

Bringing Back the Bread

AURI, MWR&PC research investigates digestibility of wheat

By Doug Monson
Ag Management Solutions

Close your eyes. Imagine the smells of your favorite dinner. Perhaps it's ham, potatoes, corn. Now imagine the same dinner without bread.

Home-cooked, delicious bread. For many people across the U.S., this is reality. While approximately 1% of the population has celiac disease, a chronic digestive and immune disorder that damages the small intestine brought on by eating foods containing gluten, many more suffer from gluten sensitivity.

The Agricultural Utilization and Research Institute (AURI), in partnership with the Minnesota Wheat Research & Promotion Council (MWRPC) and the University of Minnesota, was awarded an Agricultural Growth, Research,

& Innovation (AGRI) Crop Research Grant from the Minnesota Department of Agriculture (MDA) to fund a two-year study on gluten sensitivity.

"Gluten sensitivity is real, and people want to enjoy savory breads, comfort pastas and decadent desserts," said Charlie Vogel, MWRPC executive director. "Figuring out the AND of that statement holds tremendous market potential and quality of life for individuals. This research and supporting grant are so important, not only for the consumer, but for the entire industry."

The study, done in conjunction with the Agricultural Utilization Research Institute (AURI), the

Many sourdough products sold in stores aren't sourdough. An indicator of whether or not bread is sourdough comes down to three key ingredients, salt, flour and yeast. Sourdough labels with a laundry list of ingredients generally aren't sourdough.

University of Minnesota's College of Food, Agricultural and Natural Resource Sciences and its Regional Sustainable Development Partnership, and Back When Foods, Inc., aims to better understand wheat digestibility by looking at fermentable oligo-, di-, monosaccharides and polyols (FODMAP) and amylase-trypsin inhibitors (ATI) and the role each plays in digestion. The overall study hopes to answer a few questions: Is breeding an issue? Can processing reduce negative impacts? What is a pathway for the industry to implement the research?



UMN wheat breeder Dr. Jim Anderson presented an update at the Prairie Grains Conference in December. Anderson has been working to answer the breeding question.

In his research, Anderson compared the FODMAP and ATI levels of 46 heritage wheats (grown before 1970) and 142 modern wheats with a good representation from each decade but with an emphasis on recent varieties. Some of the results were encouraging while others were head scratchers.

"The difficulty is FODMAPs are likely controlled by several small genes," Anderson said. "There's no clear path. It doesn't mean we can't breed for them, but it'll take some time to figure out."

The study has shown some positives in ancient grains, such as Einkorn and Emmer, which could be beneficial for growers of these grains.

Dr. Michal Ganzelle, a professor at the University of Alberta well known for his work in this arena, was very blunt with the attendees.

"The thing that really changed over the last 100 years," he said, "it's not the wheat, it's not the farmer or the breeders, it's the processors."

The work Dr. George Annor, UMN Assistant Professor, Dept. of Food Science and Nutrition, and Brian LaPlante, owner of Back When Foods, are doing to understand processing is also important. Together, they have studied more than 600 samples of sourdough from the St. Paul and St. Cloud areas. There is a belief that longer, traditional processing of bread allows time for the FODMAPs and ATIs to break down.

As a pathway forward to implementation, AURI is looking at creating a verified sourdough process much like Monash University in Australia, which boasts a low-FODMAP Certified program.

Whether a person has celiac disease, has a true intolerance for gluten crops, or is a fad eater, LaPlante says establishing a consistent, trustworthy

program is critical.

"Process verified is so important," LaPlante said. "We can't blur the lines here for consumers."

AURI Business Development Director Harold Stanislawski

notes that a verification process will soon be needed due to innovative products from LaPlante and fledgling companies like Three Farm Daughters artisan pasta.

"We will have a few companies enrolled early in this that will truly have low-FODMAP products that consumers are looking for," he said.

Learn more about the study at auri.org/access-auri-services/partnerships/agri/



Advertorial

HELPFUL TIPS TO PLAN AHEAD FOR 2022 PLANTING

By Peter Comis, WestBred® Regional Commercial Manager, Northern Region

The 2021 growing season was unlike what many have ever seen or, at least for the older growers, not experienced in a long time. Growing wheat in the difficult weather conditions resulted in many observations about placement and management of wheat varieties. We learned that proper placement and planting of WestBred® wheat varieties is important for maximizing yield potential, and there are some factors to consider that can help get the 2022 crop off to a good start.

- 1. Planting Date** – Field conditions and weather will dictate when we can plant, but targeting the earlier end of the planting window is typically the best practice. Being timely with planting is not always easy. However, being prepared to plant when field conditions are optimal should be the goal.
- 2. Variety Selection** – It is highly recommended to plant multiple wheat varieties on the farm each season. Just as important is matching wheat varieties with the soil types and growing conditions they are targeted toward. Placement can be key to maximizing performance potential of wheat varieties. It is also a good idea to divide a field and plant different wheat varieties for a side-by-side comparison.
- 3. Plant Certified Seed** – In 2021, 46% of National Wheat Yield Contest winners won with WestBred wheat certified seed only (CSO) varieties. CSO varieties offer current genetics and improved disease protection and protein potential.
- 4. Seed Depth and Placement** – Check your seeding depth for a 1.5-inch target depth at the start, and recheck the seed depth throughout planting. Also, check that all row units are dropping seed and are not dogged. Planter maintenance is important for planting seed correctly and accurately.
- 5. Seed Treatment** – Planting wheat early can offer many advantages. The earliest-planted wheat, however, has the highest likelihood of facing adverse growing conditions as the young plants try to establish a stand. Fungicide and insecticide seed treatments can help protect young seedlings from diseases and insects and are recommended on all seed being planted.

For additional information, contact Peter Comis, WestBred Regional Commercial Manager, Northern Region at 919-600-3788, or peter.comis@bayer.com.

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