Wheat Producer's Advantage
SD WHEAT GROWERS ASSOCIATION
January 2025
SUSTAIN OUR FOOD FUTURE | GROW WHEAT

2024 Ag Horizons Conference

Pam Geppert

During the 2024 Ag Horizons Conference held in Pierre on December 3rd, the U.S. Department of Agriculture (USDA) NRCS serving South Dakota awarded the 2024 Excellence in Cooperative Conservation Award to Pam Geppert at Dakota Farm Talk for her role in innovative approaches that protect our environment, bolster the agricultural community, and enhance local economies. Since 1990 from her Brule County ranch office, Pam's two-minute radio stories have kept South Dakota's agricultural industry up-to-date with farming, ranching, and technical conservation topics.

State Conservationist, Tony Sunseri commended her saying, "We thank Pam for her dedication to sharing the story of conservation and mindful agricultural practices. Dakota Farm Talk's communications network across the state of South Dakota is invaluable and we appreciate her support."

Winners of the Cooperative Conservation Award are selected by NRCS employees who nominate individuals or groups that have performed outstanding cooperation with NRCS in natural resources conservation issues. This award demonstrates the winner's ability to communicate, grow, and remain progressive in the pursuit of restoring and preserving the health of our state's natural resources. Geppert's insight to farm and ranch life makes her stories relevant for listeners across South Dakota. "Pam has the excellent ability to take our agency's conservation science updates and deliver it concisely for our ag producers and stakeholders," said Sunseri, "and for that, we appreciate Pam.

Highlights

This issue of Wheat Advantage/Prairie Grains shares some of the keynote messages and speaker information presented at 2024 Ag Horizons Conference held in Pierre on December 3 & 4th. The 16 speakers allow us to offer Continuing Educational Credits for Pest Management, Crop Management, Soil and Water, Professional Development and Nutrient Management. Whether you are an agronomist or working to improve your farm operation, education is a key component to success.

A sincere thank you to our attendees and our sponsors: Burlington Northern Santa Fe, Farm Credit Services of America, Syngenta Agri Pro, SD Wheat Commission. And no conference would be complete without the continued support of the exhibitors who share no technology, information and continuing trends. BASF, CHS River Plains, Golden Grains, Grossenburg Implement, Limagrain Cereal Seeds, Nuseed, SD Crop Improvement, SDSU Plant Diagnostic Clinic, Shelbourne Reynolds, SD Soil Health Coalition, USDA/NASS, USDA/NRCS, and the SD Wheat Commission.

Ag Horizons is hosted by seven organizations including: South Dakota Wheat Growers Association, South Dakota Pulse Growers, South Dakota No-Till, South Dakota Oilseeds Council, South Dakota Seed Trade Association, South Dakota Crop Improvement Association, South Dakota Soil Health Coalition.

Jonathan Kleinjan
Executive Director, SD Wheat Commission

Fusarium Head Blight Research Remains Important for South Dakota Wheat Producers

Although much progress has been made in the fight against Fusarium Head Blight (FHB), the disease remains a significant threat to wheat productivity, quality, and food safety. Researchers at South Dakota State University continue to work on innovative solutions to FHB. Here is a summary of some of the research efforts at SDSU:

Dr. Karl Glover, Professor, SDSU Spring Wheat Breeding:

Each year the SDSU-HRSW breeding program inoculates and screens 3,000 to 3,500 rows for resistance to FHB in a mist-irrigated field nursery. During winter months, two additional screening cycles are carried out by inoculating about 2,000 small hill-plots in a mist-irrigated greenhouse setting. By the time a new variety is considered for release, the source population from which it was derived will have been screened for FHB resistance at least six times. After experimental breeding line derivation, five more resistance observations would be collected through replicated field screening nurseries carried out in SD. Along with these observations, however, lines under serious consideration for eventual release are also tested for two to three years within cooperative trials conducted by breeding programs housed in neighboring states.

Dr. Sunish Sehgal, Associate Professor, Winter Wheat Breeding:

The Winter Wheat Breeding Program at SDSU is dedicated to developing and releasing FHB-resistant varieties for South Dakota and the surrounding region. The program generates more than 100 new crosses each year, utilizing parents with native FHB resistance or major resistance genes such as *Fhb1* and *Fhb6*. Annually, over 1,000 experimental breeding lines are screened in the FHB nursery at Brookings to identify resistant lines, which are then advanced in the breeding process. To enhance the efficiency of selecting for FHB resistance, the program employs cutting-edge technologies, including genome-wide selection with thousands of DNA markers. Additionally, near-infrared spectroscopy, hyperspectral imaging, and artificial intelligence (AI) models are utilized to predict resistance levels in lines with insufficient seed for direct screening in the FHB nursery. The program has successfully released several varieties with moderate FHB resistance, including 'Winner' and 'Draper' that are grown on significant acres in South Dakota.

Dr. Shyam Solanki, Assistant Professor, Functional Genomics of Plant Microbe Soil Interactions:

The long-term goal of our translative research is to develop the next generation of biological RNAi fungicides that can be stabilized on biodegradable nano-delivery vehicle. Once optimized, these novel fungicides would serve as a highly efficient targeted disease management tool available to farmers for sustainable control of diseases such as FHB while minimizing the harmful environmental footprint left by use of classical chemical fungicides. To achieve this goal one of our approaches is to identify the spatiotemporal expression of conserved, yet critical host and pathogen genes that are positively contributing towards the infection mechanism of FHB pathogen *Fusarium graminearum*. The expression or suppression of these genes will be achieved using siRNA molecules/CRISPR-Cas9 technology to establish their functional validity on disease suppression.

(Continued on page 8)

Jason Edelman
Senior Vice President of Lending—Farm Credit Services of America

Downturn Requires Different Way of Thinking about Your Operation


Jason Edelman

Downturns in agriculture are nothing new to producers, but no two are the same. A return to tighter margins requires a different way of thinking, strong financial management and discipline around planning and marketing.

At Farm Credit Services of America (FCSAmerica), we are working with customers to help them prepare for the uncertainty and unknowns that lie ahead. Along with challenges, downturns offer opportunities for those who are proactive and position themselves for potential growth.

Here are a few factors to consider as you prepare for 2025 and beyond.

Commodity Prices. While off their recent peaks, grain prices remain above those of 2014, when agriculture entered its last downturn. This fall's average price was $4.30 versus $3.17 in October of 2014.

In South Dakota, strong 2024 yields helped many producers bushel through lower prices. How does that work? If projected corn price drops from $4.75 to an actual of $4.00, it takes roughly 20% more bushels to offset that drop in price. Fortunately, above average yields were achieved on a portion of our state's crop rotation.

Inflation. The cost of production reached all-time highs in recent years and inflation is proving sticky.

Farm equipment and repairs, for example, are up 33% and 31%, respectively, according to the Federal Reserve. Even if you aren't planning to buy new equipment, maintenance and repairs likely have increased your costs.

Living costs for farm families – averaged across 2.6 to 3.2 people – are up 19% on average in the U.S. Based on data from the Economic Policy Institute and what we see on balance sheets, South Dakota farm families with two parents and two kids spend about $115,000 a year on living costs. If you farm 2,000 acres and have no off-farm income, that is $57.50 an acre right off the top for family living.

Treat your higher living and operating expenses as permanent, and make sure you account for all your expenses in your breakeven. If it isn't already your practice, calculate your breakeven at the field level. Marketing in this environment isn't about hitting home runs but base hits. Every opportunity to sell above your breakeven is a win.

Working Capital. Your working capital is the difference between what you plan to sell in the next year (current assets) and what you must pay back in the next year (current liabilities).

Fortunately, agriculture enters this new cycle in a strong financial position. We have seen some deterioration in working capital this past year, but it is still well above 2014 levels. Now is the time to take steps to proactively protect your financial position.

Some producers have already begun to sell under-utilized assets to preserve working capital. Strong marketing and risk management plans can help minimize or avoid the losses that burn through working capital in a down market. And refinancing or extending long-term debt can free up money; however, refinancing isn't as easy now that interest rates have returned to historically normal levels.

2025 and beyond will require our producers to 'think differently'. The right strategy for one producer might not work for the next. Leverage the expertise of your advisors, including your lender and crop insurance agent, to devise a plan that puts you in control.

AG HORIZONS CONFERENCE

NAWG | NATIONAL ASSOCIATION OF WHEAT GROWERS
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National Wheat Yield Contest 2024 Winners

The National Wheat Yield Contest announced the 26 national and 94 state winners for 2024-the ninth year of the contest. This year's contest had 516 entries, the most ever. "The new website, along with all our great partners promoting the contest and good growing conditions in most wheat-growing states early last spring, created more interest and enthusiasm for the contest. We appreciate all the growers who participated and our partners who supported the contest. Congratulations to all the winners and to everyone who is learning how to raise higher yield and quality wheat through their experiences in the contest," said Bernard Peterson, National Wheat Foundation Chairman and Bardstown, Kentucky Farmer.

The National Wheat Yield Contest encourages wheat growers to strive for high yield, quality, and profit while trying new and innovative wheat management strategies.

Out of the 26 national winners, seven are new national winners this year, 19 have placed nationally in the past. Two of the winners are from the new category, Digital Yield, which ran as a pilot in dryland spring wheat only in 4 northern plains states. "We are pleased with how the pilot digital yield category went and how much we can learn from it. We expect to continue this type of category and will take time this winter to gather feedback from the participants and our partners who helped us develop this category to refine it even more," said Anne Osborne, National Wheat Foundation Project Manager.

All 26 national winners will ship in a wheat sample to be tested for quality parameters, including mil-

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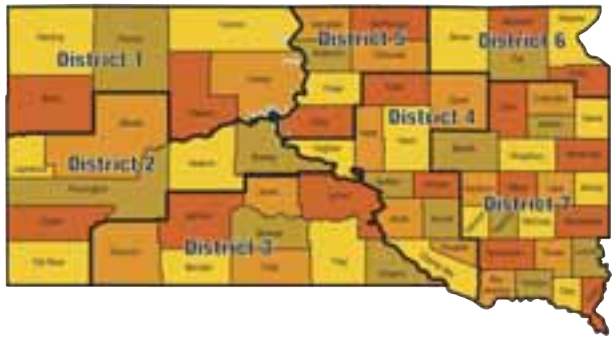
South Dakota 2024 Wheat Yield Contest Winners



Even with tough weather conditions throughout 2024, South Dakota wheat producers submitted high yielding, high quality wheat for our ninth Annual Wheat Yield Contest hosted by SD Wheat Growers Association. Winners include:

Name	Type of Wheat	District	BPA	
Adam Roseth	Winter Wheat	District 2	122.79	1st
Levi Neuharth	Winter Wheat	District 2	73.5	2nd
Lee Lubbers	Winter Wheat	District 3	135.78	1st
Tom Biddle	Winter Wheat	District 4	105.3	1st
Tom Biddle	Winter Wheat	District 4	88.82	2nd
Luke Holzworth	Winter Wheat	District 7	111.75	1st
Luke Holzworth	Spring Wheat	District 7	88.19	2nd

First place winners receive $500 and 2nd place receives $200 in each of our seven districts across the state. Applications for 2025 must in to the SD Wheat Growers Association, office by May 15. Applications can be found at our local sponsors or at www.sdwga.org, emailed to sdwga@midco.net.

Thank you to our sponsors who make this contest possible. All sponsorships are used for prize money. Sponsors include CHS River Plains, Agtegra, Oahe Grain Corporation, Sioux Nation, and Dakota Mill & Grain.

John Melius

A Standing Room Only Funeral

Many of my clients have heard me ask the question, "What defines success for your operation?"

John Melius

Each client responds differently, and the answers are important. As we work together to create a plan, knowing your definition of success helps us understand who you are, what you value, and what you aim to achieve as a business and as a person. Your unique goals help guide and shape your overall market plan and specific action items. Defining success is a positive step for your operation.

In addition to reflecting on success, now also ask yourself, "What does it look like to live a life of significance?" There is a subtle difference in the question, but a vast difference in the answer.

— Success = Outcome of several actions, to be evaluated LATER

— Significance = Intentional actions taken RIGHT NOW

Success is an outcome: the combination of various life decisions and, let's face it, luck. Significance is a guiding principle for every action a person takes.

Success is an outcome.

Significance is a guiding principle.

Many people strive for success in the eyes of the world, but few seek out a life of significance.

Significance is the perpetual pursuit of improving someone else's life. It has no benchmarks or measurable goals but is rather an ever-improving state of personal growth–to be a better version of yourself every day.

Significance creates inflection points in another person's life to lead them on a better trajectory. As a person of significance, you show up when it is easier to stay away. You ask the tough questions rather than staying superficial. You show gratitude for the people and experiences that have shaped you. You respect opposing viewpoints even when you don't agree, and you evaluate others' ideas with humility rather than thinking you have all the answers. In summary, selfless thoughts and actions guide you through your day.

When we have the opportunity to interview someone who wants to join our team at Hurley, one item we evaluate is whether his or her natural inclination is to pour into (give) or syphon (take) from other people in his or her life. Do his or her actions show that others matter more than self, or are the actions done in self-interest? If people are inclined to take, they may achieve financial success, but significance is out of reach.

— Takers create transactional relationships. "You are only as good as the next thing you do for me."

— Givers cultivate relationships of significance. "I'm grateful that you trust me, and I look forward to long-term success, because we have each other's interests at heart."

Recently, a client told me that he wants to live his life so there is standing room only at his funeral. His day-to-day actions reflect those intentions. He takes a genuine interest in others. He smiles. He avoids blaming others for difficulties he encounters. From my perspective, he intentionally strives to live a life of significance, which I believe contributes to his operation's success.

A true life of significance is one that stems from our Christian identity: to serve.

Consider the following questions to help lead you down a path of significance.

— What do I want this relationship to look like in five years? What specific action can I take today to move it on that trajectory?

— Each of us has the same 24 hours in a day. Am I intentionally allocating my time to impact others in a positive way? Or am I allocating all my time to myself?

— Even if the world views me as successful, do my spouse, children, family and friends view me as significant in their lives?

A true life of significance is one that stems from our Christian identity: to serve. To our clients–thank you for allowing us to serve you. As you strive toward a life of significance, we wish you the greatest financial, emotional, and relational success.

Philip Rozeboom

Red Sunflower Seed Weevil Management

In the last few years, red sunflower seed weevils have been the most economically damaging insect pest in South Dakota. Our observations from 2024 indicate that red sunflower seed weevils are still present in very large numbers throughout central South Dakota. Since 2018, researchers in South Dakota and North Dakota have been evaluating the efficacy of insecticides that are commonly used for red sunflower seed weevil management. The results from the last few years and the preliminary results from 2024 indicate that there is a continued trend of decreased insecticide effectiveness for weevil management in sunflower.

Philip Rozeboom

To identify alternative management options, researchers at SDSU and the USDA-ARS lab in Fargo, ND conducted a study evaluating early planting dates as a potential strategy to reduce red sunflower seed weevil infestations. Although the results from 2024 are not finalized at this time, results from the field site at the Dakota Lakes Research Farm in 2022 and 2023 are very promising.

During 2022, sunflower plots were planted at the Dakota Lakes Research Farm on May 16, May 27, June 3, and June 17 and, during 2023, on May 1, May 16, May 26, and June 15. The sunflowers were not sprayed with any insecticides, and large weevil populations (i.e., more than 500 red sunflower seed weevils per head) were observed visiting the sunflowers from all the planting dates. At the end of the season, sunflower heads were sampled and sent to the USDA-ARS Sunflower and Plant Biology Research Unit in Fargo, ND where they were analyzed. The seeds were x-rayed, and red sunflower seed weevil damage is noted for any seeds that have removed tissue (dark areas on the otherwise light seed).

The results indicate that earlier planting dates have reduced red sunflower seed weevil damage. In 2022, the May 16th planting date had 1% damage, the May 27th planting date had 23% damage, the June 3rd planting date had 51% damage, and the June 17th planting date had 96% damage. In addition, 2023 followed a similar trend with damage ratings of 17% for May 1, 41% for May 16, 45% for May 26, and 68% for June 15. Yield (lbs/acre) and Oil (%) can also be seen in Table 1 for 2023.

The results from the planting date studies suggest that sunflower should be planted as early as possible to reduce red sunflower seed weevil infestations and associated damage.

Very large populations of red sunflower seed weevils are present in South Dakota, and they have been shown to be resistant to pyrethroid class insecticides. An earlier planting date could reduce the impact that red sunflower seed weevils have on sunflowers and could reduce the need for multiple insecticide applications within a season due to either insecticide failures or red sunflower seed weevil immigration into the field after application. Although red sunflower seed weevils will still be active in early planted sunflowers, it is thought that the damage caused by red sunflower seed weevils is reduced because flowering was completed before the female weevils began to lay eggs.

Adam Varenhorst (Associate Professor and SDSU Extension Field Crop Entomologist)
Patrick Wagner (SDSU Extension Entomology Field Specialist)
Jarrad Prasifka (Research Entomologist, USDA-ARS, Fargo, ND)
Sam Ireland (Dakota Lakes Research Farm Manager)
Philip Rozeboom (SDSU Extension IPM Coordinator)

Table 1.

Planting Date (2023)	Yield (lbs/acre)	Weevil Damage (%)	Oil (%)
May 1	1774	17	36.7
May 16	1811	41	34.5
May 26	1735	45	33.9
June 15	1347	68	30

Jason Clark

Improving Phosphorus Fertilizer Recommendations in South Dakota

Jason Clark

Phosphorus (P) is a critical macronutrient essential for plant growth and productivity, and it is often a limiting factor in crop yield. Phosphorus is typically taken up by the crop through the process of diffusion where P ions move from high concentrations to low concentrations. One method to improve P uptake by plants is to increase the amount of arbuscular mycorrhizal fungi that are in the soil as these microorganisms establish symbiotic relationships with plants. In this relationship the plant provides carbon for the fungi and the fungi provides P to the plant. Farming practices of no-till and multi-species cropping systems (rotations of 3 crops or more or inclusion of cover crops) provide favorable conditions for these fungal organisms to grow and proliferate.

In a long-term study completed at the Dakota Lakes Research Farm in Pierre, SD, the effect of no-till, a five-year stacked rotation (soybean-wheat/cover crop-soybean-corn-corn), and soil test P level on crop yield and these fungi were evaluated. Three soil test P levels (low, medium and very high) were established in 2014. The low and medium soil test P level would normally need P fertilizer to obtain optimal yield while the very high level does not. Over the last five years regardless of soil test P levels, there were no yield differences for any of the crops. The reason for this lack of yield differences may have been because compared to the very high STP soils, the low and medium soil test P soils had 2.5x greater abundance of arbuscular mycorrhizal fungi. Overall, these results showed that as soil test P increased, arbuscular mycorrhizal fungi accumulation significantly decreased and that in long-term, no-till systems producers can potentially reduce the soil test P level of their fields without experiencing an economically significant yield decline. Further studies are being completed to determine if these same results are true in other fields.

Additional P research has also been conducted over the last six years to update and revise current corn P recommendations. These studies have focused on determining if the soil test level at which we no longer see yield increases needs to change and if additional soil test measurements can be used to improve P fertilizer recommendations. With data from nearly 50 farmer-cooperator fields it was determined that the current critical soil test P level of 16 ppm Olsen P is still accurate. Below 16 ppm, 50-86% of sites were responsive to P fertilization (average yield increase between 8 and 16 bu/ac) while only 30-43% were responsive below 16 ppm (average yield increase between 1 and 3 bu/ac). In using only soil test P to determine corn yield response fertilization we were accurate 68% of the time. Accuracy was increased to 74% when using the additional soil measurements of cation exchange capacity, clay percentage, and a biological measurement called soil respiration. These results indicate that additional soil biological and physical properties can improve P recommendations and work is being completed to see how these measurements can be added to our current P recommendations.

New digital Fertilizer Recommendation Support Tool launches nationwide

Fertilizer recommendations can vary widely across state lines, which is a management challenge for producers working in multiple states.

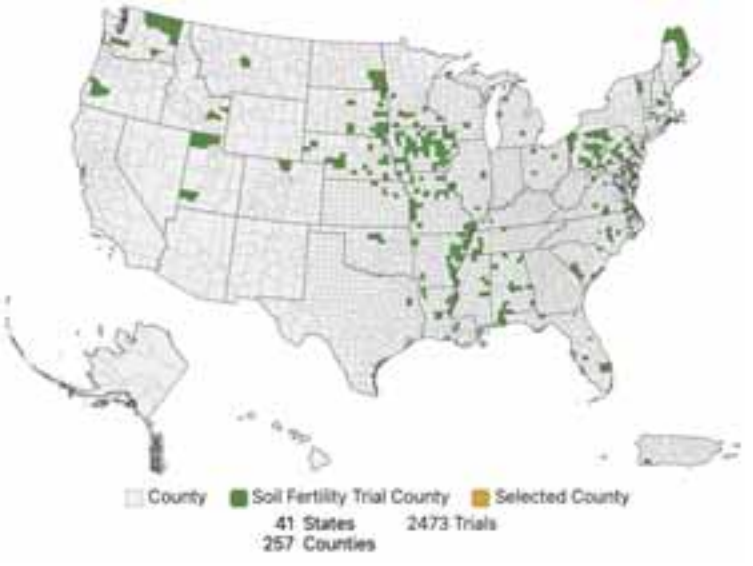
To meet that need, South Dakota State University Extension and project partners are proud to announce the nationwide release of the Fertilizer Recommendation Support Tool (FRST), a decision aid that provides an unbiased, science-based interpretation of soil phosphorus and potassium values for crop fertilization.

Important nutrients for soil health and crop production, phosphorous and potassium are key in commonly applied fertilizers. The new web-based FRST tool provides critical phosphorus and potassium soil test values to indicate where applying phosphorus or potassium fertilizers likely wouldn't improve crop yields.

Using data from 40 states in the U.S. and Puerto Rico, the tool can potentially save crop producers millions of dollars annually in fertilizer costs while reducing excess nutrient losses to the environment.

For more information about FRST (FRST v1.0), visit the project website and click on "Tool" in the navigation menu at the top of the page.

"We are extremely excited about the launch of the decision support tool," said Jason Clark, assistant professor and SDSU Extension Soil Fertility Specialist representing SDSU on the project. "FRST was developed in response to the pressing need to harmonize soil testing across state boundaries. It represents an improvement in our ability to evaluate soil test correlation."



Fusarim Head Blight

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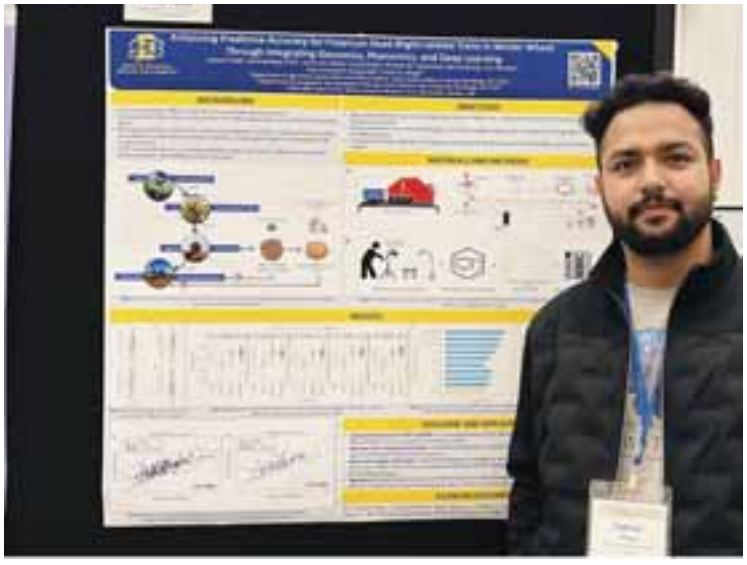
Eventually these targets will be used to design cost-effective biodegradable scalable RNAi fungicide molecules.



SDSU PhD student Subash Thapa wins first prize in the poster contest at the 2024 National Fusarium Head Blight Forum. Subash's work will help provide the winter wheat breeding program with more tools to identify FHB resistant lines. This project is funded in part by the SD Wheat Commission.

National Wheat Yield 2024 Winners

(Continued from page 4)

ling and baking analysis. A panel of experts will evaluate the results, and top-quality winners will be announced on January 15 at the National Wheat Foundation's Winter Board meeting in Washington, D.C.

"The National Wheat Yield Contest emphasizes wheat quality as well as yield because our customers all over the world expect that our wheat is the best and most consistent high-quality wheat they can buy," said Bernard Peterson, National Wheat Foundation Chairman and Bardstown, Kentucky Farmer.

Thank you to all the partners in the 2024 contest: WestBred, John Deere, U.S. Wheat Associates, BASF, Croplan, Eastman, Limagrain Cereal Seeds, The McGregor Companies, Agrimaxx, Ardent Mills, Bushel, Climate FieldView, Corteva, DynaGro, GrainSense, Kentucky Small Grain Growers Association, Mennel, North Carolina Small Grain Growers Association, Ohio Corn & Wheat, PlainsGold, Siemer Milling Company, UPL, UniSouth Genetics, Grain Craft, Kansas Wheat, Miller Milling, Michigan Wheat, Montana Grain Growers Association, Northern Crops Institute, North Dakota Mill & Elevator. DTN/Progressive Farmer is the official publication of the National Wheat Yield Contest.

South Dakota winners include:

1st Place — South Dakota — Lee Lubbers, Gregory, SD — Gregory — AgriPro SY Wolverine 138.35

2nd Place — South Dakota — Luke Holzwarth, Hazel, SD — Codington — SDSU Midland 111.00