Wheat Producer's Advantage
SD WHEAT GROWERS ASSOCIATION
August 2022
SUSTAIN OUR FOOD FUTURE | GROW WHEAT

Dinner, Prizes and Education

There is Still Time to Win the PerkinElmer Grain Analyzer by joining us at state wide meetings or on-line at sdwheat.org.

Join the SD Wheat Growers Association for their District meetings! Watch for a postcard with locations.

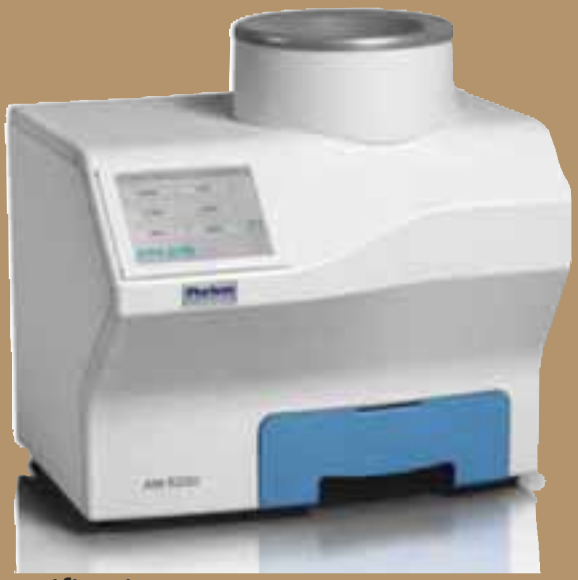
1) Farm Bill progress in Washington by NAWG CEO Chandler Goule
2) Property Tax Summer Study update by Caren Assman
3) Video "Meet the People Killing our Planet" Senator Booker
4) Dinner and a short survey.
5) Join SDWGA for a chance to win the PerkinElmer Grain Analyzer.

We have a new name and can't wait to tell you about it! The SD Wheat Growers Association will be holding District meetings with dinner and education across the state. And we encourage you to join us!

Meetings will be held during the end of August and the first of September. Following a meal, we will share a short educational video which tells a story that most of you have not heard called "Met the People Who are Killing Our Planet." National Association Wheat Growers, CEO Chandler Goule explains why Senator Booker, Member of the House Ag Committee, would produce such a video and how your help is need for to pass the farm bill. We will take time to complete a short survey and encourage producers to share their thoughts about the future farm bill. For those who participate in the survey, prizes are available.

SD Wheat Growers Assn. benefit package will be presented by our Executive Director Caren Assman and area Directors. Non-members who choose to join the SD Wheat Growers Association will receive two tickets for a drawing for a new PerkinElmer grain analyzer worth over $11,500. Renewing members will receive one ticket for the drawing, which will be held at Ag Horizons on November 29 & 30, in Pierre at the Ramkota. Call the SDWGA office at 605-224-4418 or email to register for dinner and much more!

If you cannot attend the District meetings, go to SDWHEAT.ORG. Click on SD Wheat Growers Assn. to become a member and receive two tickets for the Perkin Elmer Grain Analyzer.



Specifications

Products: Grains and Oilseeds
Parameters: Moisture, Protein, Oil, Wet Gluten and more
Available Calibrations: Wheat, Durum, Barley, Canola/Rape seed, Sorghum, Corn and Soybean
Analysis Time: ~90 s
Sample Size: ~400 ml
Subsamples: Up to 10 per sample
Analysis Principle: Diode-array detector, Transmittance
Wavelength Range: 850-1050 nm
Size (W x D x H): 349 x 265 x 274 mm
Weight: 7 kg
Interfaces: 4 x USB-A ports, 1 x Ethernet port (RJ45)
Display: 5.7" color touch screen
Protection: Dust and humidity protected
Battery Operation: ~2 hrs.
Positioning: GPS module, connected through USB port
Ambient Temperature: 5-45 °C

Cassady named dean of SDSU's College of Agriculture, Food and Environmental Sciences

Joseph Cassady

Joseph Cassady has been named the South Dakota Corn endowed dean of the College of Agriculture, Food and Environmental Sciences at South Dakota State University. John Killefer, the college's previous dean, has accepted a faculty position with SDSU's Department of Animal Science.

Cassady has served as head of the SDSU Department of Animal Science since 2013 and has also served as the college's interim head of the Department of Dairy and Food Science. He received the 2019 Dr. Harold and Barbara Bailey Award for Excellence in Academic Department Leadership.

"We're excited about the future of the College of Agriculture, Food and Environmental Sciences with Dr. Cassady's leadership," said Dennis Hedge, SDSU's provost and vice president for academic affairs. "Throughout his time at South Dakota State University, Joe has developed relationships with many stakeholders in our state and he will utilize those strong relationships to move the college into a bold future.

"Agriculture education, research and outreach has been at our university's core since SDSU was founded in 1881, impacting thousands of South Dakotans and the hundreds of communities in our state. Dr. Cassady will build on the college's tradition and lead the faculty and staff into an exciting future," he continued.

During his time at SDSU, Cassady contributed to the design and construction of the Cow-Calf Education and Research Facility and the Swine Education and Research Facility. Under his leadership, the Department of Animal Science has increased undergraduate enrollment by 15% and doubled graduate student enrollment. The department also established two endowed faculty positions and successfully met the fundraising goal for the Kohler-Gee Livestock Judging Team Endowment.

"I am excited to accept this new role and work with our world-class faculty, field specialists and dedicated staff to advance food production," Cassady said. "Agriculture is instrumental to the South Dakota economy and graduates of our college are working on farms and ranches throughout the state. We are committed to developing the next generation of ag leaders and working with stakeholders to advance best practices to protect our environmental resources. I look forward to those opportunities and working to have a positive impact both locally and globally."

Cassady received his bachelor's degree in animal science from Iowa State University and his master's and doctorate degrees in animal science from the University of Nebraska-Lincoln.

Before starting at SDSU, Cassady rose to the rank of professor in North Carolina State University's Department of Animal Science and worked as a research associate in genetics and breeding for the Agricultural Research Service with the U.S. Department of Agriculture at the Meat Animal Research Center in Nebraska.

Priorities for the 2023 Farm Bill

The National Association of Wheat Growers (NAWG) is engaging grower members from across the country to prepare for the next Farm Bill. NAWG will continue to seek input from our members on programs that are working, areas where modifications are needed and refine our priorities. NAWG is engaging in discussions with Members of Congress, Congressional Committees, the Administration and our counterparts leading up to the reauthorization of the Farm Bill. As the House and Senate Agriculture Committees continue to review the 2018 Farm Bill, NAWG shares these priorities as we work towards reauthorizing the Farm Bill in 2023.

Farm Support Programs

- Crop insurance is a critical risk management tool for wheat growers. NAWG opposes any cuts to crop insurance that may jeopardize the capability of the partnership between the federal government and the private insurance industry to deliver risk protection to our members effectively.

- Recognizing the vital role of crop insurance in the farm safety net, NAWG supports enhancing crop insurance so it can remain affordable and increase its utility and effectiveness.

- The Title I farm safety net programs Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) play an important role for wheat farmers. However, NAWG recommends increasing the statutory reference price for wheat to help cover the increased cost of production.

Conservation

- Farm Bill Conservation programs provide wheat growers with a variety of voluntary approaches to adopt conservation practices that are appropriate for their operation. NAWG supports continued funding for financial and technical assistance through voluntary conservation cost-share programs.

- Voluntary conservation programs should be utilized for expanding the adoption and maintenance of conservation practices and commodity or crop insurance programs should not be utilized to deliver conservation assistance. Voluntary conservation programs should provide a wide range of conservation options for all producers in all climates and all regions of the country.

- There are ongoing challenges for USDA in addressing conservation compliance, including backlogs in wetland determinations and adequate staffing to support the current workload. NAWG opposes any efforts to expand conservation compliance.

General

- Given the current challenges facing agriculture, NAWG recommends Congress increase the budget authority to support Farm Bill programs. Farmers have experienced unprecedented volatility in agriculture markets and increased production costs in recent years, and this additional budget authority should be used to strengthen our food production safety nets.

- Wheat growers face various challenges each crop year and it is important they have predictable access to a variety of crop protection tools to enable conservation practice adoption and management and the production of a consistent, quality wheat crop to feed a growing world population.

- With half of all wheat grown in the U.S. destined for export, the Market Access Program (MAP) and Foreign Market Development (FMD) program significantly enhance agricultural exports. NAWG recommends doubling the funding for MAP and FMD to bolster these public-private partnerships.

- Farm Bill policies should support internal data sharing between USDA agencies while protecting the confidentiality and nonpublic disclosure of individual grower data.

Margaret Evans

Wheat Genome

Scientists were surprised to discover that the gene that increased yields also resulted in higher protein levels

Researchers have identified a genetic driver in wheat that improves wheat yield and can increase protein content by as much as 25 percent.

The discovery of a gene that controls these two desirable factors has the potential to expand wheat breeding and generate new varieties.

"Our research aims to understand the genes that control ear development in wheat because it has been identified as a trait that could be improved to increase yield," said Scott Boden of the School of Agriculture, Food and Wine at the University of Adelaide in Australia.

The wheat genome is five times larger than the human genome and originates from three highly similar sub-genomes. Mapping the genome in 2018 opened opportunities to identify and understand wheat gene characteristics, such as yield. — Robin Booker photo

"For this specific study, our objective was to identify genes to determine the number and arrangement of grain-producing florets that form on a wheat ear, which we did by screening a mutant population."

Boden said that very little is known about the biological processes behind the genes that control the florets that grow on the lateral branches of wheat.

The study, which included researchers from the University of Adelaide and the John Innes Centre in the United Kingdom, is the first known example where a forward-genetics screen of a mutant population was used to identify the gene controlling reproductive development.

"A forward-genetics screen refers to the screening of a mutant population for lines of interest which are selected based on phenotype, which in our case was modified wheat ear architecture," Boden said. "From this, scientists then perform genetic assays to hone in on the causal mutation to identify a key gene. In simple terms, it's a bit of a lucky dip approach."

The huge and complex wheat genome was deciphered in 2018. It is five times larger than the human genome and originates from three highly similar sub-genomes. That milestone opened opportunities to identify and understand wheat gene characteristics.

The research team identified the HB-2 gene on wheat A and D sub-genomes, which generate more flower-bearing spikelets and enhance protein content. The HB-2 gene's expression, or function, is associated with modified leaf and vascular development and increased amino acid supply to the florets during grain development. Boden wrote in the report that the finding enhanced their understanding of genes that control inflorescence development at the same time introducing ways to improve the grain's nutritional quality.

The genetic variation in the study produced paired spikelets which, Boden said, are a trait where two spikelets form at a given position on the wheat ear as opposed to a normal, single spikelet.

"Even though these lines produced extra spikelets, they did not increase the grain number per ear, most likely due to fertility issues with some of the extra spikelets," he said. "In the grain that formed, which was roughly the same as the sibling lines with normal spikelets, there was higher levels of protein. We believe this is caused by increased distribution of amino acids or nitrogen to the developing grain."

The evidence of higher levels of protein took him by surprise.

"We had no idea that the gene would also influence grain protein content. However, this shows that fundamental research can lead to some unexpected and significant outcomes with applied benefits."

While the researchers did not detect a yield increase with the extra spikelets, Boden is hopeful a yield increase might come in elite varieties grown by farmers. What was encouraging was that the increase in protein content occurred without any trade-off such as the possibility of reduced yield.

The research findings were published recently in the journal Science Advances.

By Mark Fowler, USW Vice President of Global Technical Services

Defining U.S. Wheat's Comparative (Competitive) Advantage: Hard Red Spring

This post discusses the value U.S. wheat brings to the global market. HRS is the second largest wheat class with a five-year annual average production of 13.7 million metric tons (MMT)or about 504 million bushels as of 2020/21. It accounts for about 26% of the total wheat produced in the United States.

The three subclasses of HRS include Dark Northern Spring (DNS) with 75% or more of dark, hard and vitreous (DHV) kernels; Northern Spring (NS) with 25% or more but less than 75% DHV kernels; and Red Spring (RS) with less than 25% DHV kernels.

Milling Advantages

U.S. HRS wheat poses some unique opportunities and challenges to the miller. HRS is the hardest of all the non-durum classes of wheat but also has the smallest average kernel size. Millers experienced with HRS in their grist know excellent results can be achieved with some adjustments.

First, adjusting the screen sizes of separating equipment in the cleaning house will reduce the risk of losing good quality but also results in smaller kernels. A longer conditioning time is needed to ensure the tempering water fully penetrates the harder HRS wheat kernels. Optimal conditioning time is dependent on several factors, but in most cases, HRS will require a minimum of 20 hours for optimal conditioning time. The miller's reward for these adjustments is higher than average flour yield from the harder, more compact HRS endosperm. The hard endosperm creates excellent granulation through the break system to provide an abundance of stock to the purifiers. This allows the miller to maximize flour with low ash and excellent color throughout the head end of the mill.

Baking Advantages

Because of the high protein content and strong dough characteristic of U.S. hard red spring wheat flour, it is commonly used in a blend to of a lower protein base flour. Only a few end products such as artisan-style bread, whole wheat products, and bagels may be made with 100% HRS flour to achieve optimal performance. For nearly any type of bread or leavened bread product such as thick pizza crust, the greatest value of HRS flour comes from blending it with a lower protein, lower-cost flour to create optimal ingredients for individual products. In markets where consumers demand a "clean label," HRS flour blended with HRW or other wheat flour can create better water absorption and loaf volume while using less or no chemical dough improvers. And many pasta makers around the world know that when traditional durum wheat semolina is not needed, HRS wheat flour or semolina is a very acceptable alternative.

U.S. Wheat Advantages

As we highlight each class in this series, let us not forget the advantages that all U.S. wheat classes bring to the market. First, and perhaps the most important, is consistency in quality and supply. Although each new crop year brings different challenges and opportunities, U.S. wheat is always available to the global market. Second, U.S. wheat delivers variety. Wheat is a raw material manufactured into a bakery ingredient, flour. The flour made from each unique class of U.S. wheat brings value to the market in the unique quality characteristics to make a variety of baked goods and noodles. It is also important to understand the value of blending flour from one or more types of wheat to optimize the flour performance at a minimal cost.

Each region, country, and culture have that are uniquely their own. With six unique wheat classes, the United States has the right wheat class to deliver the optimal quality and value for every variety of products on the market.

Question, Persuade, Refer (QPR)

SDSU Extension provides support for our producers and their families by providing certified QPR instructors to train groups at no cost to participants.

ABOUT QPR

Suicide rates among people who work in agriculture are estimated to be approximately **1.5 times higher** than those in other occupations.

QPR is a one-hour training that teaches three simple steps that anyone can learn to save a life from suicide. Just as people trained in CPR help save thousands of lives each year, people trained in QPR learn how to recognize the warning signs of suicide crisis and learn how to question, persuade and refer someone to help.

QPR'S MISSION

To save lives and reduce suicidal behaviors by providing innovative, practical and proven suicide prevention training. We believe that quality eduction empowers all people, regardless of their background to make a positive difference in the life of someone they know.

Learn how to . . .

- **Recognize the warning signs of suicide**
- **Offer hope**
- **Get help**
- **Save a life**

Certified QPR instructors can offer one-hour in-person or zoom training sessions at your next meeting or conference.

Interested in hosting a QPR training session at your next event? Contact:

Andrea Bjornestad, SDSU Extension Mental Health Specialist

andrea.bjornestad@sdstate.edu | (605) 688-5125 | extension.sdstate.edu

South Dakota State University Extension