For the Land and Its People

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

4-H adjusts activities with a COVID-19 summer

September-October 2020

We are living in uncertain times. The rising number of COVID cases, continued challenges with a global pandemic and uncertainty around the outcome of the presidential election continue to cause many to worry about an unknown future. But in spite of the uncertainty, we can take heart knowing that our mission and purpose in the College of Agriculture, Food Systems, and Natural Resources (CAFSNR); North Dakota Agricultural Experiment Station (NDAES); and NDSU Extension are meaningful and impactful.

Our faculty and staff continue to carry out their mission despite the uncertainty around them. This issue of For the Land and Its People shares just a few of the impacts of their work.

Enjoy.

Greg Lardy
Vice President for Agricultural Affairs

NDSU NORTH DAKOTA STATE UNIVERSITY

College of Agriculture, Food Systems, and Natural Resources
North Dakota Agricultural Experiment Station
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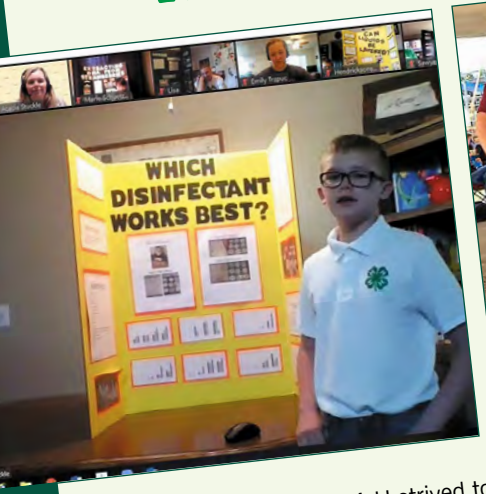
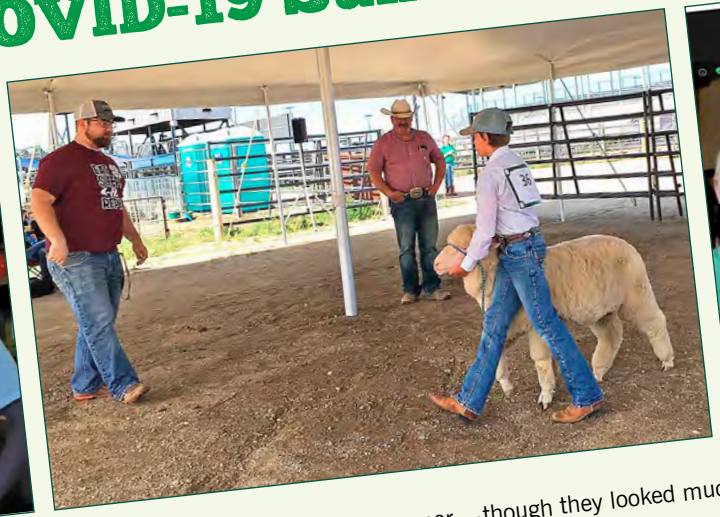
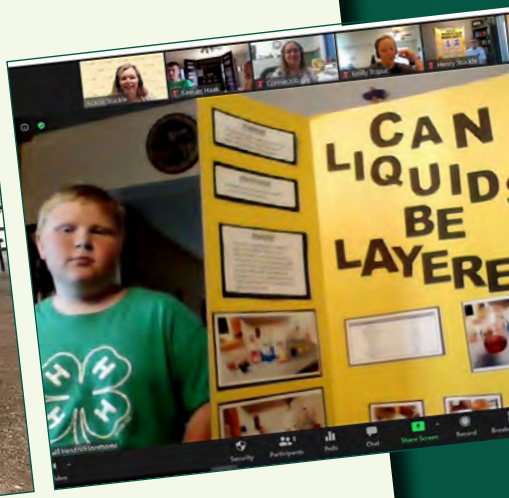
4-H Adjusts Activities With a COVID-19 Summer







North Dakota 4-H strived to provide engaging activities this summer—though they looked much different to follow COVID-19 guidelines.

Instead of in-person club and project meetings, 4-H families were offered do-at-home activities that included topics ranging from building and learning the science behind kites to watching the life cycle of a plant by growing a bean in a bottle.

Though in-person camps had to be canceled, some went virtual. Crime Scene Camps were offered via Zoom daily using NDSU College of Engineering kits.

Lindsey Leker, state 4-H youth development specialist–science, says, "Campers followed forensic science activities to solve the crimes. The camps were so popular that we will be offering them throughout the school year."

Counties tackled achievement days and county fairs to meet COVID guidelines and their 4-H members' needs.

In Stark-Billings County, agriculture and natural resources (ANR) agent Kurt Froelich and family and community wellness (FCW) agent Holly Johnson developed a county fair COVID plan that was approved by county health officials and the state 4-H office. 4-H'ers left their livestock in their trailers until showtime. Only a few 4-H'ers showed at a time to maintain social distancing.

Ward County animal shows were on Facebook Live so family and friends could watch from anywhere in the world. Emily Goff, Ward County 4-H agent, plans to continue utilizing Facebook Live.

Benson County ANR agent Scott Knoke had judges travel to 4-H families' farms for their achievement days to evaluate their livestock so people didn't mingle.

In Steele County, ANR agent Angie Johnson and FCW agent Amber Stockeland had 4-H'ers sign up for time slots to drop off and pick up their static exhibits. Instead of interviews, written pages described what the 4-H'ers learned and included the judges' feedback.

Emmons County FCW agent Acacia Stuckle and ANR agent Emily Trzpuc hosted Communication Arts, Project Expo and Clothing Revue contests plus an entire fair virtually. 4-H'ers submitted photos and videos, and answered questions live online.

Throughout the summer, Leigh Ann Skurupey, 4-H associate chair and state 4-H youth development specialist–animal sciences, hosted several discussions for staff to learn what worked and what didn't with events.

"Overall, we're thrilled that our agents were able to develop and carry out plans to give our 4-H youth some interactive experiences during this COVID summer," she says.

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Extension Helps Develop Soil and Water Conservation Leaders

Attending NDSU Extension's North Dakota Soil and Water Conservation Leadership Academy was time well spent for Matthew Olson, 319 watershed coordinator for the Wild Rice Soil Conservation District.

"For new staff and supervisors, I believe it clarifies the goals and missions of soil conservation districts," he says. "It also provides some great background for understanding personality types, becoming an effective leader and running effective meetings."

The academy is designed to build people's skills and enhance their abilities to lead community-based watershed conservation projects to improve and protect water quality. It was developed primarily for soil conservation district supervisors and employees. However, people representing several other organizations, including the U.S. Department of Agriculture's Natural Resources Conservation Service, NDSU Extension, BNI Coal, North Dakota Department of Health and North Dakota State Soil Conservation Committee, and one state senator have participated.

"We believe that these academies are playing an important role in diversifying conservation leadership in North Dakota," says Aaron Field, program coordinator.

The academy is presented at two levels. In Level One, participants learn to navigate conflict, seek and act on community input, facilitate effective discussions and meetings, identify and manage human impacts on watersheds and understand watershed hydrology. Level Two focuses on participants' ability to do team-based conservation planning, manage interpersonal relationships, capitalize on the strengths of multigenerational teams, and build and maintain conservation partnerships.

Nearly 300 conservation leaders from 50 of North Dakota's 54 soil conservation districts have participated. Participants in Level One training reported an average of 23.5% increases in their understanding, confidence and abilities. Level Two participants reported increases averaging 15.8%.

"Taking time away from day-to-day work/activities and spending some time learning how to be better and do better is valuable," says Donna Grann, a member of the North Dakota State Soil Conservation Committee who attended the academy.

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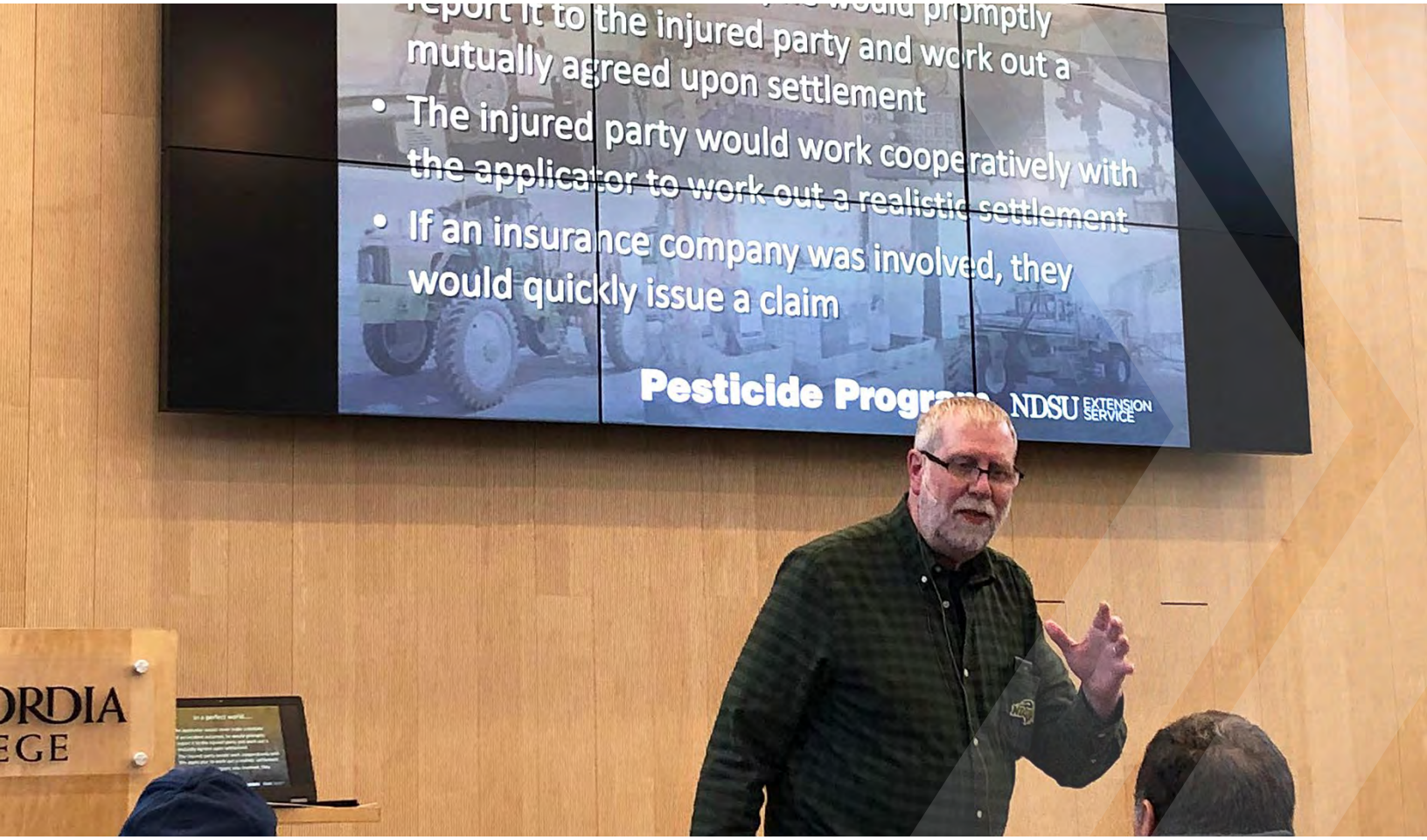

No other Extension program allows agents to develop relationships with every landowner, farmer or farm worker in their respective counties the way the pesticide certification program does.

NDSU Extension
Pesticide Certification Program
Vital to Safe Handling and Knowledge

"There's so much information to digest when it comes to pesticides," says Dwight Johnson of Park River, N.D. "Whether it's the chemistry of pesticides or understanding spray drift, NDSU Extension's Pesticide Certification program provided the information I needed to work with pesticides effectively."

Johnson is one of 4,000 individuals who obtained their private pesticide certification through NDSU Extension's Pesticide Certification Program in the past year.

"Extension is responsible for the certification of pesticide applicators and/or dealers in North Dakota," says Andrew Thostenson, Extension pesticide program specialist. "Certification is intended to ensure that people who use or merchandise certain pesticides or who make specific types of pesticide applications have a fundamental understanding of how to do so safely. Pesticide certification is the foundation for the safe and effective use of pesticides."

Pesticide certification is required by the U.S. Environmental Protection Agency for people selling, purchasing or using restricted-use pesticides. The program is offered to private applicators such as farmers, gardeners and landowners, or anyone wanting to use restricted-use pesticides, and commercial or public applicators and dealers.

"For this program to be successful, it takes a collaborative effort among NDSU Extension agents who administer the program in each county and state specialists who develop the technical information needed to keep the program timely and relevant," Thostenson says.

The work of Tom Peters, NDSU Extension sugar beet agronomist, and John Nowatzki, NDSU Extension ag machines systems specialist, has been critical in this area, explains Thostenson. Peters, Nowatzki and Thostenson have worked together to develop information on spray nozzle technology, understanding air temperature inversions and reducing spray drift by analyzing North Dakota Agricultural Weather Network data. In addition, they have updated and authored multiple Extension publications and presented seminars at meetings and field days.

Rick Schmidt, NDSU Extension agent in Oliver County, and Brad Brummond, Extension agent in Walsh County, believe that no other Extension program allows them to develop relationships with every landowner, farmer or farm worker in their respective counties the way the pesticide certification program does.

"In Walsh County, we have many minority farm laborers who take the certification course," says Brummond. "By connecting with them through pesticide certification, I get to know them personally and connect them to other Extension education they might be looking for."

"We believe this program empowers all applicators to use pesticide products both effectively and economically," Thostenson says. "But beyond providing knowledge on current pesticide issues, we are always thinking ahead to improve the training for future applicators. In the future, we plan to incorporate information on situational ethics, good decision making and managing stress into our trainings as well."

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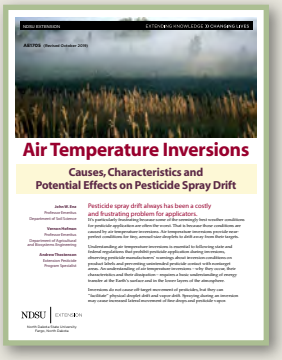

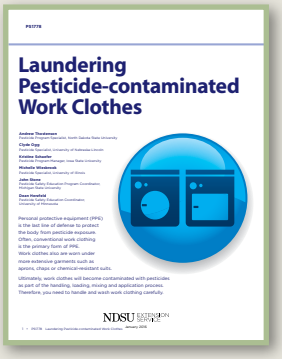

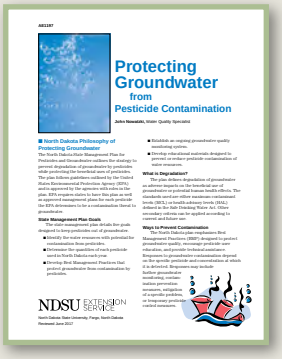

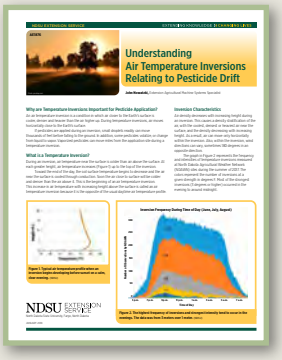

NDSU Breeding Barley Varieties for Craft Brewing Industry

North Dakota ranks third in the nation for barley production.

The craft brewing industry is growing, and NDSU scientists are playing a role.

About 12 years ago, craft brewers approached Rich Horsley, NDSU barley breeder and Plant Sciences Department head, and Paul Schwarz, a Plant Sciences professor who specializes in malting barley quality, to see if NDSU had any barley varieties that would work for them. The scientists offered the craft brewers the same high-quality varieties they bred for large commercial brewers. The craft brewers tried those varieties but found they were too high in protein and enzymes.

What the craft brewers needed sounded just like the varieties that NDSU discarded because they weren't what the large brewers wanted, according to Horsley.

"The material was here all along," he says. "We just needed someone to tell us what they wanted."

NDSU's barley breeding efforts also will benefit North Dakota producers.

"It's become a lot of fun to work with these craft brewers and the craft maltsters because it really gives us an opportunity to develop some materials that wouldn't have been available to the farmers otherwise if it wasn't for the craft sector," Horsley says.

The scientists haven't developed varieties for the craft brewers yet, but they are making progress.

"We're in the testing stages with this," Horsley says. "Craft brewers are evaluating our advanced lines."

Two Track Malting Co. of Lincoln, N.D., is evaluating one of those advanced lines.

Greg Kessel of Belfield, N.D., a partner in the company, is pleased NDSU is trying to develop barley varieties for the craft brewing industry.

"This is very much a need of ours," he says. "What better place to do this?"

North Dakota ranks third in the nation for barley production.

NDSU breeders also have started work on developing varieties of wheat, potatoes and dry beans for the artisan market.

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Narrowleaf Hawksbeard Controllable if Caught Early

With its yellow flowers, narrowleaf hawksbeard resembles a dandelion, but it is an invasive weed that can reduce crop yields significantly.

It grows 2 to 3 feet tall, and a single plant can produce up to 50,000 seeds. It's spread by the wind. It can start out on the edge of a field in one year, and if a strong wind blows the seeds around, it can infest the entire field the following year.

Narrowleaf hawksbeard, which is native to Siberia and much of Eurasia, was not much of a problem in North Dakota before 2017. However, that year, several fields had infestations, and it was named the weed of the year in 2018.

It's a winter annual, which means it germinates in the fall and develops quickly in the spring. As a result, it outcompetes crops for nutrients and moisture.

The good news is that it can be controlled with herbicides, according to weed scientist Brian Jenks, who is based at the North Central Research Extension Center near Minot.

"The biggest challenge is in lentils and chickpeas, where we don't have very many herbicide options," he says.

The key is to control it with herbicide in the fall and again in the spring before planting a crop.

"That should control 95% to 98% of it," Jenks says. "If you wait until spring, you could miss it entirely."

Producers will need to use higher than normal rates of herbicide, and they may need to add another herbicide to their usual mix.

The goal is to control the narrowleaf hawksbeard before it goes to seed. Unlike weed seeds that can remain dormant for years, narrowleaf hawksbeard seeds have little longevity.

"If we can control them in one year, we tend to have very clean fields the next year," Jenks says.

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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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CAFSNR Faculty Adapt to HyFlex Teaching Environment

Due to COVID-19, NDSU announced during the summer it would be moving to a HyFlex Educational Model.

HyFlex is a technology-enhanced instructional model that allows students and faculty to fully interact in person or remotely. Most NDSU classrooms are equipped with video technology that allows students or faculty who are vulnerable, in isolation or in quarantine to still teach, learn and be an active part of the classroom experience.

For students in NDSU's Department of Plant Sciences' Principles of Forage Production class, things look a little different this year.

"It's been a challenge to convert a class like forage production to a virtual environment," says Marisol Berti, NDSU Department of Plant Sciences professor.

"For example, I like my students to be able to smell and touch the different hay and silage samples on the day I teach about forage analysis," Berti explains. "This year we packaged individual hay/silage samples and had students come pick them up to be able to conduct the analysis at home simultaneously with their lab group."

Berti also spent weeks photographing and uploading photos of forage samples to allow for all classes, quizzes, tests and lab assignments to be completed online.

"While the workload has been tremendous, one of the benefits of teaching in a HyFlex environment has been class attendance," she says. "Because students can attend class from home if they need to, we are seeing almost a 100% attendance rate, which is translating into better engagement and higher grades."

"Now that I've developed my class to fit the HyFlex environment, I don't think I'll go back to what I was doing before," says Danielle Condry, NDSU Department of Microbiological Sciences assistant professor. "My students and I are benefiting from the flexibility, as they are able to help their families, work or participate in extracurricular activities because they have the flexibility to change up their mode of participation at any time."

Berti and Condry credit the help of graduate and undergraduate assistants with the continued success of their courses.

Berti concludes, "We are continuing to improve the course, working as a team and adapting as we go."

FOR MORE INFORMATION:
https://www.ndsu.edu/covid19/fall_2020/hyflex_education
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