is this important?

The amino groups in proteins are an integral part of the color development process. More protein = more amino acids = faster color development. Because 2-Row malting barley has less protein on average, the maltster has to apply heat for a longer period of time to develop the target color.

The result? Same color. Slightly different flavor. That's one reason why we produce both 2-Row Munich-style malts (Bonlander® Munich and Aromatic) and their 6-Row Munich-style twins (Munich 10L and Munich 20L). More flexibility. More options.

Keep in mind, however, that this is also a generality. Different varieties of both 2-Row and 6-Row malts perform differently in the specialty malting process.

In addition, the flavor differences are subtle. Like standard base malts, the impact of 2-Row highly temp kilned malts is often lost when masked by intense malt and hop flavors.

If you want to switch from 2-Row to 6-Row Munich-style malts but are concerned about the subtle flavor differences, make the switch gradually. If 10% of your grist bill is Bonlander® Munich Malt, replace it with 5% Bonlander and 5% Munich Malt 20L first to see if you notice the difference.

When used in small amounts, the flavor difference between 2-Row and 6-Row Munich-style malts is very difficult to detect.

3) Roasted Malts. Because intense temperatures are used to produce roasted malts, including Briess caramel malts, we detect no flavor difference between 2-Row and 6-Row styles.

Because of this, dark roasted malts offer the greatest flexibility in price and availability of all three malt categories. We produce almost every dark roasted malt from both 2-Row and 6-Row, which means you can brew all 2-Row if you choose. If price is critical, 6-Row performs great too.

Now, back to the question 2-Row or 6-Row? We've given you a lot to think about. Here are key points for review: Both 2-Row and 6-Row malts deliver excellent flavor, color and brewhouse performance. It's a matter of understanding their unique characteristics as well as personal choice.

If price is a critical factor, purchase 6-Row malts. Base and specialties alike perform like champs. If your beer has little or no flavor masking, use a 2-Row base malt (Briess Pilsen Malt is superb!). 6-Row base malts are good choices for most ale styles. Remember, it's not just the grain. It's the overall quality of the raw grain. Whether it's 2-Row or 6-Row, quality malting barley makes quality malt. Poor quality malting barley negatively impacts the flavor and color of the finished malt. 6-Row, domestically produced specialty malts are readily available. So, now it's your decision. And we're happy with whatever you choose, because we make both!

Briess Malting Company