

Title:

Malting Organic Oats, Heritage Wheats, and Heritage Barley

Main idea:

Creating a "Grain to Glass" story enables symbiotic relationships between farmers and breweries - expanding market opportunities and increased crop diversity for farmers, while creating unique experiences for breweries that support community vitality.

Methods:

Three different grain varieties grown (organic heritage barley, organic oats, and organic wheat) have a successful yield history in the Red River Valley and have positive projections in the growing market for a diversity of malt. These three crops were tested throughout harvest 2019 for various components useful for maltster and brewers, such as, protein levels, moisture, and vomitoxin. Once harvested, The grain cannot be "bin run" and has to be cleaned ahead of time (which is another process). The grain was tested in collaboration with NDSU's malt lab and then brought to Vertical Malt with those results on how each grain performs in variations of soaking, sprouting and malting. All grains were 12% moisture or below. After being made into malt the product was then distributed to breweries for the ultimate test of flavor profile. The soaking, sprouting, and malting of the grains were done in large batches of 3000 pounds.

Amazing Grains: Malting and Marketing Diverse Grains for Artisan Craft Breweries

**Results:**

We were able to make connections with several breweries and grow in these dynamic relationships to understand what their market demands in this niche market from a sensory analysis and the ultimate test, good beer that is perceived well by consumers. The grains had a very tough year due to the heavy rain of the 2019 season. Tinka, a German variety, failed (it was difficult to grow and lodged) We are not sure if that was because of weather, or if it was the variety, or a combination of the two factors. Also, the DON was in the 1.9-3.0 ppm range (less than 1 ppm is acceptable). The varieties that worked well were organic Conlon barley, Paul hullless oats, and Red Fife wheat. Moisture for grains should not be above 12% and the protein for malting (barley) must be between 11 and 13.5 %. The grain size can vary, slightly, but it is best to have plumper grains.

Discussion:

Brewing industry is very relationship based and has larger demand for quality control and consistency of product than the restaurant world.

One-off beers/recipes are easier to market local products and enable expansion of consumer mindset about local food-shed.

Selection of grain varieties is very important, as well as working with the chain of supply from field to glass.

There is a necessity for development of malting standards for wheat and oats, we used barley standards and learned from trial and error.

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