



photo courtesy of Conover Farms

Montana Spring Wheat
VARIETIES

HOW CHOOSING THE RIGHT VARIETY
MAKES ALL THE DIFFERENCE FOR THE END USER

MONTANA WHEAT & BARLEY COMMITTEE



WORKING FOR THE BEST

MONTANA
wheat & barley



How Montana Varieties STACK UP

For millers & bakers

Imagine sandwich bread that falls apart in your hands or a delicate pastry that's tough to chew — no one wants that!

To understand your wheat's value to a miller or baker (end user), we need to use a measurement that tracks all wheat properties to help buyers isolate the right grain for their best product outcome. This guide compares varieties against one another to help Montana producers choose the best result for the field -- AND end use performance.

The United States preferred quality ranking is a 1.00 or better Wheat Quality Index (WQI) score. Varieties that display superior index scores can make a critical difference to buyers who are creating a wide range of wheat-based products.



The WQI score is determined by evaluating these milling and baking properties:



FLOUR YIELD
when more flour is extracted, margins increase for the miller



BAKE-WATER ABSORPTION
the amount of water required to make proper dough; increased amount of water results in higher baking yields



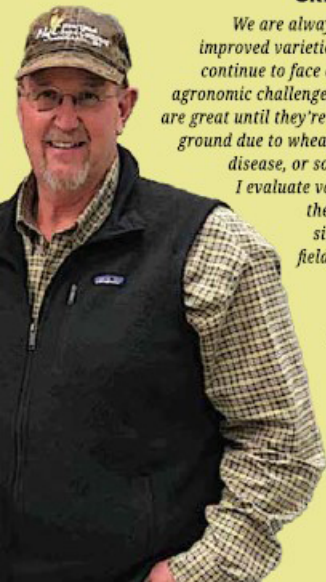
PROTEIN CONTENT
a collective of carbohydrates, vitamins, minerals and gluten that is valuable for the end product

Producers Weigh In:

**CHARLIE BUMGARNER
GREAT FALLS**

We are always looking for improved varieties because we continue to face economic and agronomic challenges. High yields are great until they're laying on the ground due to wheat stem sawfly, disease, or something else.

I evaluate varieties and if they all perform similarly in the field, I'm going to choose the variety that performs the best for the end user.



MIXING TOLERANCE
the measure of gluten strength; this measurement tells the baker the appropriate mix ratio before gluten breaks down, preventing deflated baked goods



MIXING TIME
the length of time a baker can mix dough before it breaks down; an extremely long peak mix time is undesirable; higher protein reduces mix time



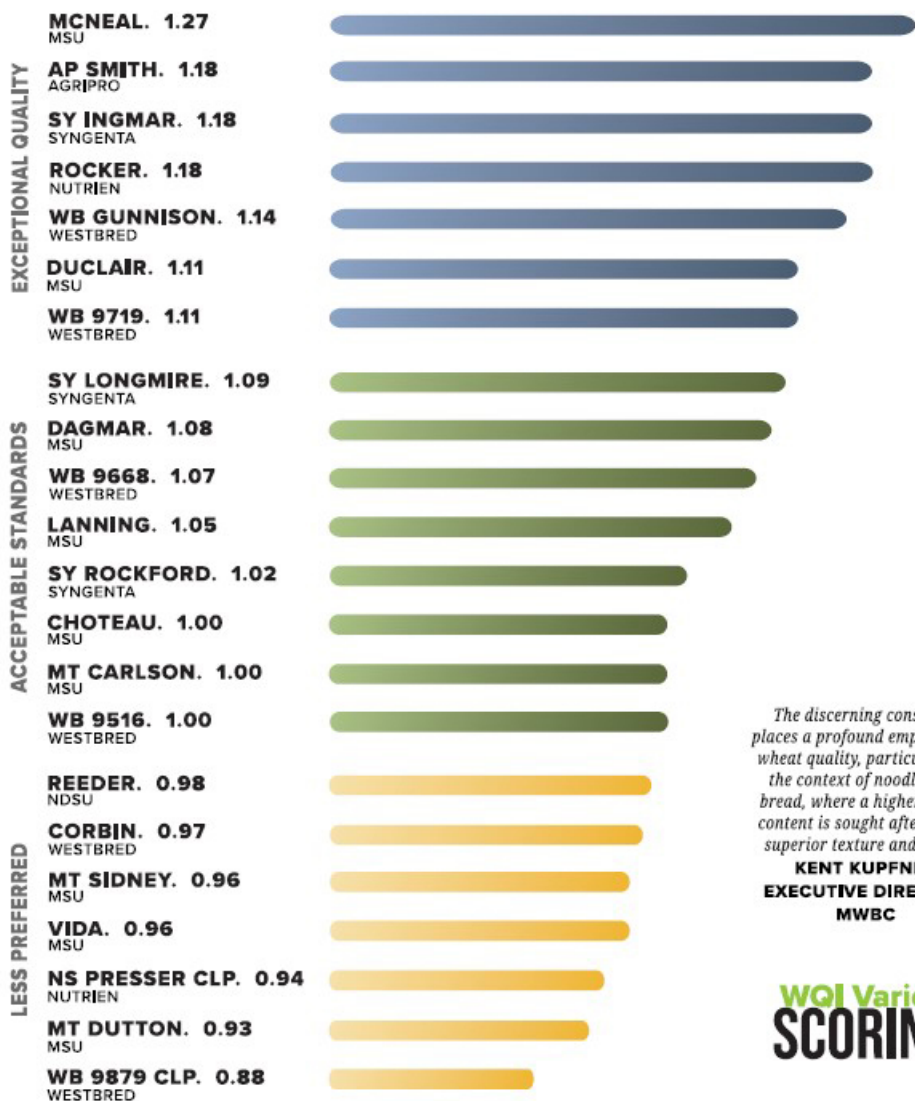
SINGLE KERNEL HARDNESS
helps millers adjust their tempering; too hard will take more energy to process



LOAF VOLUME
a vital aspect to consumer perception of value including aerated crumb and superior texture; a higher value helps a baker adjust loaf volume

When deciding between two varieties with similar agronomic characteristics and yield potential, choose the variety with a higher WQI score. Quality ratings are independent of yield, agronomic and disease traits, and may differ from quality evaluations conducted by other private or public entities. The data below is based on results from trials conducted by Montana State University over a three-year, multi-location average.

The Cereal Quality Lab at Montana State University scored 21 varieties planted by Montana growers using traits targeted by the US Wheat Quality Council. These properties are determined by millers and bakers across the US and are consistent with international buyer demand. As an industry, our goal is to support research that improves agronomic results while requiring higher end use scores.



The discerning consumer places a profound emphasis on wheat quality, particularly in the context of noodles and bread, where a higher gluten content is sought after for its superior texture and flavor.

KENT KUPFNER
EXECUTIVE DIRECTOR
MWBC

WQI Variety
SCORING

Sharpen THE SAW

A word from end users on the imperative value of improving Montana varieties

JAPANESE FLOUR MILLERS ASSOCIATION TOKYO, JAPAN

Japan relies on imports for more than 90 percent of its wheat needs, with about half of that coming from the US to make bread, ramen, cookies and cakes. The reason we choose to use US wheat is because of its quality, particularly its gluten strength. We hope that we can continue to get consistently high quality and safe wheat from the US. A significant portion of our hard wheat supplies are shipped from Montana. We also believe that breeding high quality wheat and planting high quality wheat will increase US wheat demand and enrich Japanese food.

BILL HARP PLANT MANAGER, GENERAL MILLS, INC.

I grew up on a wheat farm in Kansas, graduated from Kansas State with a degree in Grain Science, and have worked in flour mills for 30 years. Montana by far produces some of the best wheat I've have ever seen, even on our worst years with drought and other challenges. Regardless, I think it is critical that we continue to improve our wheat quality and raise the bar for everyone who buys and uses wheat in all markets.

As wheat and barley industry leaders, Montana producers recognize our role in setting the bar for quality. Our opportunity has never been stronger to advance varieties which yield more bushels per acre but also meet higher quality standards demanded by our customers.

At the Montana Wheat & Barley Committee, we accept the challenge to constantly "sharpen the saw" in variety development. Producer checkoff dollars invested in Montana State University research has a long history of trait development that has increased productivity and financial results for Montana growers. All buyers are keenly in tune with end use data and they stay in contact year-round with MWBC keeping track of crop progression throughout the growing season.

Montana growers, through MWBC, provide market development funding to groups such as US Wheat Associates and the Wheat Marketing Center. These groups facilitate trade team visits to Big Sky Country, typically arriving during the summer production months.



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