

For the Land and Its People

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March–April 2020

What a different world we are living in since the inaugural issue of this newsletter.

The College of Agriculture, Food Systems, and Natural Resources (CAFSNR), North Dakota Agricultural Experiment Station (NDAES) and NDSU Extension have quickly adapted to new ways of teaching students, conducting research and delivering essential information to North Dakota citizens.

Using technology and thinking creatively have allowed us to continue our work. I invite you to read more about the impact made by CAFSNR, NDAES and NDSU Extension in this issue.

Enjoy.

Greg Lardy

Vice President for Agricultural Affairs

NDSU NORTH DAKOTA
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College of Agriculture, Food Systems, and Natural Resources
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NDSU Responds Immediately and Innovatively to COVID-19



I'm very proud of our faculty and staff who have met many challenges adjusting but now are carrying out their teaching, research and Extension responsibilities in new and innovative ways.

When North Dakota's COVID-19 response started in early March, the College of Agriculture, Food Systems, and Natural Resources; North Dakota Agricultural Experiment Station; and NDSU Extension adjusted quickly.

"I'm very proud of our faculty and staff who have met many challenges adjusting but now are carrying out their teaching, research and Extension responsibilities in new and innovative ways," says Greg Lardy, vice president for Agricultural Affairs. "Many have worked more than full time while also caring for children at home and often helping them with their schoolwork."

Every academic department, Research Extension Center and Extension county office has many examples of how they've switched to remote work. Here are just a few:

College of Agriculture, Food Systems, and Natural Resources

Rob Maddock's Live and Carcass Evaluation and Marketing students had two one-hour lectures and one two-hour lab in person each week.

"Now the course is asynchronous since students may be busy with other classes or work (often on their farms or with internships), or have unreliable internet access," he says. "I'm recording voice-over PowerPoint to explain concepts."

For lab, Maddock takes photos or short videos of live animals. The livestock then are slaughtered in the meats lab and he takes photos of the carcasses, demonstrating how carcass traits are measured and the actual measurements. Students evaluate the live animals and carcasses, then Maddock provides the measurements and the students use pricing reports to determine value.

Maddock says, "It is more difficult to point out how estimates of live traits are being evaluated, but the students are doing a good job of making realistic estimates and determining prices."

N.D. Agricultural Experiment Station

Greenhouse manager Julie Hochhalter says the complex went from having 15 student workers to three, yet every day someone walks 2.3 miles to sanitize every door handle and other surfaces that are touched regularly by faculty and staff who continue to use the greenhouse.

"We have 86 rooms, and they're all full now," Hochhalter says. "In the greenhouse, we practice physical distancing, encourage everyone to wear masks and have more sanitizer around the building. With card swipes, we can trace everyone who enters the building, and we've had them sign updated procedures to get access."

NDSU Extension

- Agricultural economics specialists host a weekly webinar with updates on marketing situations.
- Several family and community wellness (FCW) agents led Facebook Live sessions on handwashing and nutritious cooking.
- Youth from 17 states took part in the first in a series of virtual livestock showmanship seminars.
- A team of agents is developing farm safety information for expected spring challenges.
- Community development specialists have hosted virtual town halls for the state's community developers.
- Agriculture and natural resources agents use technology to make field recommendations.
- Many 4-H clubs and councils are meeting virtually.
- Parent educators use Facebook Live to connect with families and share parenting tools, especially ones that might be useful during these challenging times.
- With more interest in growing food, agents and specialists are developing videos about gardening.

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NDSU Extension Leads National Coalition to Fight Soybean Cyst Nematode

Soybean cyst nematodes (SCN) are plant-parasitic worms that cause \$1 billion in yield losses to U.S. soybeans annually, and that number is likely to increase, says Sam Markell, NDSU Extension plant pathologist.

First detected in North Dakota in 2003, SCN continues to spread throughout the state, and it is overcoming genetic resistance in much of the U.S.

"We quickly realized that many growers were largely unaware of how costly SCN could be, and that mixed messages on how to manage it were creating confusion," says Markell. "The situation was too big and too complex for any single

company, university or check-off organization to address alone, thus the concept of an SCN coalition was born in late 2015."

One of the largest national programs ever led by NDSU Extension, the SCN coalition combines financial support and research knowledge from state and national soybean check-off organizations, major agrochemical companies and land-grant universities.

The SCN coalition uses multiple forms of mass, social and digital media to spread awareness about the costly effects of SCN, and provides information on how to manage the worm.

Highlights since the launch of the SCN coalition in 2018 include:

- ▶ The coalition has resulted in more than 18 million potential impressions through the ag media.
- ▶ News conferences, news releases, learning center sessions and other media events at national trade shows such as the Commodity Classic and Farm Progress Show reached millions of growers.
- ▶ In the December 2018 issue of Corn + Soybean Digest, a 32-page SCN insert was distributed to 113,000 growers across the U.S.
- ▶ As a public-private partnership, the SCN coalition is well positioned to address a national problem at a local level.

"When we combine the national presence of the SCN coalition with the strong local support of the North Dakota Soybean Council, ag companies, NDSU Extension and others, we have a great opportunity to help North Dakota soybean growers," says Markell. "We are all working together to save growers money by managing SCN, and the SCN coalition is a powerful program that is helping us achieve that."

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The SCN Coalition
940 Tweets

The SCN Coalition @TheSCNCoalition · 2h
The #SCNCoalition wants to keep #soybean growers informed about the No. 1 yield-grabbing pest.

Sign up for the e-newsletter to receive management options & learn about research being conducted to beat #SCN.

Click here > bit.ly/2NW7rH3

A new generation of soybean cyst nematode is born every 24 days during summer. Many overpower resistant soybeans. All will cut yield potential.

What's your number?
Take the test. Beat the pest.

What's your number?

Take the test. Beat the pest.

The SCN Coalition™

Funded by the soybean checkoff

Powerful Tools for Caregivers Program Provides Support

The vast majority of older North Dakotans want to stay living in their home as they age.

In 2017, North Dakota had 68,000 family caregivers who provided 57 million hours of unpaid care, valued at \$980 million.

“These family caregivers provide a range of daily activities, such as transportation, personal care, managing finances, grocery shopping and much more,” says Jane Strommen, NDSU Extension gerontology specialist. “Caregiving can be a rewarding experience but can also be filled with enormous physical, emotional and financial challenges.”

NDSU Extension is making sure that those taking care of older adults receive support through a national program, Powerful Tools for Caregivers (PTC). Fifteen Extension agents are trained to lead the classes.

During the six-week course, spouses, partners, adult children, other family members, neighbors and friends who are caregivers learn how to take care of themselves by reducing stress, improving their self-confidence, learning how to better communicate their feelings and balance their lives, increasing their ability to make tough decisions and finding helpful resources.

In 2019, nine workshops were offered in five counties, with 85 participants attending. Twenty-six new class leaders also were trained to deliver the program in their community.

“Throughout the years of conducting this program, class participants have shared with me that this class empowered them to take care of themselves,” says Rita Ussatis, NDSU Extension agent in Cass County.

“One participant even said that the class saved his life by providing the tools and resources he needed to find help for his wife.”

Due to the COVID-19 pandemic, NDSU Extension is conducting PTC in an online format.

The program recently was expanded to serve the population of caregivers of children with special health and behavioral needs because research indicates these caregivers experience many common concerns and stresses addressed by this program.

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**NDSU Extension
is making sure
that those taking
care of older adults
receive support.**

4-H Judging Activities Develop Lifelong Skills

4-H youth often say they enjoy competing in judging contests – without even realizing they’re developing lifelong skills.

The North Dakota 4-H program offers contests in livestock, crops, horse, meat, range, land and dairy judging and consumer decision making in addition to communication arts, equine presentations, hippology, horse and livestock quiz bowls, and shooting sports.



“Through judging contests, youth have the opportunity to set goals, gain knowledge and practice what they have learned,” says Brad Cogdill, Center for 4-H Youth Development chair. “Decision making, oral and written communication skills, and problem solving are three life skills youth learn and practice as they prepare for and compete in contests. As team members, they develop interpersonal, leadership and cooperation skills.”

Former LaMoure County 4-H'er Eric Lahlum now coaches the county's crops judging team.

“I use the skills I learned in 4-H judging contests daily in my career,” says the Corteva Agrisciences territory manager. “I use the critical thinking and communication skills every day in my interactions. Being able to quickly identify seeds and plants allows me to properly recommend the correct product to help solve farmers' problems.”



Jacob Klaudt of Beulah participated in the consumer decision-making contest.

“One of my favorite parts was bonding with my teammates and using that chemistry in the group think portion of the contest,” Klaudt says. “Preparing for the national contest took a lot of time and dedication, but it definitely paid off. The experience helped further my public speaking and decision-making skills.”

Research supports the lasting impact. One study found that 97% of judging alumni indicated their 4-H judging experience positively influenced their personal success. In another study, 84% of those who competed in dairy judging contests said they use the evaluation and decision-making skills they learned professionally and personally.

Cogdill says these skills help 4-H youth become competent, capable and contributing individuals as they transition to adulthood.

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Distillers Grains Can Be Used as Fertilizer

Distillers grains, primarily a livestock feed, also could be used as fertilizer on some crops, research at NDSU's Carrington Research Extension Center shows.

Center soil scientist Jasper Teboh and research specialist Szilvia Yuja started this research in 2015 after Casselton, N.D.-area producers near the Tharaldson Ethanol plant began asking whether applying distillers grains could benefit their crops. Distillers grains are a coproduct of producing ethanol from corn.

The plant was producing excess condensed distillers solubles (CDS), a liquid coproduct of corn ethanol production. Producers could get the CDS for little or no cost.

Teboh and Yuja tested CDS, which can be surface applied or injected into the soil, and wet distillers grains (WDG), which can be applied using a manure spreader, on corn crops from 2015 to 2017 and on wheat from 2016 to 2019.

"We wanted to look at the contribution and impact of phosphorus (P) from these coproducts on yields of corn and wheat," Teboh says. "These two crops have high phosphorus demand and are, therefore, more responsive to phosphorus fertilizer."

The study shows that corn distillers coproducts, when applied to supply the same rate of P as conventional fertilizers, produce similar yields, or in some years better yields.

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www.ag.ndsu.edu/CarringtonREC/documents/annual-reports/2019-annual-report-web.pdf

"An added benefit is that they supply other macro and micro nutrients as well, which lowers the need for synthetic fertilizer inputs," Teboh says.

Distillers grains aren't a replacement for conventional phosphorus fertilizer sources, however.

"They are simply an alternative source of a multiple nutrient supply when farmers can get them when an ethanol plant can give it for free or sell at attractively discounted rates (specifically CDS)," Teboh says.

He recommends producers get the distillers grains tested before applying them on a field because the nutrient content is different between WDG and CDS, and also varies among batches.





Mobile Cow Command Center Provides Answers

Considerable effort goes into developing technology to improve cattle production, but North Dakota producers want to know whether it will work for them before investing in it.

"The question is, are there technologies out there that can provide us with options to manage the cattle over their lifetime?" says Carl Dahlen, an associate professor and reproductive physiologist in NDSU's Animal Sciences Department. Dahlen, NDSU Beef Cattle Research Complex (BCRC) manager Sarah Underdahl, Central Grasslands Research Extension Center (CGREC) animal scientist Michael Undi, CGREC research technician Stephanie Becker and graduate student Kacie McCarthy developed the Mobile Cow Command Center (MCCC) to find answers.

The MCCC is a small solar-powered portable trailer that combines two commercially available technologies: the SmartFeed system, which is designed to control feed intake in cattle, and CowManager, a radio-frequency identification ear tag system that monitors cow activity and reproductive and health status.

The team tested two MCCC units at the CGREC in 2018.

"We were evaluating what the technology was telling us, compared

with what we were seeing from our normal, routine management observations," Dahlen says.

One of the issues the researchers wanted to determine is whether the two technologies work in an expansive pasture environment. The study involved 60 heifers. Some received a mineral supplement, some received an energy-based supplement and a third group did not have access to either supplement.

"The feeding system was really good at doing what it was supposed to do," Dahlen reports.

However, the technology that provided alerts when the heifers were ready to breed or were ill was unreliable.

"We had a bunch of false estrus and health alerts," Dahlen says.

The team also tested the CowManager system on heifers in confinement at the BCRC in 2019.

"It seems to be more accurate there, but the system was developed for cattle in confinement," Dahlen says.

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www.ag.ndsu.edu/CentralGrasslandsREC/cgrec-annual-reports-1/2018-annual-report/8bCGREC18McCarthy.pdf



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Agriculture and Extension at North Dakota State University

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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www.ndsu.edu/vpag



Bison Fund: Creating Real Student Success Through Real Investments

The S&P 500. Stock options. Net profit margin. Liquidity.

Most people vaguely can associate these terms with the stock market, but for one group of NDSU students, these terms are just part of the real-world experience they are gaining from Bison Fund.

Bison Fund is an undergraduate student organization that helps manage more than \$1.3 million in investments for the university.

Bison Fund students gain real-world experience by evaluating companies based on factors such as industry, sustainability, management and competition. They use state-of-the-art Bloomberg terminals in the NDSU Department of Agribusiness and Applied Economics commodity trading lab at Barry Hall to monitor and analyze real-time financial market data and place trades.

"The Bison Fund helps these undergraduate students by preparing them to conduct due diligence efforts," says William Wilson, NDSU distinguished university professor in the Department of Agribusiness and Applied Economics. "Whether it's analyzing a company, credit loan or other financial responsibilities, the tools learned and developed

through the Bison Fund allow agribusiness and applied economics students to immediately come into their organization and make an impact."

Wilson continues, "In recent years, there has been increased club participation by agriculture majors, and we are seeing venture capital firms and other investment management firms seek out these students because of the experiences they gain as part of Bison Fund."

Between earnings seasons, Bison Fund members develop networking skills by hosting business workshops, bringing in guest speakers from the industry and touring investment firms.

Lee Vetsch, an agribusiness and applied economics master's degree student and former Bison Fund president, says, "The fund offered me the chance to learn and create valuation models, investment theses and professionally written reports that became invaluable when applying for jobs and internships. My current work as a venture capital analyst for Ospraie Ag Science was strengthened by my involvement in Bison Fund."

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