AG ROUNDUP

February 2025

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Hard Spring Wheat Show Special Edition

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Pictured is Jose Bais doing field work: planting and applying fertilizer to his plots. See story pages 12 & 14. (Photo submitted by Jose Bais)

Farm & ranch monthly magazine published by The Roundup
PO Box 1207 • Sidney, MT 59270 | 406-433-3306 | info@roundupweb.com

72nd Annual National Hard Spring Wheat Show Jan. 28

Rob Sharkey, pictured here with his wife Emily, will give his keynote address at 12:30 p.m. (Photo source sharkfarmer.com)

By Katelyn Sponheim

The 72nd annual National Hard Spring Wheat Show will take place at The Grand Hotel in Williston, ND, this Jan. 28. The event will feature speakers from all aspects of agriculture, presenting research findings from previous years, as well as predictions as to what this year holds for local ag producers in terms of market, weather, weeds, new products, and improving their operation. It is made possible by these sponsors: North Dakota Wheat Commission, Western Region Economic Development, Horizon Resources, Mountrail-Williams Electric Cooperative, Western Cooperative Credit Union, American State Bank and Trust Company, Ag Country Farm Credit Services, First State Bank & Trust, KEYZ Radio, First International Bank & Trust, Williams County Soil Conservation District, Ray Farmers Union Elevator, The Roundup/Ag Roundup, Farmers Union Oil Co. of Grenora, Zunich-Johnson Agency/Farmers Union Insurance, Dakota West Credit Union, New Century Ag, Gooseneck Implement, Birdsall Grain and Seed, City of Williston Economic Development, Kohler Communications of Williston, Inc., Helena Agri-Enterprises LLC, Thrivent Financial, US Durum Growers Association, North Dakota Assoc. of Rural Electric Cooperatives, Acme Tools, AGT Foods, EGT, LLC, and Frontier Precision Ag.

The show will begin with a free Ag Appreciation Breakfast sponsored by American State Bank & Trust at 7 a.m. The welcome at 8 a.m. will be from Beau Anderson, Williams County Commissioner, and Brian Kaae, Wheat Show President. Mark Ewens, Home on the Prairie Weather, will start the morning session with his “Weather Outlook”; which will consist of predicted weather patterns for the Northern Plains in 2025. Brian Jenks, Ph.D., NDSU weed scientist, will give his “Weed Control Update” at 9 a.m. At 10:15, a.m., they will take a break and hold their commodity election. Rob Sharkey, the keynote speaker, will speak at 10:45 a.m. Starkey, better known as the SharkFarmer, is a 5th generation Illinois grain farmer whose podcast, radio-show, and RFDTV show tackle controversial farming issues and share the “triumphs and struggles of the modern farmer and business owner”. Following Rob is Carlos Pires, Ph.D., NDSU Extension soil health specialist, who will share “Why Soil Organic Matter is like Money in the Bank”. At noon, the event will break for their Awards Lunch, where Wheat Show sponsors will be recognized. Lunch is sponsored by the North Dakota Wheat Commission and Williams County Farmers Union.

Rob Sharkey will give his keynote address at 12:30 p.m. “Sharks Don’t Swim Backwards”. Clair Keene, Ph.D., CCA, NDSU Extension agronomist, and NDSU assistant professor, will give her “Wheat and Durum Variety Update” at 1:30 p.m. At 2 p.m., David Weaver, Ph.D., Montana State University of the Wheat Stem Sawfly Laboratory professor, and Janet Knodel, Ph.D., North Dakota State University professor and entomologist, will hold their “Wheat Stem Sawfly Panel”. They will take a break at 2:45 p.m., and resume at 3:15 p.m. with Frayne Olson, Ph.D., NDSU crop economist/marketing specialist and director of the Quentin Burdick Center for Cooperatives, giving his 2025 Market Outlook.

72nd Annual National Hard Spring Wheat Show Presenters

Dr. Janet J. Knodel

Dr. Janet J. Knodel is the Professor and Extension Entomologist at North Dakota State University in Fargo, ND. For the past 26 years, she provides leadership in Extension Entomology and the North Dakota Integrated Pest Management (IPM) Program. Activities focus on developing IPM strategies for insect pests of agricultural crops grown in North Dakota including sunflower, canola, corn, pulse crops, dry beans, soybean, barley and spring wheat. She also serves as editor and write the insect section of the NDSU Extension Crop & Pest Report. Dr. Knodel has authored / co-authored more than 600 publications in professional, Extension, technical and trade journals and newsletters including over 50 peer-reviewed papers and six book chapters.

At 2 p.m. Knodel and Dr. David Weaver, will hold their "Wheat Stem Sawfly Panel" at the 72nd Annual National Hard Spring Wheat Show on Tuesday, Jan. 28.

Dr. David Weaver

Dr. David Weaver is a Professor of Entomology at Montana State University. He received his PhD in Entomology from McGill University in Montréal in 1990. He was previously employed by the USDA – Agricultural Research where he conducted research on monitoring and management of insects in stored grain. David has worked for Montana State University for 28 years. At MSU, he teaches Integrated Pest Management (IPM) on-line and in the classroom. He conducts research primarily on crop and storage pests and biological control of weeds with insects. The key focus area of research is on pests of cereal crops, especially IPM of wheat stem sawfly.

At 2 p.m. Weaver and Dr. Janet Knodel, will hold their "Wheat Stem Sawfly Panel" at the 72nd Annual National Hard Spring Wheat Show on Tuesday, Jan. 28.

Mark Ewens

Mark Ewens is a New Orleans native, but a Red River Valley resident since 1979. He started as a USAF observer/forecaster in 1974, joined the NWS in Fargo (1984 -1995) and the NWS Grand Forks (1995-2014). Mark studied Soil Science at NDSU under Dr. John Enz and managed the local NWS Cooperative Weather Network & Climate services program. Mark is presently the KNOX Staff Meteorologist and 3-6 p.m. host as well as the owner-operator of Home On The Prairie Weather LLC performing data mining/climate outlooks.

Ewens will start the morning session at 8:15 a.m. with his "Weather Outlook"; which will consist of predicted weather patterns for the Northern Plains in 2025 at the Williston Hard Spring Wheat Show on Tuesday, Jan. 28.

Rob Sharkey

Rob Sharkey is not your average 5th generation Illinois grain farmer. Better known as the SharkFarmer he is a risk taker and out of the box thinker who believes everyone has a story to tell. His authentic interview style, ability to tackle controversial issues and share the triumphs and struggles of the modern farmer and business owner has catapulted him onto Sirius XM, PBS, Acres TV and 9 Seasons and counting of SharkFarmer TV on RFDTV. His unfiltered words resonate with 2.1 million listeners weekly around the world.

Sharkey, will be speaking at 10:45 a.m. and giving his Keynote address, "Sharks Don't Swim Backwards", at 12:30 p.m. during the Williston Hard Spring Wheat Show at 2 p.m. on Tuesday, Jan. 28.

72nd National Hard Spring Wheat Show

Join Us At The Grand Williston Hotel & Conference Center On January 28th (3601 2nd Ave W • Williston, ND)

7am..... Ag Appreciation Breakfast - FREE
Sponsored by American State Bank & Trust

8am..... Welcome
Beau Anderson, Williams County Commissioner & Brian Kaae, WS President

Williams County Commodity Elections
Kelly Leo, Ag & Natural Resources Agent

8:15am..... 2025 Projected Weather Outlook
Mark Ewens, Home on the Prairie Weather

9am..... 2025 Weed Control Update
Brian Jenks, PhD, NDSU Weed Scientist, North Central Research Extension Center

10:15am..... Break/Commodity Election

10:45am..... Rob Sharkey

11:15am.... Why Soil Organic Matter Is Like Money In The Bank
Carlos Pires, PhD, NDSU Extension Soil Health Specialist

12pm..... Awards Lunch
Sponsors Recognized
ND Wheat Commission & Williams County Farmers Union

12:30pm ..... Keynote
Rob Sharkey

1:30pm ..... Wheat & Duram Variety Update
Clair Keene, PhD, CCA, NDSU Extension Agronomist

2pm..... Wheat Stem Sawfly Panel
David Weaver, PhD, Professor, Wheat Stem Sawfly Lab, MSU; Janet Knodel, PhD, Professor & Entomologist, NDSU

2:45pm ..... Break

3:15pm ..... 2025 Market Outlook
Frayne Olson, PhD, NDSU Crop Economist/Marketing Specialist & Director of the Quentin Burdick Center for Co-ops.

Pires To Speak On "How Is Soil Organic Matter Like Money In The Bank"

By Katelyn Sponheim

Dr. Carlos B. Pires, NDSU Soil Health assistant professor, will be speaking in the morning session of the 72nd Annual National Hard Spring Wheat Show to be held at the Grand Hotel and Conference Center in Williston, Jan. 28.

He will speak on "How is Soil Organic Matter Like Money in the Bank". His presentation will explore why not all soil organic matter is made equal, highlighting its chemical, physical, and biological benefits to soils. Additionally, he will discuss how soil organic matter functions much like money in the bank, acting as a savings account that can provide long-term benefits to the soil. Building organic matter is essential for improving soil health as it supplies nutrients, alleviates compaction, and boosts microbial activity. Organic matter also improves soil structure by promoting better aggregation, as well as enhancing water infiltration, retention, and drainage.

Originally from Southern Brazil, Carlos earned his B.S. and M.S. in agronomy and soil science from the Federal University of Santa Maria, focusing on soil micro-

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Cover crop mix and turnip. (Photo by Carlos Pires)

Life in the soil. (Photo by Carlos Pires)

Soil Organic Matter...

(Continued from page 6)

bial communities, tillage systems, cover crops, and crop rotations. He holds a Ph.D. in agronomy from Kansas State University, where he also completed a post-doctoral fellowship.

His research expertise includes regenerative agriculture, soil health, nutrient management, and applied soil biology. His primary objective is to monitor and improve soil health by identifying agricultural practices that foster integrated and resilient agroecosystems. This includes practices such as no-tillage, cover crops, and crop-livestock integration for climate change mitigation and adaptation.

Most of his extension work is based on on-farm research, providing data-driven recommendations to help farmers improve the profitability and sustainability of their operations.

Dr. Carlos B. Pires. (Photo submitted)

Frayne Olson To Present Current Outlook For Commodities At Wheat Show

By Katelyn Sponheim

Frayne Olson, NDSU Extension crops economist and marketing specialist, is the closing speaker for the 72th Annual Hard Spring Wheat Show, Jan. 28 at the Grand Hotel and Conference Center, Williston.

He will be providing an overview of the current crop market conditions and price outlook for corn, soybeans, spring wheat, and durum. He will discuss event possibilities that will alter the expectations of market traders and analysts; weather shifts, especially from South American at this time of year, and political changes regarding international trade relations being the most common issues.

Dr. Frayne Olson is the Crop Economist/Marketing Specialist with the North Dakota State University Extension, Quentin Burdick Center for Cooperatives director and Agribusiness and Applied Economics Department at NDSU professor. Dr. Olson conducts educational programs focusing on crop market outlook and price analysis, evaluating alternative crop marketing strategies and the economics of crop contracting. As director of the Center for Cooperatives, he teaches a senior level course on cooperative business management and coordinates the Center's research and outreach activities.

Dr. Olson received his PhD from the University of Missouri in agricultural economics, and his M.S. and B.S. in agricultural economics from North Dakota State University.

Frayne Olson. (File photo)

Jenks To Present "Weed Control Update" At 72nd Annual Wheat Show Jan. 28

By Katelyn Sponheim

Brian Jenks. (Photo submitted)

Brian Jenks will present his "Weed Control Update" at the Annual National Hard Spring Wheat Show in Williston, ND, on Jan. 28. Jenks is the NDSU weed scientist at the North Central Research Extension Center, Minot, ND.

He will be covering kochia, horseweed, wild oat, and green foxtail resistance to herbicides. New herbicides for 2025 will be covered as well. Jenks will discuss alternatives for weed control in soybeans to replace dicamba. Weed control in lentils will round out his section of the Wheat Show.

Dr. Brian Jenks is the weed scientist for the NDSU North Central Research Extension Center in Minot. He has been with the NCREC since 1997 and is widely respected throughout the MonDak. He earned his Ph.D. from the University of Nebraska.

Keene Will Share "Wheat & Durum Variety Update"

Evaluation of bread loaf color, texture and symmetry. (Photos by Jose Bais)

Below: Dough testing with dough made from the flour from grain samples from his plots. (Photos by Jose Bais)

By Katelyn Sponheim

As part of the afternoon session at this year's 72nd Annual National Hard Spring Wheat Show, Dr. Clair Keene, NDSU Extension agronomist for Small Grains and Corn will be sharing her "Wheat and Durum Variety Update", as well as showcasing her graduate student Jose Bais's work on analyzing 14 site-years of yield and quality responses in four varieties of hard red spring wheat.

Keene has her Ph.D. in agronomy, and is currently an assistant professor and agronomist at NDSU. She spent six years working at the Williston NDSU research extension center, conducting research on small grains, pulses, and other crops grown in the MonDak. She also studies fungicide solutions for head scab or FHB, and performs corn variety testing and population studies in North Dakota. The new perennial grain crop, Kernza, a perennial grain crop derived from the forage species intermediate wheatgrass, is included in her work.

Jose Bais, whose work she will discuss, will graduate with his Ph.D. in plant sciences from NDSU in May, has been studying how the HRS wheat varieties Glenn, Frohberg, Faller, and SY Valda response to different levels of fertilizer and fungicide inputs at

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"Wheat & Durum Variety Update"...

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sites in northwest Minnesota and across North Dakota. His project is exciting because he has been tracking not only yield and protein but also milling the grain to test how the treatments in the field influence milling, dough, and bread-baking qualities. From grinding the samples, to baking bread from the flour they produced, he is learning about the wheat's qualities from start to finish. His project is funded by the North Dakota Wheat Commission and Keene and Bais are extremely grateful for their support of their research.

Pictured right and below: Jose Bais doing field work: planting and applying fertilizer to his plots. (Photos submitted)

Clair Keene

Clair started as the small grain and corn extension agronomist in 2021 and her research program is currently under development. Her goal is to conduct applied research that improves wheat and corn production in North Dakota and helps farmers meet their production goals.

Her research interests include partnering with NDSU breeders and agronomists across the state to evaluate varieties for traits important to growers, enhancing yield and quality of spring wheat production, and increasing the sustainability of crop production through crop rotation and the inclusion of new perennial grain crops like Kernza intermediate wheatgrass.

David Boehm Hired as Director Northern Crops Institute

David Boehm. (Photo submitted)

Fargo, ND — The Northern Crops Institute (NCI) has hired David Boehm as its new director. Boehm, who has served as NCI's technical manager since 2019 and co-interim Director since February 2024, brings a wealth of experience in agriculture, leadership, and collaboration to his new role.

Boehm holds dual bachelor's degrees in crop and weed sciences and mass communications, as well as a master's degree in plant sciences from North Dakota State University (NDSU). He is currently pursuing a doctoral degree at NDSU, with an expected completion in Fall 2025. In the last 5 years, Boehm helped lead a significant increase in technical service revenue, fostered industry partnerships, and co-led the development of a new strategic planning process to guide NCI's future direction.

Boehm has worked in the ag industry in various roles for more than 25 years where he developed extensive expertise in communications, sales and marketing, agricultural research, strategic planning, and industry collaboration. He has fostered countless relationships in the region across the ag sector that will serve to support the NCI.

As Director, Boehm will continue to drive NCI's mission of supporting regional agriculture through education, technical services, and innovation. He aims to build on NCI's legacy of excellence while exploring new opportunities to meet the evolving needs of the agricultural industry.

"I am honored to step into this role and lead NCI during an exciting time of growth and opportunity," Boehm says. "I look forward to working with our dedicated team, commodity group partners, and value-added ag industry to strengthen the connection between producers, processors, and the global marketplace."

For more information about the Northern Crops Institute, please visit northern-crops.com.

MonDak Ag Days & Trade Show Scheduled For March 6-7

By Kali Godfrey
Sidney Chamber of Commerce
Executive Director

The MonDak Ag Days and Trade Show is set to take place on March 6–7 at the Richland County Event Center, Sidney. This dynamic event will showcase over 40 agribusinesses offering innovations in science, seed, feed, breeding, equipment, technology, and tools.

Organized by Marley Voll, MSU Richland County Ag Extension agent, the event features a comprehensive lineup of seminars tailored to meet the needs of everyone in agriculture. Topics will include strategies for improving soybean and dry bean production through inoculant and nitrogen use, effective management of wheat stem sawfly, and forage options. Attendees will also gain valuable insights into the Montana Mesonet, advancements in livestock production technology, and solutions for white mold in soybeans. Additional sessions will address pest control for grasshoppers, wireworms, cutworms, and seed corn maggots, as well as nutrient management in corn. The Montana Cattle Committee will provide updates, and a roundtable discussion on cattle traceability promises to spark meaningful dialogue.

With the expanded space at the Richland County Event Center, MonDak Ag Days now offers a demonstration lineup. These 30-minute sessions provide the perfect platform for product demonstrations, advocacy presentations, and interactive activities, making the event even more engaging and informative.

In addition to education and demonstrations, MonDak Ag Days offers great food and entertainment. The Farm Bureau will host its traditional pancake breakfast on Friday morning, and the Sidney FFA Chapter will provide lunch throughout the event. On Thursday evening, attendees can enjoy the Pitchfork Fondue, a truly western dining experience paired with live entertainment by Alexander native Ryan Olson. The fondue begins at 5:30 p.m., and tickets are available for $25.

Make plans to join us at MonDak Ag Days and Trade Show for an unforgettable experience combining education, innovation, and community.

Richland County FFA members and MonDak Ag Days Committee members. (Photos courtesy of Sidney Area Chamber of Commerce and Agriculture)

Beth Redlin, Northern Plains Agriculture Research Labratory.

MonDak Ag Days Trade Show.

Performance • Calving Ease • Good Dispositions

PIE ABSOLUTE 2415 #4704275
KJL/CLZB COMPLETE 7000E x
PIE ONE OF A KIND 352

NIO START-UP 1294 #4520443
RED U2 DOMINION x
RED U-2 STRIKE FORCE 24Y

TRAXS RED RIVER K21 #4956372
TRAX RED RIVER E84 x
TRAXS DEADWOOD A82

LEM INVASION 2016 ET #4653529
PELTON WIDELOAD 78B x
PIE ONE OF A KIND 352

PIE MIDAS 154 #4543927
PIE QUARTERBACK 789 x
PELTON WIDELOAD 78B

DEER VALLEY GROWTH FUND #4602067
BASIN PAYWEIGHT 1682 x
PLATTEMERE WEIGH UP K360

Top-Coming-To-Town Production Sale

Saturday, March 1, 2025
1 p.m. MST • Sidney Livestock Auction, Sidney, MT

New location!

Auctioneer: Amber Haugland – 701-641-8792
Ringmen: Loren Sorenson – 701-641-1140
Scott Bachmeier – 701-425-6651

Red Angus Reference Sires

WILLOW TOP PICK 750-1919 – #4205558
DK IMPECCABLE H819 #4318945
BIEBER DRIVEN C540 – #3474416
DK RESOURCE J316 – #4490335
DK ATOMIC H529 –#4318895
LSF SRR IDENTITY 0295H – #4276063
LRL IBM K6 – #4582865

Angus Reference Sire

SITZ RESLILIENT 10208 – #4567085

Sale Offering

60 Purebred Red Angus Bulls
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12 Simmental Composite Bulls
2 Char/Red Angus Bulls
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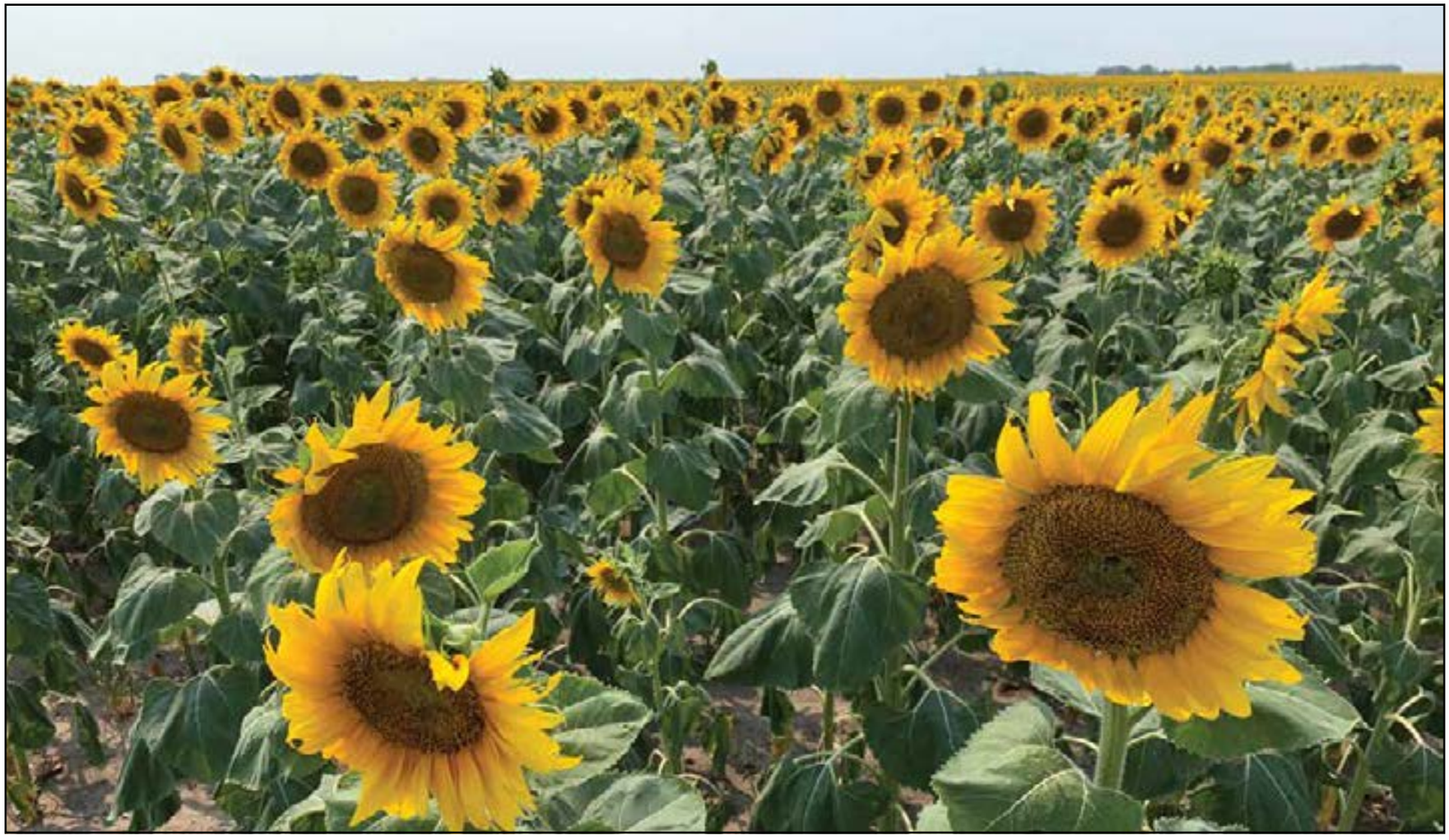
NDSU Extension Getting It Right In Sunflower Production Webinar Set For Jan. 30



During the Getting It Right webinar, NDSU Extension crop specialists will share sunflower research updates and production recommendations. (NDSU photo)

By NDSU Agriculture Communication

Farmers and crop advisers searching for research-based sunflower production recommendations should plan to participate in the Getting It Right in Sunflower Production webinar on Thursday, Jan. 30, from 8:30 a.m. to noon CST.

This online event will be hosted on Zoom and is organized by North Dakota State University (NDSU) Extension, with support from the National Sunflower Association.

The webinar will offer the latest research updates and actionable recommendations to help farmers make informed sunflower production decisions for the 2025 growing season. Topics to be discussed include variety selection, soil fertility, plant protection (weed, disease and insect management), and sunflower markets.

Presentations will be led by NDSU Extension specialists, followed by a Q&A session where participants can engage directly with the speakers.

The presentations will be recorded and archived at www.ndsu.edu/agriculture/ag-hub/getting-it-right. Certified crop adviser continuing education credits will be available.

There is no fee to participate, but preregistration is required at ndsu.ag/GIR-sunflower25. All who preregister will receive emailed instructions and a Zoom link to join the webinar.

Upcoming Getting It Right webinars are:

Feb. 4: Flax

Feb. 1: Dry Beans

March 14: Canola

For more information on the Getting It Right webinar series, please contact Ana Carcedo at 701-831-5796 or by email at a.carcedo@ndsu.edu.

Planning, Self-Evaluation Are Key To Successful Sire Selection

Select sires that complement a cow herd and contribute to the goals of the operation.

By NDSU Agriculture Communication

For many North Dakota cattle producers, winter and early spring is prime bull-buying season. Considering that a single bull may sire a few to hundreds of calves, depending on an operation's breeding strategy, the impact of the bull on the genetic basis of the herd cannot be ignored, says Lacey Quail, North Dakota State University Extension livestock management specialist at the North Central Research Extension Center.

Selecting sires that complement a cow herd and contribute to the goals of the operation, both genetically and phenotypically, is of the utmost importance, says Quail. However, the large amount of performance data that is available to buyers can make selection decisions difficult.

Before sale day, Quail recommends buyers take time to consider their priorities and set some goals for their operation. Answering questions related to how calves are marketed and how replacement females are acquired will go a long way in identifying a bull that will benefit the operation.

For example, if a rancher retains replacement heifers, they will likely want to select sires that contribute maternal traits to calves; however, if all male and female calves are marketed, maternal traits will likely be less significant to the operation.

Additionally, producers should consider their production environment and how it may support or limit the genetic potential for any particular trait. For instance, pounds of weaning weight due to milk production is often considered in sire selection. However, milk production requires feed inputs. If the production environment does not support additional milk production, it may be unrealistic to emphasize that trait as significantly in sire selection.

When looking through a sire directory or sale catalog, it is important to know what EPD and ACC stand for. Expected Progeny Difference (EPD) and Accuracy (ACC) are key to understanding which bull may fit the operation. An EPD is a prediction that combines the individual genetic potential of a particular bull and the genetic potential of existing relatives to that bull (such as sire, dam, progeny and siblings).

An EPD can be either positive or negative. For example, a bull with a birth weight EPD of +7 would be expected to sire calves that are 7 pounds heavier, on average, than a bull with birth weight EPD of zero within the same breed. A bull with a birth weight EPD of -5 would be expected to sire calves that are 5 pounds lighter, on average, compared to a bull with a birth weight EPD of zero within the same breed.

Accuracy is a measure of reliability or how likely it is that an EPD may change as more relatives of that bull get added to the system. Simply put, the more data points (relatives) for which there is data, the more certain (accurate) a producer can be that an EPD will not fluctuate as more progeny are added. An EPD with an ACC of 0.9 is expected to change very little (90% accurate), while an EPD with an ACC of 0.7 or below may change more drastically as progeny data are added.

Quail says it is important to note that not every trait is measured in the same units. Weight traits (such as birth weight, weaning weight and yearling weight) are measured in pounds. Scrotal circumference is measured in centimeters. Rib-eye area is measured in square inches. Calving Ease Direct (CED) is measured as the percentage of unassisted births when mated to 2-year-old heifers. This information, along with other abbreviations, is listed on a breed association's website and often in sale catalogs.

There is no one-size-fits-all sire, but a calculated selection will best fit the operation. (NDSU photo)

Take two bulls, for example: one with a CED of 15 and another with a CED of 10. The bull with a CED of 15 is expected to have 5% more unassisted births compared to the bull with a CED of 10 in 2-year-old heifers. Where CED is concerned, a higher value indicates greater calving ease.

Someone selecting a new herd sire is likely to look for a bull that excels in multiple areas, not just one. Considering the number of EPDs they may want to prioritize and the correlations that exist between genetic traits, sire selection can quickly become overwhelming. An economic selection index may be helpful to consider here. A selection index includes multiple individual EPDs and gives an overall economic value associated with those traits as a single dollar value; however, it is important to consider which individual traits are included in an index and if they are important to current goals. Additionally, the individual traits in an index are not weighted equally when calculating an index value, so two bulls may have the same index value while having different values for individual EPDs.

Depending on the operation and their goals, a selection index may be used as a first criterion to identify sires within a breed that warrant a closer look. Individual EPDs can then be used to fine-tune the selection process to make the most genetic progress toward the operation's goals. For example, if a preweaning growth index value is high, but upon further investigation, the individual weaning weight EPD is not favorable to the operation's goals, that bull may not be the best fit. Like EPDs, a selection index should only be used to compare sires within the same breed.

To complement genetic merit, Quail says to evaluate phenotype when buying a bull.

"Conformation, feet and leg structure, muscling and frame are important to the breeding success of a sire," says Quail. "These phenotypic traits, along with

Continued on next page.

Nominations Open For 2025 Montana Environmental Stewardship Award

By Cheyenne Leach
MSGA Communications and Program Coordinator

HELENA, MT – The Montana Stockgrowers Association (MSGA) is now accepting nominations for the 2025 Montana Environmental Stewardship Award (ESAP). Each year, MSGA honors a Montana ranch that exemplifies environmental stewardship and demonstrates a commitment toward improved sustainability within the beef industry. The deadline for nominations is May 1, 2025.

"The Montana Environmental Stewardship Award continues to show us just how much Montana's ranchers care about the land and livestock under their stewardship," said Raylee Honeycutt, MSGA Executive Vice President. "We at MSGA know that this is nothing new to ranchers, but this program helps tell the story to those not intimately involved in the livestock industry and I encourage anyone to nominate a Montana ranch who is ready to tell our story."

Ranchers, as individuals and as an industry, are actively working to protect and improve the environment because they know environmental stewardship is a crucial component to a successful ranching operation. Environmental Stewardship Award winners are prime examples of how environmental management benefits both the rancher's bottom line and the resources in their care.

The award nomination process is an opportunity for county conservation districts, water districts, local livestock associations, wildlife organizations or other local and state agencies focused on conservation and multiple land use to recognize partnerships with ranchers who help them accomplish mutual goals. Any Montana Stockgrowers Association member who is working to leave the land better for the next generation would be an ideal candidate.

Winners of the Environmental Stewardship Award host a tour on their ranch, known as the Raising the Steaks Ranch Tour coordinated by the Montana Stockgrowers Foundation (MSF), the year after they are announced.

"The Raising the Steaks Ranch Tour showcases ESAP award winners and connects ranchers and consumers to facilitate diverse and informative discussions that highlight current issues and solutions to challenges ranchers and conservationists face when managing private and public lands for future generations," said Heidi Kool, MSF Program Coordinator.

Nominations for ESAP can be submitted at www.mtbeef.org/esap from Dec. 1, 2024 - May 1, 2025. MSGA will provide ESAP award winners with the assistance of a professional writer and photographer to capture their ranch's story to represent Montana in the regional Environmental Stewardship Award Program. The winner will be recognized at the Montana Stockgrowers Annual Convention in December 2025.

Successful Sire Selection...

Continued from page 21.

the udder structure of a bull's dam, can indicate lasting impacts for your herd."

The marketability of calves, soundness and performance in the feedyard and the long-term functionality of any females that are produced by a sire are to be seriously considered when it comes time to purchase a new herd sire.

Inevitably, says Quail, there is no one-size-fits-all bull.

Instead, producers should balance their operation's priorities when it comes to opportunities for income (such as weaning weight, carcass weight, ribeye area and marbling) with opportunities to improve longevity and reduce expense (such as stayability, heifer development/pregnancy, feed efficiency, docility and structure).

Knowing how a herd is currently performing, as well as being realistic about the areas that need improvement will help tremendously in finding a bull to help bridge that gap, concludes Quail.

MSF Announces Winners In Cattle Drive Contest

By Cheyenne Leach
MSGA Communications and Program Coordinator

HELENA, MT – Montana Stockgrowers Foundation's (MSF) Cattle Drive Program continues to grow and is quickly becoming the premier feed out contest in the state of Montana. The Cattle Drive Program allows producers and supporters to donate a steer, or the value of a steer, and watch that donation grow. Donors also receive data on the growth and performance of that steer.

MSF is proud to announce that the 2023 Cattle Drive program raised over $220,000. The funds raised will be invested in educational programs, scholarships, leadership development and conservation programs.

Donated steers were placed on contest on Feb. 20, 2024. In order to ensure the highest quality beef to program purchasers, each steer was harvested when they were at their optimum weight. Average daily gain was calculated based on the number of days between those dates.

The winners for the 2023 Cattle Drive Program are as follows:

Top three steers in the average daily gain category

First Place: Merck Cattle Animal Health (steer purchased from Veseth Cattle Co.)

Second Place: David Schuett, Schuett Farms, Dillon

Third Place: Dale and Janet Veseth, Veseth Cattle Co., Malta

Following harvest of the steer, each carcass was graded and using the Steer of Merit program evaluation process, a carcass value was determined for each steer.

Top three steers in the carcass value category:

First Place: Jim Steinbeisser, VS Inc., Sidney.

Second Place: Kerry Erickson, Ismay.

Third Place: Katelynn Larson and Alexis Dynneson, Dynneson Ranch, Sidney.

New this year, an overall champion steer was awarded. This steer placed highest in both contest categories:

Overall Champion Steer: Kerry Erickson, Ismay

MSF and Montana Stockgrowers Association (MSGA) would like to thank the 2023 Cattle Drive Program donors and sponsors. The 2024 Cattle Drive is currently accepting donations. To participate in the 2024 program, contact Heidi Kool at foundation@mtbeef.org or 406-442-3420.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NDSU Extension Western Crop & Pest Management School Set For March 5-6 In Bismarck

The highlight of the school is the line-up of speakers sharing their expertise on weeds, insect and disease research, and management strategies. (NDSU photo)

By NDSU Agriculture Communication

North Dakota State University Extension has set the 2025 Western Crop and Pest Management School for March 5-6 at the Ramada Hotel, Bismarck.

The highlight of the school is the line-up of speakers sharing their expertise on weeds, insect and disease management, soil acidity, soil fertility and nutrient management, agronomy, forage and cover crops research, and markets trends and price forecasts for North Dakota agricultural crops.

Additionally, the program schedule allows for more in-depth discussion with the instructors regarding crop production issues and concerns from the past growing season. The hands-on training portion of the program has been expanded to five breakout sessions, each with more time allotted for learning and discussion, shares Charlie Lim, NDSU Extension weed specialist and event co-organizer.

Check in starts at 9 a.m. CT on March 5, and the program begins at 9:20 a.m.

"Wednesday morning, March 5, will have excellent speakers sharing updates on weed control and management, highlighted by a discussion panel of weed scientists and experts from academia and industry," says Lim. "During the weeds panel, attendees can share their current weed control challenges and ask questions about viable weed control options and strategies for 2025."

Lunch will be provided at noon on Wednesday.

On Wednesday afternoon the concurrent breakout sessions begin. This includes hands-on training on weed identification, soil management and cover crops, insect identification, crop disease identification, and growth staging, abiotic stress diagnosis, and disease inoculation processes. Attendees will rotate through a round of breakout sessions to mark the end of first day.

The remaining hands-on training sessions will continue through mid-morning Thursday, March 6, followed by a program of speakers who will discuss disease management in broadleaf crops and small grains and the latest agronomy research results.

Lunch will be provided at noon on Thursday.

The event will conclude Thursday afternoon with speakers discussing the latest research in forage crops and soils, including research on alleviating soil acidity in western North Dakota. This will be followed by a soils discussion with a panel of soil experts and an ag economics panel discussion.

The event concludes on Thursday at 3:45 p.m.

A total of 12.5 Continuing Education Units (CEUs) will be offered to Certified Crop Advisors (CCAs) who attend the event.

The fee to attend is $100. Pre-registration is required. The deadline to register is Feb. 14, or when the school is full. Event attendance is capped at 120. Notepads, pens, handouts and training materials will be provided at the event.

For a detailed agenda, list of presenters and to register online, visit ndsu.ag/cropsschool25.

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MSU Extension: Pulse Grains In Wheat Rotations Can Increase Profits For Farmers

From the MSU News Service

BOZEMAN, MT — An analysis by Montana State University researchers has shown that replacing summer fallow with a pulse grain crop, even in dry regions, can increase profits for farmers.

Farmers in regions with low precipitation, such as Montana's Golden Triangle, know there is an economic risk to continuous small grains cropping, according to Perry Miller, professor of sustainable cropping systems in MSU's Department of Land Resources and Environmental Sciences.

However, leaving fields fallow in summer is not ideal for soil health and generates no revenue, he said. So, alternatives to fallow are being tried and have demonstrated economic success.

In a 2015 study, Miller found that, in relatively wet southwest Montana conditions, pulses harvested for grain, in rotation with wheat, provided higher net returns compared to wheat in rotation with wheat, fallow or legume cover. Further research continued to test the results in dry regions.

Meanwhile, Miller and his colleagues conducted an eight-year study in Big Sandy, a dry region where the annual precipitation is close to 14 inches. The study focused on no-till winter wheat managed in rotation with fallow, spring wheat, pea cover crop and a pulse crop harvested for grain. The researchers managed the wheat with four different nitrogen rates: zero, 75%, 100% and 150% of the MSU guideline of nearly 3 pounds of nitrogen per bushel.

Pulse-wheat rotations had equal or greater net returns than fallow-wheat rotations during this eight-year study, Miller said. Cover-wheat and continuous wheat rotations had the lowest net returns.

Continuous wheat had no net loss if no nitrogen was added during years with a low price penalty for low protein wheat. It also had no net loss when less than 100% recommended nitrogen was supplied during years with a high price penalty.

In all rotations, net returns were greatest at 100% of recommended nitrogen under a low protein discount. Under a high protein discount, net returns were greatest at 150% of recommended nitrogen.

However, Clain Jones, MSU Extension soil fertility specialist, cautioned against using more than 3 pounds of nitrogen per bushel, especially on winter wheat.

"The small profit gains between 100% and 150% nitrogen might not offset the negative effects of soil acidification caused by higher nitrogen fertilization," he said.

Jones and others have found that soil acidification due to applying more ammonium-based fertilizer than plants need can lead to yield losses.

"The yield of legumes, such as pea, decline below soil pH 5.7," Jones said. In the Big Sandy study, soil pH was 5.8 in the continuous wheat and fallow-wheat plots. Soil pH in the pulse-wheat rotation was around 6.1.

According to Jones, soil acidification is a growing issue occurring in wet and dry regions of Montana. Due to yield loss and the high costs of mitigating low pH with lime, the short-term benefits of greater nitrogen rates might be partly or fully negated.

"Alternating pulse crops with wheat not only provides an income in what would be the fallow year but also reduces the amount of nitrogen fertilizer required for the wheat rotation," Miller said. Nitrogen fertilizer rates were reduced by 22 pounds per acre after the first pulse rotations in the site's sandy loam soils.

More information about including pulse crops in wheat rotations can be found in Montana State University Fertilizer Facts No. 76 and 82 at https://landresources.montana.edu/fertilizerfacts/index.html.

Producers Can Enroll In 2025 Agriculture Risk Coverage & Price Loss Coverage Programs Beginning Jan. 21 & Dairy Margin Coverage Beginning Jan. 29

WASHINGTON – The U.S. Department of Agriculture (USDA) announced the 2025 enrollment periods for key safety-net programs – Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) as well as Dairy Margin Coverage (DMC). Agricultural producers can submit applications to USDA's Farm Service Agency (FSA) for ARC and PLC for the 2025 crop year from Jan. 21 to April 15 and for DMC for the 2025 coverage year from Jan. 29 to March 31.

ARC and PLC provide financial protections to farmers from substantial drops in crop prices or revenues and are vital economic safety nets for most American farms. Meanwhile, DMC provides producers with price support to help offset milk and feed price differences.

"Our safety-net programs provide critical financial protections against commodity market volatilities for many American farmers, so don't delay enrollment," said FSA Administrator Zach Ducheneaux. "If you're getting coverage through the Agriculture Risk Coverage or Price Loss Coverage programs, avoid the rush and contact your local FSA office for an appointment. Even if you are not changing your program election for 2025, you still need to sign a contract to enroll."

"And at $0.15 per hundredweight for $9.50 coverage, risk protection through Dairy Margin Coverage is a relatively inexpensive investment in a true sense of security and peace of mind."

The American Relief Act, 2025 extended many Farm Bill-authorized programs for another year, including ARC and PLC as well as DMC.

ARC and PLC

Producers can elect coverage and enroll in ARC-County (ARC-CO) or PLC, which provide crop-by-crop protection, or ARC-Individual (ARC-IC), which protects the entire farm. Although election changes for 2025 are optional, producers must enroll through a signed contract each year. Also, if a producer has a multi-year contract on the farm it will continue for 2025 unless an election change is made.

If producers do not submit their election revision by the April 15 deadline, their election remains the same as their 2024 election for commodities on the farm from the prior year. Farm owners cannot enroll in either program unless they have a share interest in the cropland.

Covered commodities include barley, canola, large and small chickpeas, corn, crambe, flaxseed, grain sorghum, lentils, mustard seed, oats, peanuts, dry peas, rapeseed, long grain rice, medium grain rice, safflower seed, seed cotton, sesame, soybeans, sunflower seed and wheat.

USDA also reminds producers that ARC and PLC elections and enrollments can impact eligibility for some crop insurance products including Supplemental Coverage Option, Enhanced Coverage Option and, for cotton producers, the Stacked Income Protection Plan (commonly referred to as STAX).

For more information on ARC and PLC, producers can visit the ARC and PLC webpage or contact their local USDA Service Center.

DMC

DMC is a voluntary risk management program that offers protection to dairy producers when the difference between the all-milk price and the average feed price (the margin) falls below a certain dollar amount selected by the producer.

DMC offers different levels of coverage, even an option that is free to producers, minus a $100 administrative fee. The administrative fee is waived for dairy producers who are considered limited resource, beginning, socially disadvantaged or a military veteran.

DMC payments are calculated using updated feed and premium hay costs, making the program more reflective of actual dairy producer expenses. These updated feed calculations use 100% premium alfalfa hay.

For more information on DMC, visit the DMC webpage.

More Information

Producers can apply for ARC, PLC and DMC through the FSA at their local USDA Service Center.

FSA helps America's farmers, ranchers and forest landowners invest in, improve, protect and expand their agricultural operations through the delivery of agricultural programs for all Americans. FSA implements agricultural policy, administers credit and loan programs, and manages conservation, commodity, disaster recovery and marketing programs through a national network of state and county offices and locally elected county committees. For more information, visit fsa.usda.gov.

USDA touches the lives of all Americans each day in so many positive ways. In the Biden-Harris administration, USDA is transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, ensuring access to safe, healthy and nutritious food in all communities, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America. To learn more, visit usda.gov.

NDSU Extension's Field To Fork Webinars Provide Information About Safely Growing, Preserving & Preparing Specialty-Crop Fruits & Vegetables

By NDSU Agriculture Communication

North Dakota State University Extension will again host the Field to Fork webinar series starting February 2025.

The Field to Fork Wednesday webinars will begin Feb. 12. The webinars will be held online from 2-3 p.m. through May 7.

Experts from across the region will provide information about growing, preserving and preparing specialty-crop fruits and vegetables safely in this 10th annual webinar series.

The webinars are free of charge, but pre-registration is required. The webinars will be held on Zoom. Register on the Field to Fork website at ag.ndsu.edu/fieldtofork. Participants will be sent reminder emails with the link.

The webinars also will be archived for later viewing, but participating in the live webinar allows participants to interact with the presenter.

This series is an ongoing collaborative effort with the North Central Food Safety Extension Network which includes experts from NDSU and around the region.

Julie Garden-Robinson, NDSU Extension food and nutrition specialist, says that when the first Field to Fork webinar series started 10 years ago, online webinars were still relatively new.

"People were not routinely participating in online webinars," says Garden-Robinson. "We needed to explain about how to use the online platform."

This series is about growing, preserving and preparing specialty-crop fruits and vegetables. (Pixabay photo)

Topics that will be covered:

Feb. 12: How to Start Your Own Flower and Vegetable Transplants Indoors — Don Kinzler, Extension horticulture agent, NDSU

Feb. 19: Anatomy of a Food Recall — Bryon Chaves, Extension associate professor, University of Nebraska-Lincoln

Feb. 26: Growing Tips for Summer and Winter Squash — Tom Kalb, Extension horticulturist, NDSU

March 5: Let's Preserve Salsa (Live Demonstration) — Julie Garden-Robinson, Extension food and nutrition specialist and professor, NDSU

March 12: The Science Behind Indoor Plant Lighting — Esther McGinnis, Extension horticulturist and associate professor, NDSU

March 19: Pickling Safety — Cindy Brison, Extension educator, University of Nebraska

March 26: Tips and Tricks for Vegetable Production — Susie Thompson, associate professor and potato breeder, NDSU

April 2: Plant Pathology 101: Common Plant Diseases — Sam Markell, professor and interim plant pathology department chair, NDSU

April 9: All About Alliums: Garlic, Green Onion, Dry Bulb Onion, Leeks and Shallots — Harlene Hatterman-Valenti, professor, NDSU

April 16: Ghosts in Your Gardens — Janet Knodel, Extension entomologist and professor, NDSU

April 30: Food Preservation Toolkit — Karen Blakeslee, Extension associate, Kansas State University

May 7: Healthy Soil, Healthy Food — Carlos Pires, Extension soil health specialist and assistant professor, NDSU

This project is made possible with funding from the U.S. Department of Agriculture's Agricultural Marketing Service.

To register, visit NDSU Extension's website at https://www.ag.ndsu.edu/fieldtofork or contact Garden-Robinson at 701-231-7187 or julie.garden-robinson@ndsu.edu.

Monitor Fall And Winter Stored Grain To Prevent Problems

Take the time to monitor grain temperature and moisture in times of outdoor temperature change.

By NDSU Agriculture Communication

Both a warm fall and rapid change to winter increases the potential for stored grain problems, says Ken Hellevang, professor emeritus and retired North Dakota State University Extension agricultural engineer. Grain needs to be dry or cool to prevent mold growth.

For example, cereal grain at 18% moisture content can be stored for up to about 200 days at 40 degrees Fahrenheit or about 90 days at 50 degrees, but only about 15 days at 80 degrees. For each 10-degree increase in grain temperature, the allowable storage time is reduced by about half.

Of course, the allowable storage time increases at lower grain moisture contents. At 70 degrees, the allowable storage time increases from about 30 days for 18% moisture grain to 45 days at 17%, 70 days for 16% and 200 days for 14% moisture cereal grain.

The potential for insect problems also increases at warmer temperatures. Insects are dormant below about 50 degrees, so it is important to keep grain temperature below 50 degrees if possible, says Hellevang. If grain temperature is kept below freezing during winter storage, insects can be killed.

Moisture migration in the grain occurs when about a 20-degree temperature difference occurs between the grain and average outdoor temperature. Moisture migration increases the moisture content of the grain near or at the top of the bin. This can increase the moisture content by several percentage points and lead to crusting of the grain. Therefore, the grain should be cooled with aeration when there is a 10- to 15-degree difference between grain and average outdoor temperatures. Grain should be cooled to 20 to 30 degrees for winter storage.

Hellevang recommends to check dry grain at least every two to three weeks as long as the grain is at winter storage temperature. Check at least every couple weeks if it is warmer. Measure and record the grain temperature, watching for trends that indicate problems. Check the grain moisture content and examine the grain in several locations. Moisture measurements of grain at temperatures below about 40 degrees are not accurate.

Verify the accuracy of the measurement by warming the grain sample to room temperature in a sealed plastic bag before measuring the moisture content. Search for small changes that are indicators of potential problems. Collect a sample, warm it to room temperature and place the grain on a light-colored or white surface to look for insects.

Grain temperature near the bin wall and on the top surface depends both on the outdoor temperature and solar radiation.

“The amount of solar energy on the south wall of the bin will be two to three times as much on Feb. 21 as on June 21 due to the low solar angle,” Hellevang says.

During late winter and spring, monitor the grain temperature, particularly near the south wall and near the grain surface, and periodically run the aeration system to keep the grain cool. The goal in northern states should be to keep the grain temperature below 40 degrees as long as possible during the spring and early summer.

There is the potential for bin vent screens to become iced over when operating fans at temperatures near or below freezing. Hellevang recommends to leave a bin fill hole or manhole unlatched as a pressure relief valve if the air is being pushed up through the grain.

Be proactive against mold growth in grain storage by monitoring temperature and moisture. (NDSU photo)

Hellevang emphasizes the importance of always remembering safety precautions when working around grain bins. Grain suffocation is likely if someone enters a bin while unloading. It only takes seconds to be engulfed in the grain. Never enter a grain bin without stopping the auger and using the “lock-out/tag-out” procedures to secure it. A person can be buried instantly if grain attached to the bin wall releases or grain in a column collapses.

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Montana State Graduate Students Publish New Explorations Of Wheat Stem Sawfly Management

Montana State University professor Dave Weaver examines a wheat stem sample at a study plot near Amsterdam, Montana. (MSU photo by Adrian Sanchez-Gonzalez)

By Reagan Cotton, MSU News Service

BOZEMAN – Two graduate students in Montana State University's College of Agriculture have published new research on two aspects of management for one of the region's most damaging agricultural pests.

Wheat stem sawflies cost agricultural producers millions of dollars in losses each year, according to the Montana Wheat and Barley Committee. Surveys conducted by the National Agricultural Statistics Service found that nearly a quarter of respondents in Montana had lost up to 10% of their yield to the pest, and total losses statewide for 2024 were estimated at $66 million.

Doctoral student Jackson Strand and master's student Lochlin Ermatinger in the Department of Land Resources and Environmental Sciences worked alongside MSU professor David Weaver to explore two aspects of sawfly management. Their novel approaches help better understand the pest's impact and vulnerabilities.

Strand's research has examined the impact of smooth brome, a common grass in Montana, on sawfly populations in wheat. Ermatinger applied remote sensing techniques to develop a model predicting sawfly infestation. Both students published their findings this fall, Strand in the Journal of Economic Entomology and Ermatinger in the journal Remote Sensing.

"There's a strong demand for solutions other than pesticides — which don't work for wheat stem sawfly — and finding a solution that's sustainable for growers who may not have a lot of time or resources to do things like plant different crops," said Strand of his research. "We're trying to figure out if smooth brome is beneficial and if we can help promote populations of parasitoids that otherwise sometimes fluctuate across seasons and regions."

Parasitoids are insects that act as biocontrols, in this case against wheat stem sawflies. Parasitoids can go about this in different ways, but the ones Ermatinger focused on operate by paralyzing and then eating the sawfly larvae that feed inside wheat stems. Because parasitoids are native insects, they show potential as a natural management tool to mitigate damage, Strand said. He found that if smooth brome is present near wheat fields, both the sawflies and the parasitoids may gravitate to it.

Through greenhouse experiments and laboratory analysis, Strand sought to identify why that might be by measuring and comparing the volatiles released by smooth brome and wheat. Volatiles are naturally occurring chemicals released by plants, increasing in intensity when they are under stress.

"The plants that were exposed to sawflies expressed different compounds than the ones that weren't," said Strand, who completed his undergraduate degree at the University of Minnesota before arriving at MSU in 2021 to begin graduate studies. "Smooth brome produces the same compounds as the wheat, but in higher quantities. The sawflies are triggering a stress response in the plant, and then the parasitoids are keying in on those compounds and finding their hosts."

Smooth brome is not a native plant, Strand said, but is widespread around Montana, particularly near roadways, where it was once used to mitigate erosion. While intentionally planting brome isn't recommended, he noted that fostering what already exists could provide an appealing alternative for sawflies, consequentially protecting nearby wheat crops.

"By not mowing it or by occasionally fertilizing it to maintain stands, you can make brome more valuable to sawflies, and also valuable to the parasitoids that help control them," said Strand, who completed his master's degree in entomology this fall and will continue at MSU to begin his doctoral studies later this month.

While Strand's research focused on managing known infestations of sawfly, Ermatinger explored new ways to identify and predict infestation in the first place.

Ermatinger, who is originally from Missoula, arrived at MSU in 2016 and completed a bachelor's degree in environmental science with a focus in geospatial and environmental analysis. He found himself drawn to remote sensing and GIS, or geographic information systems, which uses data from satellites, drones and other technology to create advanced mapping programs.

True to the many complications with their management, wheat stem sawflies spend most of their life cycle within the stem of a wheat plant, Ermatinger said. That means that seeing their damage from the outside is much more difficult than with other pests.

"Truly understanding what infestation looks like requires a lot of stem dissection," he said. "We started exploring the use of remote sensing with satellite images and combining that with stem dissection to try and produce a map."

Ermatinger collected data on three scales: spatial, spectral and temporal. By measuring the spectrum of light reflected by wheat fields across a large area and over time, then comparing that data with where sawfly infestation was confirmed through physical analysis of wheat stems, he built a model that could use small variations in reflected light to estimate infestation across an entire field.

"You can't manage something that you can't measure. Our hope is that we can use this to objectively make better estimates," Ermatinger said. "We're able to estimate now, to a degree of statistical significance, what the infestation rate is. It really showed us that capturing images across the life of these plants is important."

Both Ermatinger and Strand worked on-farm with Montana agricultural producers while conducting their research, noting that those relationships helped them to gain a deeper perspective of the direct applicability of the work they were doing.

They have also both progressed to more advanced degrees than they initially planned at MSU: Strand from a master's degree on to a doctorate, and Ermatinger from his undergraduate studies to a master's. They credited the collaborative and supportive environment of the Department of Land Resources and Environmental Sciences for encouraging their continued exploration.

"I never saw myself as someone who'd go on to get a graduate degree. I thought that was out of reach. But MSU has been a great community," said Ermatinger. "It's shown me that you can explore anything you want to, it's all about who you have around you and what you're interested in. It's made me understand my home state in a new way."

NDSU Extension Western Soybean Days Set For Feb. 18 & 19

NDSU Extension to host Western Soybean School Days in Minot and Dickinson, ND.

The schools are designed to provide updates on soybean production and soil fertility, and insect pests, weeds and disease management to soybean farmers and crop advisers. (NDSU photo)

By NDSU Agriculture Communication

Soybean disease management, variety updates and weed control research will be among the topics at the 2025 Western Soybean School Days on Feb. 18 in Minot, ND, and Feb. 19 in Dickinson, ND. Each day the school begins at 8:30 a.m. and concludes at noon, with lunch provided at each location.

Hosted by North Dakota State University Extension, the schools are designed to provide updates on soybean production and soil fertility, and insect pests, weeds and disease management to soybean farmers and crop advisers.

Locations:

- Feb. 18 — Conference Room, North Central Research Extension Center, 5400 Highway 83 S, Minot, ND
- Feb. 19 — Stark County Family and Ag Resource Campus Office, Dakota Room Door C, 2680 Empire Rd, Dickinson, ND.

Agenda:

- Agronomy and soybean variety updates
- Soybean disease management and research updates
- Weed control research updates
- Soil fertility and nutrient management
- Insect control and research updates
- Soybean market/production outlook

Continuing education units (CEUs) for Certified Crop Advisers are offered on the day of the event in both locations.

The schools are free to attend, but registration is required for a meal count. Register to attend at ndsu.ag/soybeanschool.

These events are sponsored by the North Dakota Soybean Council.

Watford City FFA Competes At State Leadership Development Event Day

The Watford City FFA Chapter & Agriculture Education Department participated in the State FFA leadership development competition in Bismarck on Jan. 7. Pictured are Walker Cundiff, Bronze in Advanced Quiz; Gwen Signalness, Silver in Advanced Quiz, Silver in Prepared public speaking (6th place in the STATE); Kay Richardson, Bronze in Advanced Quiz, Bronze in Demonstration; Fatima Sandez Baltazar, Bronze in Advanced Quiz; and Cooper Darby, Bronze in Advanced Quiz. (Facebook photo)

12th Annual Cattlemen's Ball Feb. 8

By Dianne Swanson

It's a whole lot of fun, with a mission. The annual Cattlemen's Ball promotes beef and all of agriculture in Richland County, while providing scrumptious food, great music and more. The premiere event of the winter, the Ball takes place on Feb. 8 at the Richland County Event Center with the social at 5 p.m. and a delicious beef dinner at 6 p.m. Kick up your heels until midnight with Kyle Shobe & the Walk 'em Boys.

Proceeds go towards scholarships and providing local beef to area schools. Tickets will be available for just $50 beginning Monday, Jan. 6 at the Sidney Chamber of Commerce and Prewitt & Company. Individual tickets and tables can also be purchased online at www.eventcreate.com/e/cattlemen-s-ball.

If you would like to be a sponsor of this event, please call Kristin Larson at 406-480-5139.

Montana State Doctoral Student Uses AI To Help Farmers In The Field

By Skip Anderson, MSU News Service

BOZEMAN, MT — Artificial intelligence seems to be everywhere these days, from social media apps to the laboratories of Montana State University. Now, thanks in part to a doctoral student in MSU's Gianforte School of Computing, it's in the state's agriculture fields helping farmers take the guesswork out of maximizing crop yields.

To a layperson, one field of winter wheat might look just like the one adjacent to it. However, Giorgio Morales, an MSU Ph.D. student from Peru, has the data to show that soil conditions and other variables can change significantly not just from field to field, but also in the span of just 10 meters. Morales is leveraging artificial intelligence to crunch thousands of data points to help farmers maximize their crop yields and profits while potentially lowering the amounts of fertilizers they use.

Morales is developing AI methods to determine how combinations and quantities of variables such as soil nutrients, nitrates, humidity and precipitation influence a particular outcome – in this case, crop yield. It's part of a practice in farming called precision agriculture, in which novel technologies are integrated into production systems.

"We can collect data from the soil, and also, we can use aerial images and satellite images to monitor the fields. All of that data can be combined to understand the behavior of the of the fields themselves," said Morales, who is expected to graduate from MSU with a Ph.D. in computer science in 2025. "We can use that information to predict what's going to happen during the harvest."

Armed with this highly detailed information, farmers can adjust the amount of seed, water or fertilizer they need to apply in specific places to maximize their profit and minimize the guesswork.

But, for Morales, his dissertation is only indirectly about maximizing crop yields and minimizing wasted seed and fertilizer. His primary objective is to develop computer models of data-crunching techniques that utilize a powerful subset of AI called neural symbolic regression. It may sound like a biological function within the human brain, but it's actually a highly complex computer process that transforms the data into a mathematical function that, thanks to AI, is highly adaptable to different settings or projects. Neural symbolic regression is a new field of study, he said, with the first academic paper on the subject published in 2021.

"In the history of scientific discovery, it took a lot of trial and error to obtain mathematical laws that explain certain phenomena, but they were limited to very specific situations," he said. "When you move away from that situation, even just a little bit, that equation doesn't explain the phenomena anymore, so you have to come up with another equation.

"But if we have data and observations about the world, is there a way to simply train a model using artificial intelligence to tell us this is the equation that explains the phenomenon that you're observing?"

Montana State University graduate student Giorgio Morales. (MSU photo by Colter Peterson)

It's that potential adaptability, made possible by AI, that is the subject of Morales' dissertation. He's using data gathered on winter wheat farms near Billings and Great Falls to develop models that could one day be adapted to industries beyond this data-driven method of farming.

"Artificial intelligence is a topic of study throughout MSU's computing labs," said John Sheppard, a Norm Asbjornson College of Engineering Distinguished Professor of Computer Science who is also Morales' Ph.D. adviser.

"MSU is very active in several funded projects that involve artificial intelligence and machine learning," Sheppard said. "For example, in addition to the Data Intensive Farm Management project that Giorgio is working on, work is under way with the U.S. Navy developing methods for risk-based predictive maintenance for fighter aircraft, among many other projects."

Other AI initiatives include an NSF-funded EPSCoR project called SMART FireS, a collaborative venture with the University of Montana in which researchers are using AI and machine learning to extend the Navy work to do probabilistic risk assessment of prescribed burns. The objective is to use AI methods to optimize the location and extent of the burns to reduce wildfire risk.

While at Montana State, Morales has been lead author of 11 papers and coauthor of another three. He recently gave a presentation on his most recent accepted, peer-reviewed paper at the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases in Vilnius, Lithuania.

"The fact that different communities and groups are recognizing Giorgio's contributions is a clear indication of the quality and potential impact of his research," Sheppard said. "There is no doubt that to succeed in the AI space requires working hard, and Giorgio does that. There is no doubt that he has the inspiration to motivate and drive that hard work."

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