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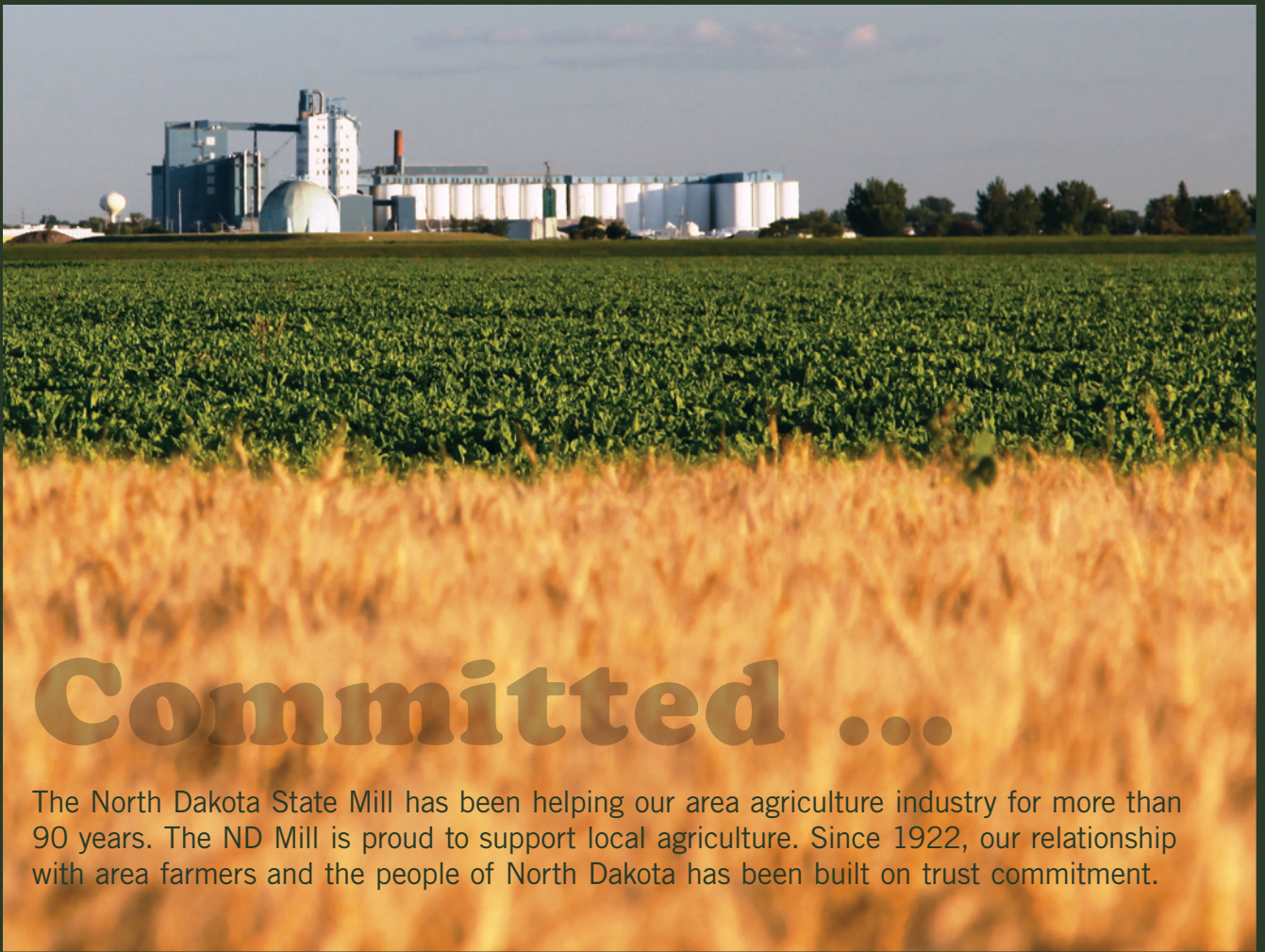
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22 EXPORTS

# A World of Opportunity

Exporting is good business for family farms or large operations



6 AG PROFILE

### North Dakota Agriculture

An overview of the state's food, farming and agribusiness sectors

8 TOP AG PRODUCTS

### What's Growing in North Dakota

A glimpse at the state's leading ag products



10 YOUTH IN AGRICULTURE

### Leading the Way

North Dakota FFA and 4-H help turn today's youth into tomorrow's leaders

13 PROJECT SAFE SEND

### Simple, Safe & Free

Project Safe Send has been removing unusable pesticides from North Dakota since 1992

14 GRANTS

### Support for Specialty Crops

A USDA program funds solution-based research helping North Dakota farmers

16 ANIMAL CARE

### Not Their First Rodeo

Why competitors and contractors are wholly committed to the health and well-being of their livestock

20 FARM SERVICES

### Helping Hands for Farmers

Funding supports financial and mental well-being of North Dakota farmers and ranchers

26 TECHNOLOGY

### Hive Mind

Fargo's Genotyping Center is part of the solution for soybeans and apiculture

29 SUSTAINABILITY

### Waste Not, Want Not

Biorefinery is a boon for agribusiness and the environment

31 BEEF

### Where's the Beef

A guide to buying from local butcher shops and meat processors in North Dakota

32 FARM PRODUCTS

### Everyday Agriculture

A variety of surprising daily products rely on agriculture

### Cover Story | PAGE 16

Chad Berger Bucking Bulls, 11-time PBR Stock Contractor of the Year. *Photo by Jerald Anderson*

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# North Dakota AGRICULTURE

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Commissioner Goehring is a third-generation farmer who operates a 2,800-acre, no-till farm near Menoken in south-central North Dakota with his son, Dustin.

## Welcome to North Dakota Agriculture!

Agriculture is at the heart of North Dakota. One of our state's largest industries, agriculture represents and encompasses much of our rich heritage and culture. In fact, almost 25% of our workforce is employed by agriculture, and nearly 90% of our land is used to support it.

I invite you to take some time to get to know the people who are a part of this vast and diverse industry, from farmers and ranchers to researchers and entrepreneurs. Though this past year has been challenging with a severe drought and market volatility, farmers and ranchers have continued to show resilience in the face of challenging times.

The North Dakota agriculture industry produces a wide variety of products used here and around the world, thanks largely to the hard work and use of efficient production practices by our 26,000 farmers and ranchers. Technology has helped enhance productivity and efficiency to meet the growing demand for food across the world.

In this sixth edition, find out the latest agriculture statistics, what's growing in North Dakota, trends in ag technology and the future of agriculture. We'll take you inside local FFA and 4-H groups to see how they prepare kids for the future and help them become leaders in their communities. You'll learn how programs in the state are helping farmers and ranchers through difficult times and how other programs help open up new markets through exporting. We'll tell you about the National Agricultural Genotyping Center and specialty crop block grants and how they provide testing and research to help production flourish.

Come along with us as we tell you about the surprising uses for crop and livestock byproducts, a program that provides for proper disposal of pesticides, where to find the nearest local meat processor, and the emphasis placed on the health and well-being of rodeo animals.

North Dakota is blessed with abundant resources and a varied landscape enabling our farmers and ranchers to produce food, feed, fiber and fuel for families near and far. I hope that by sharing an in-depth look at North Dakota agriculture, you will come away with a greater understanding and appreciation for the men and women who produce the products you use every day.

While it's my honor to serve as Agriculture Commissioner, I am also a third-generation farmer. My son and I operate a farm in south-central North Dakota, where we raise corn, soybeans, spring wheat, sunflowers and barley. As farmers and ranchers, we want to show you how agriculture touches all of our lives.

Enjoy this issue of *North Dakota Agriculture!*

Sincerely,

Doug Goehring  
 North Dakota Agriculture Commissioner

# North Dakota Agriculture

An overview of the state's food, farming and agribusiness sectors



**North Dakota ranks first in the nation for:**

Dry beans (all): **38.8%**

Dry beans (pinto): **67.9%**

Canola: **84.5%**

Flaxseed: **71.4%**

Honey: **26.2%**

Rye: **19.1%**

Sunflower (all): **44.9%**

Sunflower (non-oil): **42.1%**

Sunflower (oil): **45.3%**

Wheat (all): **17.1%**

Wheat (durum): **51.3%**

Wheat (spring): **47.1%**

*Percentages out of U.S. total*

## 7,306

North Dakota farms with principal female operators

## 39.3M

Total acreage utilized by farms across North Dakota

The average North Dakota farm spans

## 1,512

acres in size.



## 26,000

Farmers in North Dakota

**86.3%** of the state's farms are owned by families or individuals.



**North Dakota production value = \$7.3B\***

Crops = **85% (\$6.2B)**

Livestock = **15% (\$1.1B)**

*\*Total for all North Dakota commodities based on cash receipts from 2020 production year*



**The top countries for North Dakota exports are:**

Canada, Mexico, Dominican Republic, Japan, Peru, Colombia, Panama, Spain, Chile and Jamaica.

*Sources: National Agricultural Statistics Service, North Dakota Department of Agriculture, North Dakota Department of Commerce*

## \$4.3B

Total of annual agriculture exports in tracked sales



North Dakota is home to **50 farmers markets.**



## North Dakota CARES

The North Dakota Department of Agriculture awarded \$13.2 million in grants through three distinct programs made possible by the Coronavirus Aid, Relief and Economic Security Act, also known as the CARES Act.

The CARES Act North Dakota Meat Processing Plant Cost-Share Program provided 75% from CARES and 25% from state-inspected, custom exempt and federal inspected meat plants to help upgrade their facilities and equipment to meet increased demand due to the COVID-19 pandemic. Seventy-six grants were awarded with \$6.2 million in cost-share assistance covering 39 North Dakota counties.

The CARES Act Charitable Food Organization Grants provided funding to purchase equipment that helps extend the life of perishable foods, thus allowing charitable food organizations and small grocers (communities of 750 or less) to serve more clients and be more efficient. Eighty-two grants were awarded with \$2 million in support covering 34 North Dakota counties.

The CARES Act Bioscience Grant Fund provided funding to support biotechnology innovation and commercialization, promote the creation of bioscience jobs in the state, and promote bioscience research and development in North Dakota in the area of coronavirus research. Eight grants were awarded with \$5 million in support of six companies.



## Local Firewood Saves Forests

North Dakota is doing its part to defend its forests from encroachment of the Emerald Ash Borer (EAB) – a pest that feeds under the bark of true ash trees, killing them within a few years.

North Dakota has about 90 million ash trees, which are the most abundant tree species in naturally forested areas. While the state hasn't had signs of EAB yet, they have been found in surrounding states.

An effective way to prevent the spread is to use local firewood. EAB typically live in firewood or raw logs brought in from an infected area. To help with this, the North Dakota Department of Agriculture has partnered with a free firewood finder to help users find and advertise local firewood at [firewoodscout.org](http://firewoodscout.org).

## The Sweet State

North Dakota is the No. 1 honey-producing state in the nation. In 2020, North Dakota bees produced 38.6 million pounds of honey valued at more than \$61 million. The Apiary Program licenses beekeepers and registers hive locations annually.

The North Dakota Department of Agriculture maintains the North Dakota Bee Map, which helps facilitate contact between landowners, beekeepers and pesticide applicators. The goal is to reduce honeybee exposure to pesticides while ensuring that farmers can continue to use the tools they need to be successful.

To learn more, visit [ole.ndda.nd.gov/apiary/map](http://ole.ndda.nd.gov/apiary/map).



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# What's Growing in North Dakota

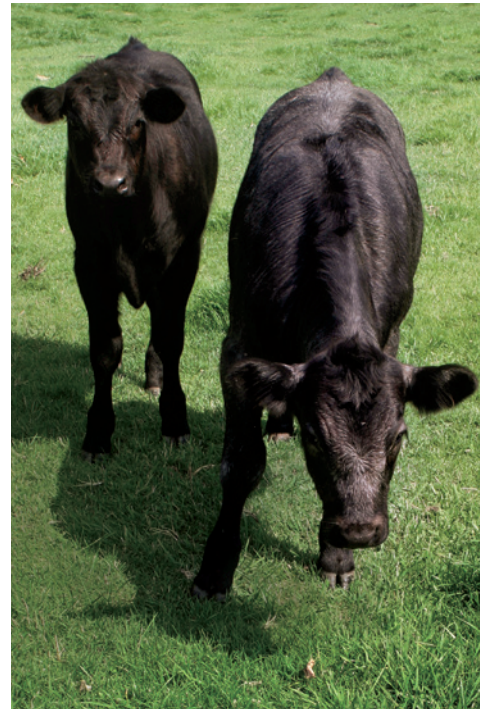
A glimpse at the state's leading ag products based on cash receipts\*



## SOYBEANS

**\$1.8B**

In 2020, North Dakota's soybean harvest totaled 5.7 million acres and resulted in the production of 193.8 million bushels of soybeans.



## CATTLE AND CALVES

**\$897.5M**

With an inventory of 975,000 head of beef cattle, North Dakota is primarily home to the Angus, Hereford, Gelbvieh, Charolais and Simmental breeds. Beef cattle are raised in each of the state's counties, but they're mainly concentrated in the western and central counties.



## CANOLA

**\$448.7M**

Harvesting 1.49 million acres of canola, North Dakota produced more than 2.9 billion pounds of canola in 2020 – that's 84.5% of the nation's total canola crop. As a result, North Dakota is the leading producer of canola in the U.S.

### \*WHAT ARE CASH RECEIPTS?

Defined by the U.S. Department of Agriculture's Economic Research Service, cash receipts refer to the total amount of crops or livestock sold in a calendar year.

## CORN

# \$1.1B

North Dakota's 2020 corn harvest included 1.78 million acres of corn for grain and 145,000 acres of corn for silage, resulting in the production of more than 247.4 million bushels of corn for grain and nearly 2.3 million tons of corn for silage.



## SUNFLOWER

# \$192.1M

Leading the U.S. in sunflower production, North Dakota produced more than 1.3 billion pounds of sunflowers in 2020 from 715,000 harvested acres.



## SUGAR BEETS

# \$203.8M

From 219,000 harvested acres, North Dakota farmers produced nearly 5.5 million tons of sugar beets in 2020.



## POTATOES

# \$217.6M

Producing 23.8 million hundredweight of potatoes from 70,000 harvested acres in 2020, North Dakota ranks fifth nationally in potato production.

## DRY BEANS

# \$335.3M

Leading the U.S. in all dry bean production, North Dakota farmers harvested 785,000 acres of dry beans in 2020 and produced just under 12.8 million hundredweight of the commodity.



## BARLEY

# \$133.7M

North Dakota's barley production totaled 28.98 million bushels in 2020 after a 460,000-acre harvest.



### **Find more online**

Learn more about agricultural crops and commodities in North Dakota online at **NDagriculture.com**.



## WHEAT

# \$1.4B

North Dakota led the U.S. in all wheat production in 2020, producing 45% of the nation's wheat. In 2020, North Dakota's overall wheat production totaled nearly 312.6 million bushels, which comprised approximately 275.9 million bushels of spring wheat, 35.1 million bushels of durum wheat and 1.6 million bushels of winter wheat.

# LEADING *the* WAY

North Dakota  
FFA and 4-H help  
turn today's youth  
into tomorrow's  
leaders



Velva FFA members planted a community orchard and look forward to all members of the community being able to enjoy the fruits of their labor.

**M**embers of North Dakota's Velva FFA Chapter are making their city even better for future generations. In August 2020, Velva FFA members planted a community orchard with apple trees, cherry trees, plum trees, honeyberry shrubs and grapevines. Even though it will take years to see the fruits of their labor, they hope once the new orchard begins bearing fruit, it will be enjoyed by all members of the Velva community.

"For the past two summers, the main focus for our FFA chapter was watering the trees and shrubs throughout the growing season so they will successfully grow," says Christine Fannik, the chapter's adviser. "We hope by summer 2022 we will have some produce growing in our orchard. Our goal is to use the orchard as both a learning tool for agriculture classes and a community service opportunity for the Velva community once the trees and shrubs start bearing fruit."

Velva FFA planted the orchard with grant funds awarded by the North Dakota Department of



North Dakota Agriculture Commissioner Doug Goehring attends the ribbon cutting of Velva FFA's orchard.

Agriculture. They were also awarded grant money to install a fence around the orchard perimeter. FFA members watered the orchard by hand weekly until summer 2021, when a permanent water tank was donated.

"A couple of our members took the initiative to design a dripline irrigation system to implement into the orchard to make watering the trees and shrubs easier and more efficient," Fannik says. "A pump to power the irrigation system was donated as well."

### Learning to Lead and Serve

Velva FFA's community orchard is one example of how North Dakota's youth-centered programs, including FFA and 4-H, are helping teens become leaders

in their communities.

Hannah Nordby started her journey in 4-H at age 8 when she joined the Roughrider 4-H Club in Slope County. She showed livestock at the North Dakota State Fair, participated in livestock judging and became a State 4-H Ambassador. Nordby now co-leads the North Dakota State 4-H Ambassadors and works as Adams County's Extension agent for North Dakota State University.

"My 4-H club became family, and that family grew to include my club, community, country and world," says Nordby, who even experienced 4-H in Thailand and Taiwan through the International 4-H Youth Exchange program. "Now, as an agent, I pull from all those experiences to best

North Dakota 4-H allows youth to explore a wide range of interests, including archery, public speaking and livestock judging.



promote 4-H and the vast opportunities available through 4-H to youth in my county and across the state. I would not be where or who I am today without 4-H."

North Dakota 4-H prepares youth for the workforce and life after high school by allowing them to explore their interests through hands-on projects and experiences.

"Giving the opportunity to dive deeper into specific interests through various project areas enables youth to try new things and determine what they do and don't enjoy," Nordby says. "Exploring these areas can help guide them as they determine what type of career best aligns with their interests, passions, strengths and goals."

Like FFA, 4-H members serve their communities through group projects. In Bowman County, 4-H club members place flags on the gravestones of veterans every Veterans Day. In Adams County, the East Adams Roughriders 4-H club

**“For the past two summers, the main focus for our FFA chapter was watering the trees and shrubs throughout the growing season so they will successfully grow.”**

Christine Fannik, *Velva FFA chapter adviser*



**4-H develops confident young people empowered for life today – who thrive in the workforce of tomorrow. 4-H is an opportunity for all!**

Become a volunteer to engage with youth in active learning environments through youth-adult partnerships to learn, grow, discover and work together as a catalyst to thrive, spark creativity and reach for positive change.

[www.ag.ndsu.edu/4H](http://www.ag.ndsu.edu/4H)

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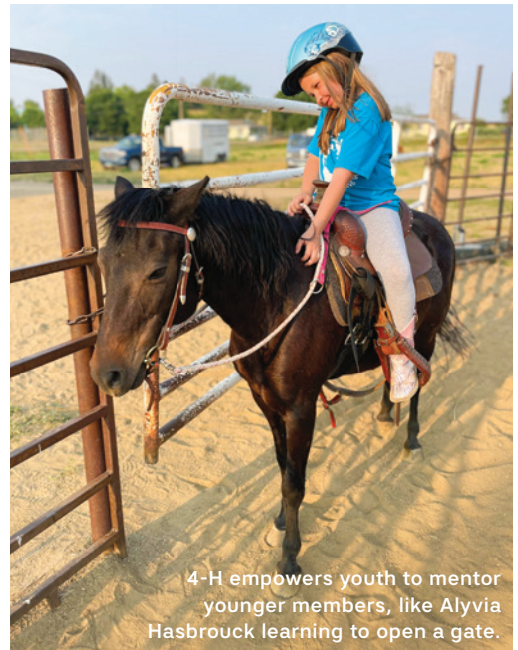
bakes goodies to deliver to nursing homes and elderly community members during the holiday season. Adams County 4-H members have also cleaned up the fairgrounds, painted trash cans and raised money to purchase and install a 9-hole disc golf course at the public park in Hettinger. Slope County 4-H members implemented a backpack program in their school to send home food for students who needed to supplement their pantry.

“Youth are empowered to be mentors to younger members by helping during club meetings and assisting in different projects,” she says. “When it comes to showing livestock, I see older youth teaching younger members proper techniques. Communication arts and public speaking are other examples where youth practice presenting themselves in a respectable manner and properly articulating their message. 4-H provides countless opportunities for youth to hone those skills, which will set them above the rest when it comes to presenting or interviewing.”

### Reaching Full Potential

In Bismarck, Nikki Fideldy-Doll works as state adviser for North Dakota FFA and says FFA laid a foundation for her success by developing her potential for leadership, personal growth and career success.

“The experiences FFA offered pushed me to become the first in my family to graduate with a college degree,” she says. “If someone would have told me as a freshman I would someday serve as the first female state FFA adviser, I wouldn’t have believed them. Zipping up my



4-H empowers youth to mentor younger members, like Alyvia Hasbrouck learning to open a gate.

FFA jacket gave me skills and opportunities I will be forever grateful for.”

FFA and agricultural education teach students how to be informed consumers of food, fiber and fuel. They also prepare students to be college and career-ready by helping them discover their potential through hands-on experiences.

“It has been said teachers are currently preparing students for jobs that don’t yet exist in order to solve problems we don’t even know are problems yet,” Fideldy-Doll says. “Agriculture education and FFA not only prepare our future farmers but also our future scientists, engineers, technicians, teachers and more. The future of the world is in our agricultural education classrooms.”

– Jessica Mozo

### See more online

North  
Dakota 4-H



North  
Dakota FFA



# SIMPLE, SAFE & FREE

Project Safe Send has been removing unusable pesticides from North Dakota since 1992

**P**roject Safe Send, a program to dispose of old, unused or banned pesticides, is celebrating its 30th anniversary in 2022. The program, funded by product registration fees from pesticide manufacturers, has been a huge help to farmers, ranchers, businesses and homeowners.

“The program is great because it is a way to safely and simply dispose of pesticides,” says Aubrey Sondrol, pesticide outreach specialist for the North Dakota Department of Agriculture. “Disposing of pesticides can be difficult, expensive and potentially dangerous. Project Safe Send becomes an easy, safe and free solution to the public. The product is collected and shipped out of state for incineration. Since the program’s inception in 1992, we’ve been able to safely dispose of 5.5 million pounds of pesticides and help over 10,000 people.”

When the EPA decides to discontinue a pesticide’s current use, people can be stuck with a product that is no longer usable. Other times, a pesticide may have expired and can no longer be used. When purchasing an older house, homeowners may also find very old, banned pesticides, such as DDT. The pesticides allowed to be taken to Project Safe Send include herbicides, insecticides, rodenticides and fungicides.

Sondrol wants to remind those who plan to attend Project Safe Send to remain vigilant when transporting pesticides.

“We ask the public to please have appropriate PPE available when they come to Project Safe

Send. If there’s an emergency while bringing the pesticides to the site, you will have to be prepared to clean it up,” Sondrol says. “We also want to remind folks to check their

containers for leaks or deterioration. There’s a safety checklist on our website to help prepare to bring pesticides.”

– Brianna Gwirtz

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Agriculture Commissioner  
Doug Goehring

# SUPPORT FOR *Specialty Crops*

A USDA  
program funds  
solution-based  
research helping  
North Dakota  
farmers





**M**ichael Wunsch knew that field peas were susceptible to a disease called

Aphanomyces that causes the roots to rot. The plant pathogen was so common on North Dakota farms that many growers abandoned production in impacted fields.

Thanks to funds from the Specialty Crop Block Grant program, Wunsch was able to research solutions.

“We found that the root rot was more severe the later the peas were planted,” he explains. “Early planting gave peas a head start and, by the time soils had warmed enough to become favorable for the pathogen, the peas were already pretty large and better able to withstand the disease.”

Specialty Crop Block Grants were designed to fund this kind of solution-based research that can develop new seed varieties and crops, improve pest and disease control, boost consumption of specialty crops, and increase the competitiveness of crops like fruits, vegetables, tree nuts and nursery crops.

The U.S. Department of Agriculture introduced the program in 2006. The latest investment, authorized through the 2018 Farm Bill, includes \$243 million in grants allocated through state departments of agriculture. The North Dakota Department of Agriculture awards \$3 million in Specialty Crop Block Grants annually.

“These grants are important because [North Dakota] is one of the largest producers of specialty crops in the country,” says Deanna Gierszewski, Specialty Crop Block Grant Program coordinator for the North Dakota Department of Agriculture. “Specialty crops account for a significant amount of our exports.”

The grants have funded projects ranging from enhancing



rust resistance in confection (non-oil) sunflower production and optimizing the nutritional value of pulses to boosting the profitability of dry bean production and improving the detection and resistance of nematode diseases in potatoes.

Wunsch believes the block grants are instrumental for conducting research that could significantly impact specialty crop production across the state and region.

“We have some pretty devastating production problems that have never been tackled in specialty crops, and it limits acreage of those crops,” he says.

### Funding the Future

Project proposals for Specialty Crop Block Grants are due in January. A panel of five anonymous reviewers that includes experts from academia, Extension and production score and rank each one and determine a funding allocation before forwarding them to the state agriculture commissioner, Doug Goehring, and the USDA for final approval.

The committee receives up to 50 applications per year and funds upwards of 50% of the proposals. The grants range from \$60,000 to \$200,000,

according to Gierszewski.

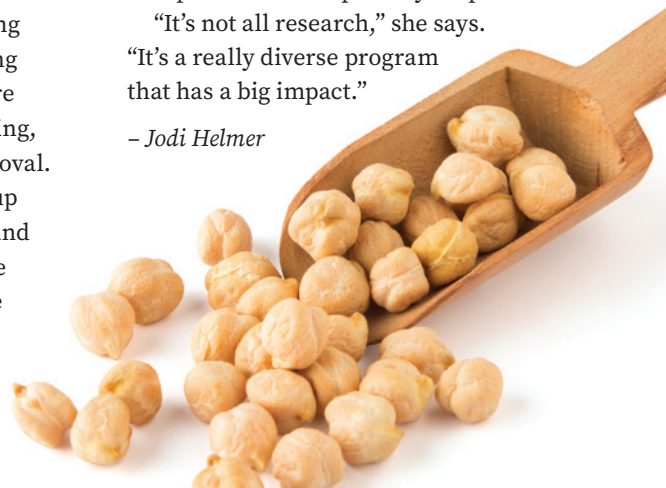
“If it’s a good project, we want to fund it,” she says.

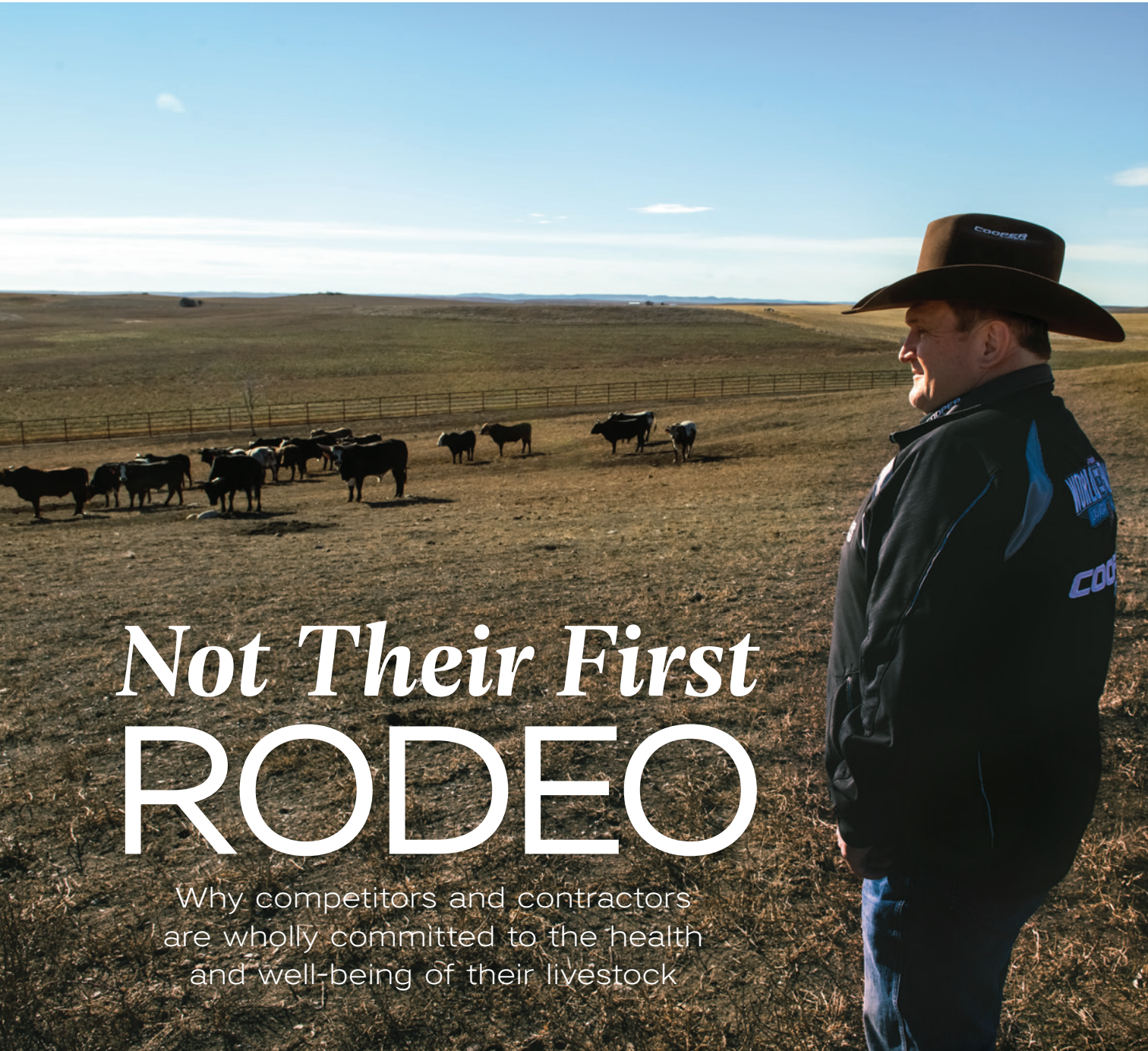
The Specialty Crop Block Grants have already had an impact. For example, Wunsch’s research on Aphanomyces in field peas showed that early planting, coupled with good crop rotation practices and fungicide seed treatment, resulted in “economically viable production” on fields that would have otherwise been abandoned, helping North Dakota farmers plant field peas with confidence.

Funding also helps nonprofits and schools promote specialty crops and support rural communities. Gierszewski points to grants for a bee exhibit at the North Dakota Zoo and classroom projects that taught students about chickpea production and how to make hummus as examples of public-facing projects that promote local specialty crops.

“It’s not all research,” she says. “It’s a really diverse program that has a big impact.”

– Jodi Helmer





# *Not Their First* RODEO

Why competitors and contractors are wholly committed to the health and well-being of their livestock

**W**ith their high-dollar purses, vast TV audiences and millions of fans, today's rodeos seem far removed from their humble origins as competitions between working cowboys. However, what hasn't changed over the millennia is an emphasis on the health and well-being of the livestock.

All professional rodeo organizations, such as the Professional Bull Riders and Professional Rodeo Cowboys Association, have stringent rules and guidelines for the contractors who supply livestock to their events. For example, rules prohibit electric cattle prods, and judges verify the bulls are well-fed, healthy and

in good condition.

"It's a lot of different things to make sure the bulls are in the best shape they can be," says Chad Berger of Mandan.

Berger grew up riding bulls. His father, Joe, was a well-known bull breeder and stock contractor. Berger competed in rodeos until he retired in the late 1980s. In 2003 he started



Chad Berger takes pride in caring for the bulls he provides to rodeos.



his own company, Chad Berger Bucking Bulls. With a herd of more than 300 bulls, Chad supplies the bucking bulls for more than 60 events a year coast to coast, including the PBR World Finals. Bull riders have voted him as PBR Stock Contractor of the Year a record 11 times.

His experience as a cattle buyer means he knows how to raise and

take care of cattle. “We graze about 3,000 head in the summertime,” Berger says. “And we have about that many in the feedlots in winter. In my business as a cattle buyer and seller, and raising them, I know what cattle need. That knowledge is passed on to my bull business.”

Berger says his bulls are on a high-protein diet, exercised,

properly rested and monitored by veterinarians.

“I will put my bulls up against anybody’s pet,” Berger says. “If you want bulls to perform, you have to take care of them.”

### Rehearsing on the Ranch

The North Dakota Rodeo Association aligns its rulebook



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## 2022 HIGHLIGHTED VARIETIES



### **ND2108GT73** **SOYBEAN**

Yield: High  
Relative Maturity: Late  
Height: Tall  
Hilum Color: Yellow  
Maturity Group: 0.8

### **ND21008GT20** **SOYBEAN**

Yield: High Potential  
Relative Maturity: Early  
Height: Medium  
Hilum Color: Gray  
Maturity Group: 00.8

### **ND Frohberg** **HRSW**

Yield: High Potential  
Stem Rust: MR  
Leaf Rust: MS  
Head Scab: MR  
Test Weight: High

### **CDC Rowland** **FLAX**

Yield: High Potential  
Large Brown Seed Size  
Resistance to Lodging  
Maturity: Late

### **CDC Fraser** **BARLEY**

Yield: High Potential  
Straw Strength: Strong  
Good Malting Characteristics  
Low Protein  
Large Plump Kernels

### **AAC Stronghold** **DURUM (Solid Stem)**

Yield: High Potential  
Straw Strength: Strong  
Good Milling Qualities  
Low Grain Cadmium  
Test Weight: High

### **ABI Cardinal** **BARLEY**

Yield: Higher Potential  
Straw Strength: Moderate  
Height: Moderate  
Good Plumpness  
Good Foliar Disease Resistance

### **Avondale** **LENTIL**

Yield: High Potential  
Type: Small Green  
Maturity: Medium  
Height: Medium

### **ND Dawn** **FIELD PEA**

Yield: High Yielding Yellow Pea  
Relative Maturity: Early  
Height: Medium/Tall  
Standability: Strong

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with PRCA regulations.

“Most people don’t realize the horses we’re riding, the bucking bulls, even the roping stock are highly valued and extremely well taken care of,” says Nate Horner, NDRA president.

Nate runs about 500 head of cattle in a commercial cow operation near Dawson with his parents and his wife, Lindsey, who is also an equine veterinarian. Both Nate and Lindsey rodeo – Nate in team roping, Lindsey in barrel racing. More than 70% of Lindsey’s veterinary patients are rodeo performance horses. Nate also trains performance horses by first working them as ranch horses.

“We purchase all of our horses at a young age, and then I start training them,” says Nate, who runs Horner Cattle Company

**“Most people don’t realize the horses we’re riding, the bucking bulls, even the roping stock are highly valued and extremely well taken care of.”**

Nate Horner, *North Dakota Rodeo Association president*

and Performance Horses with his family.

However, once a horse moves into the rodeo arena, it just doesn’t stand in a stall on days off. The Horner horses are often used on the ranch.

“Not every horse needs to go back out to work cattle, but every horse will benefit from it,” Nate says, noting some horses begin to show anxiety in the rodeo arena.

“Walking up and down the hills here on our place, just leisurely checking cows, is a good way to

keep them in condition because they are athletes. And it helps them relax and just be a horse.”

Since rodeo has become more commercialized, it’s easy to forget why it all started.

“The whole goal of a cowboy was to care for the animals,” Nate says. “And that mentality hasn’t changed. It’s our job to care for the stock, and that’s what we still do, day in and day out, whether it’s on my ranch, in my riding arena or at the rodeo.”

– Kim Hill



The word ‘rodeo’ is derived from the Spanish word ‘rodear,’ meaning to round up.

**THE NORTH DAKOTA RODEO ASSOCIATION WAS FORMED IN**

**1953**

MOST NDRA RODEOS AVERAGE MORE THAN **200 CONTESTANTS** AND DRAW COMPETITORS AND SPECTATORS FROM OTHER STATES.

Sources: North Dakota Rodeo Association, Online Etymology Dictionary, State Symbols USA

# Helping Hands for FARMERS

Funding supports financial and mental well-being  
of North Dakota farmers and ranchers



**F**arming is risky business: A single hiccup in production can lead to a cash shortfall threatening the farm's future.

"Farmers have the same debt and expense structures whether it's a good year or a bad year," explains Kyle Olson, assistant professor of farm management education at Bismarck State College. "In a bad year, a producer can end up in default because a payment is due, and they don't have the income to cover it."

The North Dakota Mediation Service (NDMS) was designed to help. The North Dakota Department of Agriculture launched the program in 1984 to help financially distressed farmers and ranchers address credit and financial matters

and resolve disputes with creditors.

The mediation service helps with conflicts ranging from denied credit and loan applications to farm foreclosures. Credit counselors like Olson serve as neutral third parties, leading discussions and offering possible solutions.

Betty Schneider, mediation coordinator for NDMS, notes that mediation is not about determining who is right or wrong. Mediators aren't judges or decision-makers, but the process can help avoid expensive litigation. All the information is confidential and allows farmers and creditors to negotiate agreements before farmers face bankruptcy proceedings.

"In mediation, each party is given

an opportunity to describe the situation from their perspective," she says. "It's an effective solution for resolving issues."

## Setting Up for Success

Schneider can cite several examples of successful outcomes.

A mediator with NDMS facilitated a conversation between a farmer who wanted to purchase the family farm and the Farm Service Agency that denied the loan guarantee required to secure funding. During a discussion of possible solutions, the farmer and the federal agency agreed to additional conditions resulting in a loan guarantee that enabled the farmer to secure the funds to purchase the farm.

In a separate case, an NDMS

mediator was called after a small grain producer claimed an agricultural business provided sub-par services causing crop damage. Both parties retained attorneys but failed to reach a settlement despite ongoing negotiations. After a single mediation session, an agreement was reached, eliminating the need to take the case to court.

“The NDMS demonstrates that regardless of the nature of the dispute, mediation can improve communication and repair the relationship between the parties, enable the parties to tailor solutions that work for them, and is generally faster and cheaper than traditional litigation,” Schneider says.

### Cultivating Mental Health

Farm distress isn't always financial.

Sean Brotherson, Extension family science specialist at North Dakota State University, points to extreme weather events, lower commodity prices and the trade war with China as causes of significant emotional and financial distress.

In 2019, NDSU Extension received grant funding through the North Central Farm and Ranch Stress Assistance Center and the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) to provide mental health resources and assistance to distressed farmers and ranchers.

Programs like Adult Mental Health First Aid, a free training that teaches the skills to recognize and respond to signs of depression and other mental health concerns and provide connections to professional resources, are already having an impact. The center and NDSU Extension farm stress resources are excellent starting points.

“Agriculture is an industry that, while rewarding, can also expose farmers and ranchers to chronic

stress,” Brotherson explains. “In rural areas, health care resources can be limited, and travel and cost are factors so we needed to provide resources to help manage mental health.”

NDDA recently received a \$500,000 grant through NIFA to continue this work.

NDDA will partner with NDSU and the North Dakota Department of Career and Technical Education to initiate, expand or sustain programs that provide professional

agricultural behavioral health counseling and referral for other forms of assistance as necessary through farm telephone helplines and websites, training programs and workshops, support programs, and outreach services and activities.

“We never want producers to get into a situation where the only solution is liquidation,” Olson says. “We're here to help them get through sticky, uncomfortable situations.”

– Jodi Helmer



## NORTH DAKOTA MEDIATION SERVICE

The North Dakota Mediation Service (NDMS) offers services to help financially distressed farmers and ranchers by providing assistance in credit matters and resolving disputes. We offer:

### Mediation

A voluntary, confidential process in which a neutral mediator guides two disputing parties to a possible solution

### Credit Counseling

A credit counselor assists in developing options and alternate plans for the agricultural operation

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Agriculture Commissioner  
Doug Goehring

# A *World* OF OPPORTUNITY

Exporting is good business for family farms or large operations





Exporting provides a literal world of opportunity for North Dakota farmers and food producers seeking to broaden their customer base.

While it might seem daunting to the inexperienced, the North Dakota Trade Office (NDTO) offers an abundance of services to make the process easier.

“North Dakota is one of the breadbaskets of the world, but as a small, rural state, we produce more

than our population consumes,” says Drew Combs, executive director of the NDTO. “Agriculture is king when it comes to exporting, and our office is here to help. We have seasoned professionals to walk you through the entire process and make the transition easier.”

The organization helps clients prepare paperwork and perform other administrative tasks, learn greater cultural intelligence, locate and communicate with buyers, and complete sales. In addition, it maintains a database, offers trade missions and hosts other events in-state and abroad to connect producers and buyers.

It even facilitates a grant program

for specialty crops and another for the Small Business Administration’s State Trade Expansion Program (STEP), which is designated to help American exporters, Combs says.

“If you want to participate in a trade mission, you could apply for and potentially get a grant to cover costs such as airfare, lodging and translation services,” he says.

After a couple of successful international transactions, exporting isn’t as daunting. “It may have a couple of extra layers, but like any other transaction, it’s about customer service. It’s that simple,” Combs says.

Advantages include a broader customer base, more leverage determining products to grow or produce, greater flexibility and increased return on investment.

Adams Family Farm of Grand Forks has seen benefits growing and processing specialty cranberry beans exported to South America, the Middle East, Spain, Italy and more.

“Cranberry beans have a niche market, partly because they’re not easy to raise,” says Chris Adams, who partners with his wife and parents to manage their 10,000-acre farm. “Every year, the countries that buy our beans vary. Our biggest customers have been South American countries, but 80% of cranberry bean consumption is in the Mediterranean region.”

### Cultivating Relationships

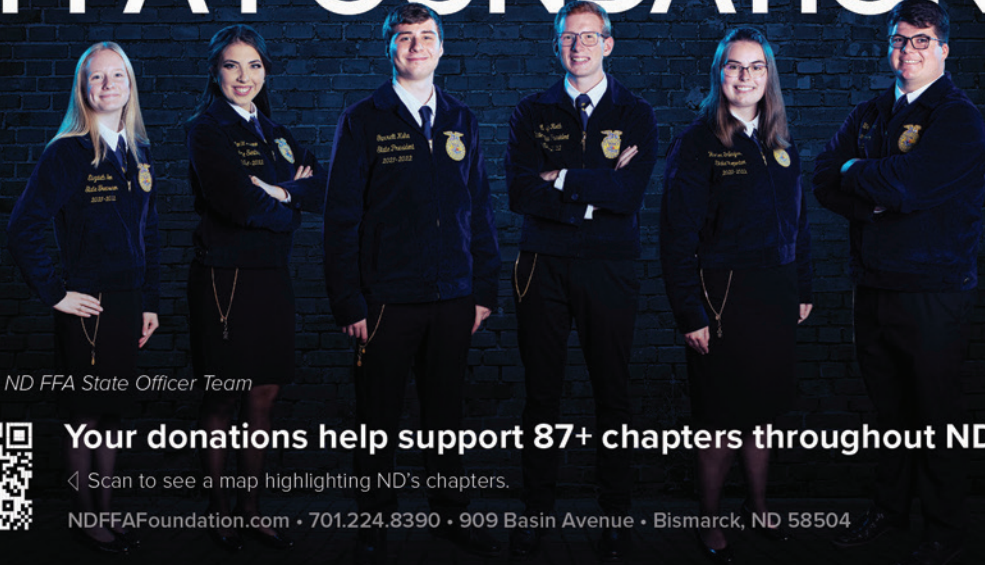
Building relationships came naturally for Alfredo and Tabatha

Exporters like Adams Family Farm, opposite page, and The Jolly Jalapeno, top right, take advantage of the opportunity to share North Dakota products globally.



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Lugo, owners of The Jolly Jalapeno salsa company in Emerado.

The Air Force veterans got their start sharing their products with fellow servicemen and women. Now, they routinely ship to deployed military members all over the world.

“Personal contacts and word of mouth have driven our export business. I like knowing we’re providing our customers a taste of home,” Tabatha Lugo says.

Combs agrees that relationships are essential.

“There are lots of hungry people in the world, and in many of those countries, the handshake system is the method of trade,” Combs says.

Adams stumbled upon exporting by accident. He attended The Executive Program for Agriculture Producers (TEPAP) hosted annually by the Texas Extension Education Foundation, where he met another North Dakota farmer who introduced him to the process and became his mentor.

“I jumped in head first,” says Adams, who attended his first NDTO trade mission with his mentor in 2016, three weeks after TEPAP.

“There are economic advantages, but I do it primarily because it’s cool,” he says. “It’s helped me grow personally and professionally. It’s humbling to know I’m providing produce to a market that needs it while building international relationships. International trade is all about building relationships. Here, trade is usually more anonymous.”

– Tracey Hackett

### Find more online

To learn more about international trade, visit the NDTO’s website, [ndto.com](http://ndto.com), or call (701) 929-6703.

## EXPORTING AT A GLANCE

NORTH DAKOTA EXPORTED

**\$5.8B**

IN MERCHANDISE IN 2017.

**82%** OF NORTH DAKOTA EXPORTERS ARE SMALL OR MID-SIZED BUSINESSES WITH 500 OR FEWER EMPLOYEES.

**1 out of 3 acres** of agricultural products are exported.

Source: North Dakota Trade Office

# PEACE OF MIND

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The National Agricultural Genotyping Center works to screen honeybees, helping to determine the health of the hive and suggest improvements.

# HIVE MIND

Fargo's Genotyping Center is part of the solution for soybeans and apiculture

A series of colorful, thumbprint-size dots appear on a computer screen in Zack Bateson's lab. He sifts through the dots carefully, seeking to crack the code. The DNA patterns he's studying may be based on a single leaf but could potentially save thousands of acres of soybeans from the devastation of noxious pigweeds.

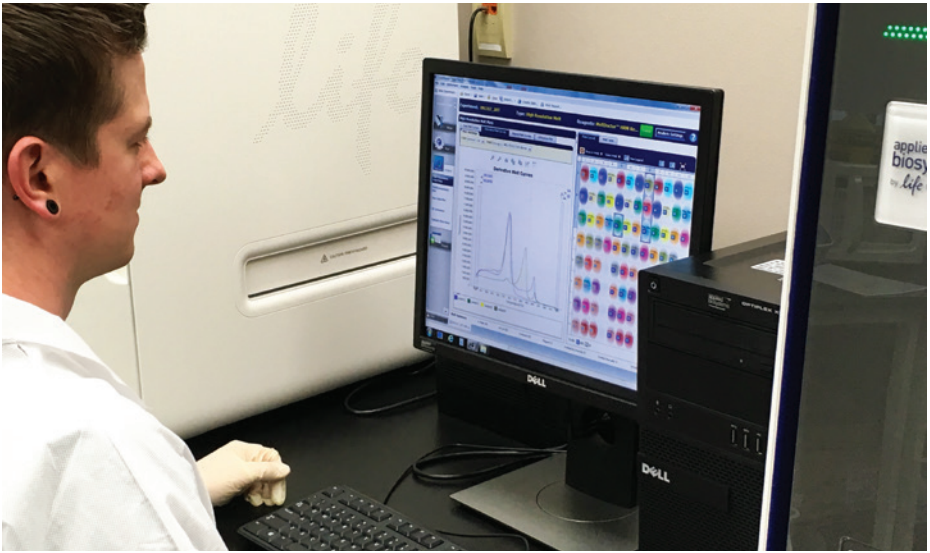
The lab where researcher Bateson works is located in the National Agricultural Genotyping Center (NAGC), a private research facility housed on the campus of North Dakota State University in Fargo. The center offers quick turnaround, confidential testing, and diagnosis of pathogens and pests. The benefit to farmers and all those they feed is

greater crop preservation, higher yields and potential new markets.

And it all began with honeybees.

## Buzzing Bee-ginnings

Shortly after it opened in the summer of 2016, the NAGC received an invitation from the North Dakota Department of Agriculture to help solve a threat to commercial



Above: Zack Bateson examines diagnostic data at the National Agricultural Genotyping Center in Fargo.



beekeeping operations. North Dakota has been the No. 1 honey-producing state for 17 consecutive years, says Josh Freeman, whose family-owned Noyes Apiaries consists of about 14,000 hives. However, the industry has been experiencing a crisis from higher-than-average colony losses, he says. And what happens in the hive not only affects honey flow, it affects crops all over the U.S., including major ones like almonds in California. California is the world's No. 1 almond producer, and nearly two-thirds of all U.S. honeybees are sent there to pollinate the trees.

For the next two years, Bateson and other NAGC researchers flew to California, donned bee suits and

collected samples to bring back to their lab. Their team collaborated with bee industry regulators, and together they isolated a number of pathogens – viruses and bacterial and fungal infections – most responsible for declining colonies. The NAGC now has a quantitative honeybee pathogen panel that screens for 15 different pathogens, helping beekeepers assess the health of honeybees and determine a course of action.

**Fieldwork Findings**

But the NAGC's findings help far beyond hives. Five crops – rice, wheat, corn, soybeans and potatoes – account for half of global human calorie intake. New threats surface



**NORTH DAKOTA  
PRODUCED  
38.6M  
POUNDS OF HONEY  
IN 2020.**

North Dakota has more than **300** licensed beekeepers.



**193.8M  
BUSHEL OF  
SOYBEANS WERE  
PRODUCED IN NORTH  
DAKOTA IN 2020.**

Soybeans are North Dakota's top commodity, with a production value of **\$2.04 billion** in 2020.

*Sources: North Dakota Department of Agriculture, USDA National Agricultural Statistics Service*

PHOTOS: CLOCKWISE FROM LEFT: NAGC (1-2); ISTOCK.COM/NATALIA YAUMEVNA, MICHELLE GUENETTE, MAREN PULFER FOCHT

each year and pathogens and pests are the number one food robbers, Bateson says. They're responsible for up to 30% of losses.

A more recent application of the NAGC's technology took Bateson and others deeper in the weeds, this time to tackle an unwelcome crop surfacing in soybean fields.

North Dakota is the fourth-largest state in soybean acreage, says Kendall Nichols, director of research at the North Dakota Soybean Council.

"We have grown immensely in the last 20 years," she says. "We now produce soybeans throughout the state, even in arid regions." The crops go beyond traditional uses – food and vegetable oil – and now have a wide variety of applications, including alternative fuel.

Several varieties of weeds started appearing, significantly affecting yields by robbing the soybeans of moisture and nutrients. One in particular, *Palmer amaranth*, proved resistant to certain herbicides, and

soybean farmers were struggling with identifying it quickly enough to select a course of treatment.

Generally, herbicides are most effective when the weed is about an inch tall. But when they're small, pigweeds look relatively similar. That's where genetic testing comes in, Nichols says. "Under the ideal growing conditions, Palmer amaranth can grow 2 to 3 inches in a day," she notes. "To identify when they're small, you have a very short window."

Before the NAGC, soybean farmers had to send their samples out of state to get them confirmed. But the center's rapid turnaround Palmer Amaranth Testing can help farmers shut down an early infestation and possibly avoid an established population of this highly productive weed.

### There's a Test for That

Even with its menu of available tests, Bateson says new applications are evolving. He sees opportunities to work more with veterinarians since they serve beekeepers and understand pathogen testing. Bateson is eager to help solve problems in agriculture.

"What gets me excited is when we have a researcher or Extension agent ask, 'Hey Zack do you have a test for this?'" Bateson says.

– Julie Strauss Bettinger



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### For more information, check out the following websites:

National Agricultural  
Genotyping Center:  
[genotypingcenter.com](http://genotypingcenter.com)

North Dakota Soybean  
Council: [ndsoybean.org](http://ndsoybean.org)

North Dakota Beekeepers  
Association:  
[ndbeekeepers.org](http://ndbeekeepers.org)

# Waste Not, Want Not

Biorefinery is a boon for agribusiness and the environment



One person's trash is another's treasure. That's certainly the guiding principle at Red River Biorefinery, an advanced ethanol production facility in Grand Forks.

"We are a waste-to-biofuels facility," says Keshav Rajpal, president of Red River Biorefinery. He notes the business model is to create low-carbon, transportation-grade fuel.

With the facility coming online at the peak of the pandemic, Rajpal says the team was able to quickly pivot to generate USP-grade ethyl alcohol for use in hand sanitizer, as well.

## Reuse, Recycle

The biorefinery finds uses for products from processing companies, such as discarded starch and sugar-based raw materials.

"We partner with large industrial food processors and take their

byproducts, which have little use to them, and use that as our feedstock to generate biofuels," Rajpal explains.

A win for all parties involved, Rajpal says the agricultural waste is "generally of minimal value and can be a bit of a nuisance to get rid of. Taking byproducts and adding value to them enhances the profitability of the farming co-ops and food manufacturers."

Recycling these products is also a win for the environment.

"A lot of this waste would wind up on fields and generate methane," Rajpal says, adding the fuel produced helps offset carbon emissions. "Agriculture is a really important component globally for de-carbonization."

## Economic Value

"Agriculture and agribusiness are the historical foundation of our regional economy, and that's

true today," says Keith Lund, president and chief executive officer of Grand Forks Region Economic Development. "The Red River Valley is one of the most productive farming regions in the world, and that provides fertile ground for value-added agricultural processing."

Lund notes novel technologies are taking the legacy sector in exciting new directions – from agricultural uses for unmanned autonomous systems to developing new carbon capture practices.

"It really is rewarding when you have a project like Red River Biorefinery that hits all of the key economic development markers and is also moving along the path of energy sustainability," he says.

## More to Come

Lund adds Grand Forks is well positioned as a leader in eco-friendly agribusiness.

"The community has built up its infrastructure to support this industry," he says, pointing to significant investment in the water system, wastewater treatment and natural gas.

Rajpal agrees it's the perfect area for growth.

"We view the biorefinery as a first step in a much larger vision we have in the region," he says of enhancing vertically integrated production. "We really want to make North Dakota a leader in the low-carbon value chain."

– Cindy Sanders



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[business.nd.gov/agriculture](http://business.nd.gov/agriculture)

North Dakota Farm Bureau  
[ndfb.org](http://ndfb.org)

North Dakota Farm Credit Services  
[farmcreditmandan.com](http://farmcreditmandan.com)

North Dakota Farm Credit Services  
[agcountry.com](http://agcountry.com)

North Dakota Farm Management  
Education Association  
[ndfarmmanagement.com](http://ndfarmmanagement.com)

North Dakota FFA Foundation  
[ndffa.co/chaptermap](http://ndffa.co/chaptermap)

North Dakota Mill & Elevator  
[ndmill.com](http://ndmill.com)

North Dakota Trade Office  
[ndto.com](http://ndto.com)

Northarvest Bean  
Growers Association  
[northarvestbean.org](http://northarvestbean.org)

Northern Plains Potato Growers  
[nppga.org](http://nppga.org)



# WHERE'S THE *Beef*

A guide to buying from local butcher shops and meat processors in North Dakota

Looking for beef locally? That's easy to do in North Dakota, where beef cattle are raised in every county. In fact, with 1.83 million beef cattle and calves throughout the state, there are more than two cattle for every person.

So, where do you find local beef? North Dakota has different types of processing plants:

## Custom Exempt Slaughter and Processing

This type of plant sources a live animal, slaughters it and processes it to the customer's request, and they receive all the meats, specialty products and raw cuts for personal use. For example, a customer may raise beef and bring it in to be slaughtered and processed for personal use. However, the majority of these plants have a retail exempt processing license, which allows them to process any previously inspected and passed carcasses or meat and make specialty products or raw cuts and then sell direct to the end consumer through their retail site.

## State and Federal Slaughter and Processing

This type of plant slaughters local animals or processes supplied boxed meat under the direct oversight of a state or federal meat inspector to ensure the wholesomeness of each animal and meat product. The resulting carcasses can be custom processed into specialty products or raw cuts



to the customer's specifications for their personal use. For producers direct marketing to consumers, the carcass can be further processed under state or federal inspection into specialty products or raw cuts, and sold directly to the producer's customers or through a retail business. The majority of these plants also have a retail exempt processing license and may sell direct to the end consumer through their retail site.

## Broker/Agent

Plants may act as a broker or agent and source a quarter or half beef on behalf of a customer and slaughter/process it for the new owner.

Find a listing of all types of North Dakota meat processing plants at [nd.gov/ndda/ndmeatprocessors](http://nd.gov/ndda/ndmeatprocessors).

## HERE'S THE BEEF



We've rounded up a list of butcher shops and meat processors across the state. Scan the QR code with the camera of your smartphone for more info, including products offered and where to purchase.

- » 6 in 1 Meats
- » Barton Meats Inc.
- » Bowdon Meat Processing
- » Custom Kut Meat Inc.
- » Great Frontier Meats
- » J & J Hazen Meats
- » Langdon Lockers
- » Mema's Meats
- » North American Bison LLC
- » NDSU Animal Science Department
- » Schweitzer's Gourmet Meats
- » Valley Meat Supply
- » Yellowstone River Beef

# EVERYDAY Agriculture

## A VARIETY OF SURPRISING DAILY PRODUCTS RELY ON AGRICULTURE

Let's take a quiz: What do hamburgers, paintbrushes, lip glosses and batteries have in common? All these everyday items rely on North Dakota agriculture.

**CORN:** Corn is one of the most diverse and dependable products in our everyday lives. The majority of corn produced doesn't go to human food production. Instead, it's used in products including plastic, batteries, deodorants, cough syrup, carpet, diapers, animal feed and lots more. Many of these products include cornstarch or corn syrup, which are byproducts of field corn.



One of the most prominent daily uses of corn comes in the form of fuel. Ethanol is a renewable fuel produced from corn and found in gasoline at almost every gas station across the country.

**SOY:** North Dakota soybean farmers also provide a key product found in many everyday items.



"You can find soy nearly everywhere," says Stephanie Sinner, executive director of the North Dakota Soybean Council. "Soy truly provides solutions to every life, every day."

Soybean components include oil, protein, soy protein isolate byproducts, hulls and soy hull cellulose, which are all used in different ways. Many of these components are used to make items more environmentally friendly, such as household cleaners, paints, motor oil and building materials.

Soybean oils can be found in lip gloss, lotions and other beauty products. Many consumers also enjoy soy milk daily. The plant is used for tofu, miso and edamame.

"Soy milk is a comparable alternative for those who have dietary restrictions to cow's milk and has the highest protein content of any plant-based milk," Sinner says.

**BEEF:** Beef products might seem straightforward, but in fact, beef byproducts are utilized in a plethora of everyday products.



"Other than food, the biggest byproduct is the cowhide and all of the leather that is used in everything from clothing to furniture to vehicles to sports equipment," says Nancy Jo Bateman, executive director of the North Dakota Beef Commission. "From one animal, you can make 144 baseballs or 20 footballs or 18 soccer balls. Nothing goes to waste."

In addition to meat products and leather, gelatin is made from the hooves and connective tissue of a cow. Products such as gummy bears and marshmallows contain gelatin. Beef byproducts are also found in medicines, paintbrushes, candles, soap and toothpaste.

"It's understanding that everything we can get from a cow has a purpose," Bateman says.

— Rachel Stroop



PHOTOS, FROM LEFT: ISTOCK.COM/BERGAMONT, MICHELLEUENETTE, NYC SHOOTER



**NDTO**  
NORTH DAKOTA TRADE OFFICE

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For more information, contact: Craig Kleven, Supervisor Agricultural Education • 701-328-3162 • [crkleven@nd.gov](mailto:crkleven@nd.gov)

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THROUGH THE PRODUCTION, PROMOTION, AND DISTRIBUTION OF PURE SEED



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