

For the Land and Its People

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March–April 2021

For the past 12 months, we have experienced a year like no other.

Despite the challenges of COVID-19, the faculty and staff in the College of Agriculture, Food Systems, and Natural Resources (CAFSNR); North Dakota Agricultural Experiment Station (NDAES); and NDSU Extension have found innovative ways to carry out their missions by adapting to new ways of teaching students, conducting research and delivering essential information to North Dakota citizens.

This issue of For the Land and Its People shares just a few of the impacts of their work. We hope you enjoy their stories.

Enjoy.

Greg Lardy

Vice President for Agricultural Affairs

NDSU NORTH DAKOTA
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College of Agriculture, Food Systems, and Natural Resources
North Dakota Agricultural Experiment Station
NDSU Extension



Extension conducted forage availability surveys that resulted in a feed transportation assistance program through the North Dakota Department of Agriculture that distributed \$250,000 to 116 ranchers.

NDSU Extension Helps Producers Cope With Disasters

North Dakotans have faced a number of disasters recently, including flooding, drought and winter storms.

“NDSU Extension has played a critical role in facilitating state-level discussions regarding disaster impacts to producers and providing producers with critical information to help them respond and ultimately recover from these events,” says Miranda Meehan, disaster education coordinator.

A key part of that effort was Extension specialists and agents assessing the impacts of the damage. For example, after an early winter storm hit Steele County, Extension agent Angie Johnson worked with the local emergency manager, Farm Service Agency (FSA) director and impacted producers to develop a spreadsheet to help estimate the potential value of lost crops.

Statewide, Extension’s damage assessment work contributed to a secretarial disaster declaration because of a snow storm and a presidential disaster declaration for spring flooding and a late June 2020 storm. Extension also conducted forage availability surveys that resulted in a feed transportation assistance program through the North Dakota Department of Agriculture that distributed \$250,000 to 116 ranchers.

“NDSU Extension agents have been critical in assessing agriculture impacts and in aiding in developing disaster mitigation plans,” says Kathleen Donahue of the North Dakota Department of Emergency Services.

NDSU Extension also coordinates and leads regular disaster calls with state and federal agencies, commodity groups and congressional staff.

“I really appreciate the calls and how well organized they are,” says Darrell Nitschke, western regional director for U.S. Representative Kelly Armstrong of North Dakota.

Other ways Extension has helped producers:

- Hosted three winter cow management webinars and 10 webinars on agriculture challenges that received 250 live and 1,486 video views
- Partnered with the FSA to host six webinars on federal assistance programs that received 783 live and 1,050 video views
- Created Ag Disasters and Drought webpages that have been accessed by 44,880 users 51,151 times
- Held six Preparing Your Ranch for Drought webinars

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NDSU Extension agents have been critical in assessing agriculture impacts and in aiding in developing disaster mitigation plans.



John Breker



Jodi Boe

Ag Degree Programs Provide a Valuable Opportunity

From an early age, John Breker, who grew up on a small-grains farm in southeastern North Dakota, was fascinated by soils, so earning a degree in soil science at NDSU was a natural step.

A crop and weed science degree from NDSU was a perfect fit for Jodi Boe, who grew up on a farm in western North Dakota and discovered an interest in agricultural production, particularly weed identification.

Both parlayed their degrees into additional education – a master’s degree in soil science from NDSU for Breker and an agricultural economics degree from NDSU and a master’s degree in weed science from Purdue University for Boe – and jobs at AGVISE Laboratories. AGVISE is a North Dakota-based company that offers agricultural testing services and agronomic support to farmers, crop consultants and agronomy retailers in the U.S. and Canada.

“My degree in crop and weed sciences provided the building blocks of my agronomy knowledge,” says Boe, an agronomist in AGVISE’s Northwood, N.D. location.

Both also took advantage of internships and extracurricular activities while at NDSU.

“Hands-on experiences interning during summers moved the basics into the practical, reinforcing what I learned in class,” Boe says.

She served as North Dakota FFA president and an Agriculture Future of America Campus Ambassador, and travelled for classes in Argentina, China, Austria, Italy and Germany. She also was a teaching assistant for professor Edward Deckard’s World Food Crops class.

Breker’s extracurricular activities included studying abroad in Puerto Rico and New Zealand, and serving as an Ag Ambassador, treasurer of the Collegiate Farm Bureau, president of the Soil Science Club and member of the Agronomy Club. In addition, he worked with soil scientist Dave Franzen on updating soil fertility recommendations for corn.

“I really rely on the knowledge and experience I had at NDSU,” says Breker, who provides customer service and technical support from the Northwood AGVISE office.

“These alumni reflect the tremendous benefits that are derived from the fact that they fully embraced opportunities for expanding their knowledge and developing leadership skills while they were NDSU students,” says David Buchanan, associate dean for academic programs in the College of Agriculture, Food Systems, and Natural Resources.

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Extension Diabetes Prevention Program Making a Difference

Gary McCullough figured he had a good plan for shedding unwanted pounds.

"I thought to lose weight, I could just eat less of the same kinds of foods," he says.

The Valley City man found that isn't the case when he attended the National Diabetes Prevention Program hosted by NDSU Extension.

He lost 20 pounds as a result of the program and learned to make better food choices. He also took over meal preparation at home and began exercising 150 minutes weekly.

"The program is all about how to create healthier behaviors and improve your lifestyle," says Nikki Johnson, NDSU Extension community health and nutrition specialist.

The one-year program includes educational sessions and support for people with prediabetes and those at a high risk for prediabetes. It is designed to help people take control of their health by making healthful food choices, losing weight and being more active.

Participants have three options for taking the class: meet in person, do distance learning through Zoom or go online to learn on their own schedule within a certain timeframe. Extension offers the class at no charge or for a nominal fee.

NDSU Extension has teamed up with public health staff and local health-care providers throughout the state to offer the program. Extension also is involved in other partnerships, such as running classes for Sanford Health Plan members.

"The program is successful because the participants are supported in their journey," says Susan Milender, the Extension family and community wellness agent in Barnes County.

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Surveys show the program is working. In 2020:

- » Participants had an average weight loss of **6.1%** per person
- » **94%** reported an increase in their physical activity level
- » **58%** reported their blood glucose was lower than when they began the program
- » **58%** indicated their total blood cholesterol level was lower





Evaluation Project Promotes Fruit Production

The Northern Hardy Fruit Evaluation Project at the Carrington Research Extension Center (CREC) introduces growers, processors and consumers to unfamiliar fruits that are easy to grow in North Dakota so new and existing agribusinesses can explore untapped markets.

The center began the Northern Hardy Fruit Evaluation Project in 2006 after hosting North Dakota's first informal wine and grape growing meeting.

"The enthusiasm and positive comments from attendees indicated a great interest, yet also told us that people who wanted to grow fruit were not being supplied with the most current information needed to make good planting decisions," project manager Kathy Wiederholt says.

To expand knowledge and use natural resources to create economic opportunities in the state, the CREC enclosed six acres for woody plant research and created the Northern Hardy Fruit Evaluation Project to determine which fruit plant selections would be desirable, hardy and productive in North Dakota.

The fruit orchard covers three acres and consists of 14 varieties and more than 750 plants arranged as demonstrations and variety trials.

"The primary objective is to evaluate each crop for adaptation, disease resistance, production practices, winter hardiness, productivity, fruit quality and vinification (wine making) quality under central North Dakota growing conditions," Wiederholt says.

A second objective is to make home gardeners and commercial enterprises aware of the opportunities these fruits present as agricultural industries.

"It's been wonderful for us," says Bruce Gussiaas, who with his wife, Merleen, own Dakota Sun Gardens Winery near Carrington, N.D.

The couple, who grow a variety of fruits, including haskaps, currants, raspberries, plums, cherries and apples, say they've received lots of good advice, such as what varieties to plant, how far apart to plant and when to harvest, through the project.

They are among more than 14,000 people who have accessed information through tours, meetings, videoconference programs and phone calls.

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ND Crown chickpea



ND Dawn yellow field pea



ND Dickey conventional soybean



ND Frohberg hard red spring wheat



ND Heart conventional oat



ND Noreen hard red winter wheat



ND Twilight black bean

New Crop Varieties Offer Opportunities

Plant breeding is the science of hybridizing plants with the goal of producing improved crop varieties that have unique and superior traits such as disease resistance, and improved agronomic performance and end-use quality.

“Plant breeding to develop improved varieties can be accomplished many ways, including crossing two parental lines and selecting progeny with desirable traits,” says Rich Horsley, a professor and head of the Plant Sciences Department. “This method of plant breeding does not require genetic transformation.”

Developing a new plant variety through traditional breeding takes a decade or more from the initial cross to the time of variety release when it becomes available for farmers to grow.

The North Dakota Agricultural Experiment Station released seven new crop varieties in 2020:

- ND Crown, a Kabuli type chickpea, has high yield potential. It is ideal for whole seed and processed markets because of its larger seed.
- ND Dawn, a large yellow field pea, has high yield potential. Its uniform, round seed makes it stand out from other varieties.
- ND Dickey is a conventional (non-GMO) soybean with high yield potential. It also has resistance to Race 3 of phytophthora root rot.
- ND Frohberg, a hard red spring wheat, has good yield potential, strong end-use quality and very good disease resistance. It also has good straw strength.
- ND Heart is a conventional oat with exceptionally high groat beta-glucan and protein concentration. These qualities should allow for the production of specialty oat products with unique beneficial nutritional characteristics.
- ND Noreen, a hard red winter wheat, is intended to replace Jerry. ND Noreen has higher yield potential than Jerry, with similar winter hardiness, height, maturity and quality.
- ND Twilight, a black bean, has higher seed yield, compared with other black bean cultivars commonly grown in the region. It also is resistant to rust.

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NDSU's Land-Grant Mission

The College of Agriculture, Food Systems, and Natural Resources has a tradition of excellence in educating students for real-world careers. Our students learn from and work with world-class scientists in state-of-the-art facilities. These interactions, along with a relatively low student-faculty ratio, provide opportunities for students to develop their critical thinking skills, to work in a team setting, and to capitalize on hands-on learning experiences that will allow them to be competitive in a global economy.

The North Dakota Agricultural Experiment Station consists of seven Research Extension Centers placed strategically throughout the state, the Agronomy Seed Farm in Casselton and the Main Station in Fargo. We work to develop techniques and technologies to enhance the production and use of food, feed, fiber and fuel from crop and livestock enterprises.

NDSU Extension empowers North Dakotans to improve their lives and communities through science-based education. We serve all people of the state through our 52 county and Fort Berthold offices, seven Research Extension Centers and the main campus in Fargo.

If you would like more information on the programs in this publication, contact the faculty and staff listed. If you would like more information about our other programs or have questions, comments or suggestions, please contact me.

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Online Livestock Showmanship Clinics Helped 4-H'ers Hone Their Skills

The COVID-19 pandemic left 4-H animal show managers with questions on to how to move forward with their animal events in 2020.

As a result, a lot of shows that served as practice opportunities leading up to county fairs were canceled. At the same time, youth were encouraged to continue working toward their show goals and develop new showmanship skills.

"The North Dakota 4-H Animal Science Program Planning Committee responded to this difficult situation by coming together to host a virtual livestock showmanship clinic series," says Leigh Ann Skurupey, interim chair of the NDSU Extension Center for 4-H Youth Development.

The series covered topics such as animal training, grooming and feeding, equipment and 4-H character for eight species: beef cattle, sheep, goats, swine, horses, poultry, dairy cattle and rabbits.

The series wasn't just for North Dakota youth. It attracted hundreds of participants from throughout the U.S. and Canada. They ranged from 93 participants for the rabbit clinic to 260 for the horse clinic.

"I took the clinic to learn more about my small animals and how to show them better in 4-H," says LaMoure County 4-H'er Emelia Lehr, who participated in the poultry clinic. She has four roosters and 15 hens, and shows her roosters Bo and Walter at local fairs and county 4-H Achievement Days. She also shows her rabbit.

The clinic definitely was worthwhile, according to her.

"I have been to some live showmanship clinics in my county and really learned a lot," she says. "This online clinic benefitted me because I could get a review of what I learned at them and learn a couple new things."

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