North Dakota Agriculture is for Everyone AGRICULTURE

2020 EDITION | NDAGRICULTURE.COM

9

Facts You Probably Didn't Know About North Dakota Ag BROUGHT TO

NORTH DAKOTA
DEPARTMENT OF
AGRICULTURE

An Accidental
Pumpkin Patch

Agriculture in the Classroom

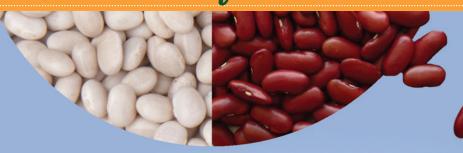
Food Safety & Animal Care

LOVE for CAIL

The scoop on farm-fresh North Dakota gelato and other prolific products



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over 2,000 growers, 59 dealers, and 10 export and domestic marketing firms.

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 North Dakota produced enough wheat for 19 billion loaves of whole wheat bread.
- The 2018 durum crop produced
 1.8 billion pounds of pasta.



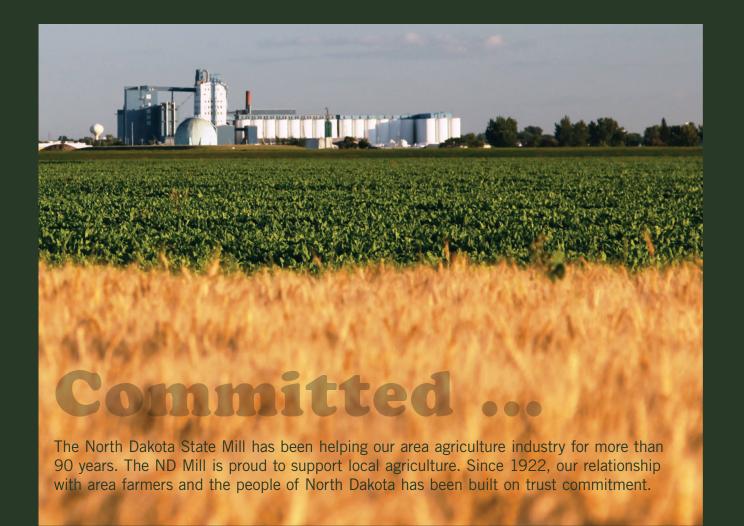






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• Enjoy wheat foods every day! They are nutritiously versatile and a great food choice to bring families to the table.





NORTH DAKOTA MILL AND ELEVATOR ASSOCIATION



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Maartje Murphy of Duchessa Gelato at her family's dairy farm. PHOTO BY COLBY LYSNE

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North Dakota **AGRICULTURE**

2020 EDITION, VOLUME 4



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Commissioner Goehring is a third-generation farmer who operates a 2,600-acre no-till farm with his son, Dustin.

North Dakota **Agriculture celebrates** the richness and diversity of our state's leading industry.

We invite you to take some time to delve into stories about our farmers and ranchers, value-added producers, ag educators and agritourism businesses.

North Dakota is home to 26,100 farms and ranches, and nearly 90% of the land in the state is used for agriculture. Our hardworking farmers and ranchers raise over 50 different

commodities and rank in the top 10 for several types of livestock.

In this fourth edition, find out the latest agriculture statistics, what's growing in North Dakota, the best ag hotspots and the latest technology.

We'll tell you about award-winning cattle operations and take you inside our longest-running rodeo.

You'll learn how livestock farmers take pride in the care and safety of their animals; and how commodity producers feed the world through exporting.

Come along with us as we explore some tasty and delicious value-added products, learn about ag education for the next generation and see some of our fun and fascinating agritourism destinations.

North Dakota has been blessed with abundant resources and a varied landscape that enable our farmers and ranchers to produce food, feed, fiber and fuel for families near and far. It is my 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 wide array of products that are used here and around the world.

While it's my honor to serve as Agriculture Commissioner, I am also a third-generation farmer. My son and I operate a 2,600-acre, no-till farm near Menoken in south central North Dakota, where we raise corn, soybeans, spring wheat, winter 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,

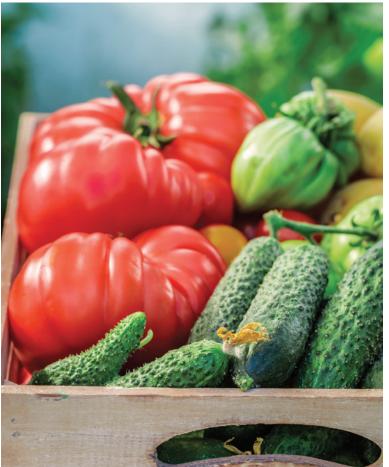
Doug Goehring

North Dakota Agriculture Commissioner

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NDAgriculture.com

Find even more online about North Dakota agriculture, from education to agritourism and more.





Shop in Season

When will your favorite fruits and vegetables be available? Download a produce calendar showing what's ripe right now.

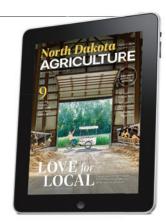
Read the Digital Magazine

Optimized For Online:

Each article can be read online, as a web article or within our digital magazine.

Share the Content:

Embed our digital magazine in your website to offer compelling information about North Dakota agriculture to your site visitors.





Stay Informed

Discover facts and stats about agriculture in your state, including the average farm size and the number of farms.



Cook with North Dakota Products

Find tasty recipes using North Dakota's top products such as corn, wheat and potatoes.



Have a Field Day

Discover agritourism destinations from dairies to farm-to-fork restaurants.

North Dakota Agriculture

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

\$10.9B ECONO

80% CROPS 20% LIVESTOCK

BARLEY AND SUGARBEETS

SECOND IN THE NATION

BLACK BEANS, CRANBERRY BEANS, LENTILS, SUNFLOWERS

https://www.nass.usda.gov

SIMPLY PUT, NORTH DAKOTA'S

agriculture industry is vital. As the state's leading economic sector, hardworking farmers and ranchers provide food, feed, fiber and fuel for North Dakota residents, as well as the rest of the country and the world. The industry is constantly changing and evolving to keep up with the expanding needs of the global population and advancements in technology.

North Dakota has 26,100 farms that spread across 39.3 million acres. Farms in the state are rather large, with the average size ringing in at 1,506 acres. Farmers and ranchers expertly produce North Dakota's top commodities, which include dry edible beans, ranking first in the nation for pinto beans and navy beans, flaxseed, spring wheat, oats, honey, dry edible peas, durum, and canola. In fact, in 2018, North Dakota led the nation in canola production and provided 86% of the country's total production. North Dakota also ranks in the top 10 for several types of livestock, including beef cows, cattle and calves, and bison.

And while production agriculture is a major part of the industry, North Dakota encompasses much more, including agricultural education, agritourism destinations, exports, animal care and biosecurity, and ag technology, just to name a few.



Almost 90% of North Dakota's land area is used for agricultural production.



1.83M

Cattle population



Human population

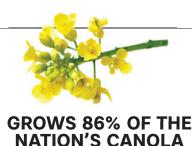


Jamestown was the home to three rare albino buffalo in a herd maintained by the North Dakota Buffalo Foundation. The original albino buffalo, White Cloud, was mounted after she passed away and may be viewed at the museum.



Registered bee colonies:

70,536





Grows 85% of the nation's flaxseed

honey-producing state in the nation

PRAIRIE POTHOLES:

Commonly found in Midwest states, including North Dakota, these depressional freshwater wetlands support more than 50% of the nation's migratory waterfowl, such as ducks.



Sources: State Apiary Inspector Samantha Brunner, beef2live.com, nass.usda.gov, usda.gov, americanrivers.org, agclassroom.org, kfgo.com, atlasobscura.com



Each year, Grand Forks celebrates the Potato Bowl football game with the world's largest french fry feed.

WHAT'S IN SEASON? for North Dakota **PRODUCT** AUG Apples Asparagus Beans Beets Broccoli **Brussels Sprouts** Cabbage Carrots Cauliflower Celery Cherries Cucumbers Eggplant Endive Grapes Green Onion Kohlrabi Lettuce Okra Onions Parsley Parsnips Peas Peppers Plums Potatoes **Pumpkins** Radishes Raspberries Rhubarb Spinach Strawberries Summer Squash **Sweet Potatoes** Swiss Chard www.nd.gov Tomatoes

Find more online

Turnips Watermelon

Zucchini

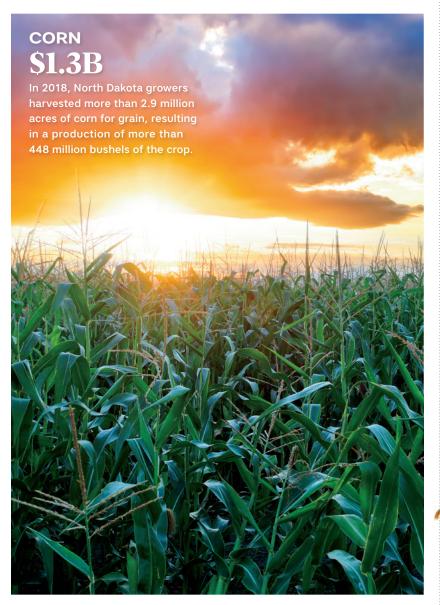
Learn more about what's growing in your state at NDAgriculture.com.

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Farm Credit supports agriculture and rural communities with reliable, consistent credit and financial services, today and tomorrow. FARM CREDIT **AgCountry Farm Credit Services** 800-450-8933 Farm Credit Services of Mandan 800-660-6487 Farm Credit Services of North Dakota 800-264-1265

What's Growing in North Dakota

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



*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.



CANOLA

About 1.6 million acres of canola are grown across the U.S., predominantly in North Dakota, which produced nearly 3.1 billion pounds of the crop in 2018.



SOYBEANS

In 2018, North Dakota's Cass County was the No. 2 soybean producing county in the U.S., and the state ranked No. 4 nationally in total soybean acres planted and harvested.

DRY BEANS \$310.2M

North Dakota is the U.S. leader in dry bean production, producing about one-third of the nation's crop each year.



SUGARBEETS \$241.1M

Farmers in North Dakota harvested 199,000 acres of sugarbeets in 2018, resulting in a production of more than 5.7 million tons of the commodity.



WHEAT

North Dakota farmers plant an average of 7.5 million acres of wheat each year, which results in the production of approximately 320 million bushels of the crop.





BARLEY \$163.7M

The state's farmers harvested 385,000 acres of barley in 2018, bringing North Dakota's barley production to nearly 28.5 million bushels.

POTATOES \$202.5M

One of the nation's major potato growing states, North Dakota primarily produces Russet Burbank potatoes, followed by the Umatilla, Bannock and Dakota Russet varieties.



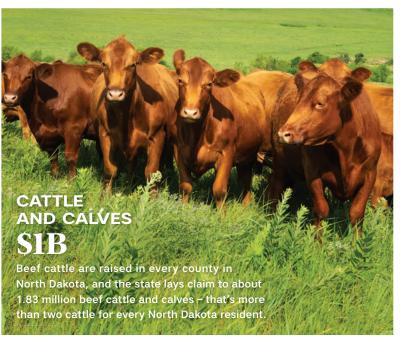
SUNFLOWERS \$179.8M

Leading the nation in sunflower production, North Dakota farmers harvested 420,000 acres of sunflowers in 2018 - that's a total of 739.4 million pounds.



Prind more online

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



SUPERIOR GENETICS





ORTH DAKOTA HAS LONG RAISED generations of award-winning cattle for production herds and the professional bull riding arena.

SCHAFF ANGUS VALLEY

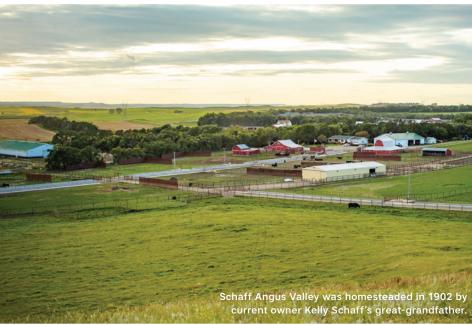
2019 marked the 116th registered Angus cattle production sale for Schaff Angus Valley, the longest-running consecutive purebred cattle sale in the world. Kelly Schaff is the fourth generation on the ranch, homesteaded in 1902 by his great-grandfather. Schaff's grandfather began the Angus herd in the late 1930s, which was continued by his father, Martin, and uncles, Joe and Paul.

"It's been an honor and a lot of tradition, and with that reputation and tradition comes a big responsibility to be leaders in the field of raising superior, quality-registered Angus breeding stock," says Schaff.

The 2019 production sale included a bull named America, who sold for a record \$1.51 million. Schaff says this particular bull comes from the highest-quality pedigree.

"A legendary cow that would have the best phenotype. [He was] the heaviest weighing bull in the history of the ranch, and from the first calf crop by a new, exciting sire named President that everybody was anxious to get the first progeny from," says Schaff, who strives to provide productive and profitable seedstock for Angus breeders around the world.

That includes selecting genetics to support faster gaining, faster growing cattle that are more efficient. It also means focusing on the mother cow herd. Schaff says cows who wean larger calves and have high-quality udders, feet and legs, and dispositions are essential to the herd. The operation performs embryo transplant and IVF technology







to propagate the genetics of its most elite producing cows. While that's important to commercial producers, it ultimately affects consumers looking for quality beef on grocery store shelves. Angus cattle like the ones raised at Schaff Valley Angus are some of the highest marbling cattle in existence, which typically translates into a USDA Choice or Prime grade.

"The ultimate end-experience is enhanced just by the fact that we're in a breed that is known for extreme carcass quality and meat quality," says Schaff. "That's a given in the Angus breed and why you see the Angus breed having a very dominant market share in the beef industry, because ultimately, the eating experience of the end consumer is what drives the market for high-quality beef."

Schaff Angus Valley brings people from all over the world to study its leading Angus genetics, making it a large attraction for out of state tourism, second only to the Medora Musical, according to the North Dakota Bureau of Tourism.

Schaff and his wife, Martie, own Schaff Angus Valley in St. Anthony along with two daughters, Kelsie and Kourtney. The Schaff Angus Valley prefix (SAV) is the most widely used prefix of registered Angus cattle in the world.

CHAD BERGER BUCKING BULLS

Another famous North Dakota bull gained his notoriety in a different arena. Generations of Chad Berger's family from Mandan have been part of the Professional Bull Riding (PBR) circuit. He and his father, Joe, are both members of the North Dakota Cowboy Hall of Fame after years of success in the bucking bull business. The family owned Little Yellow Jacket, a bull that was inducted

into the same Hall of Fame in 2006 after an illustrious career that included being named PBR World Champion Bucking Bull for three consecutive years. Chad, along with wife Sarah and family, began Chad Berger Bucking Bulls in 2003. Chad has been PBR Stock Contractor of the Year eight times and continues to own, raise and buy high-quality cattle featuring premium genetics that impact the Professional Bull Riding circuit in North Dakota and across the country.

- Carrie Muehling

Find more online

For more information about North Dakota livestock. visit NDAgriculture.com.

Longest-running rodeo in North Dakota celebrates family and community

THE OLDEST RODEO IN THE

state of North Dakota, Mandan Rodeo Days began in the summer of 1879 as a simple Fourth of July event featuring a baseball game and pony races.

Today, the event is sponsored by the Professional Rodeo Cowboys Association (PRCA) and the Women's Professional Rodeo Association (WPRA), and it draws more than 500 cowboys and cowgirls from around the country to compete for almost \$130,000 in prize money. It was even named Rodeo of the Year by the PRCA Badlands Circuit in 2016.

Events include everything from bareback bronc and bull riding to team roping and barrel racing. There are also chuckwagon races, mutton busting for the children, a 5K, baseball games, a golf tournament and a fireworks show.

While rodeo has always been a family-friendly event, the community in Mandan is particularly fond of this annual tradition. Many residents in the area treasure their memories of attending or competing in the Mandan Rodeo.

"My dad was a bull rider, so the rodeo has always been a part of

my life," says Brittany Schock, former Miss Rodeo Mandan queen. "We would compete at different local rodeos on the weekend and made so many wonderful memories and friends. The rodeo world is all about community. It's a very familyfriendly sport."

A SPECIAL RODEO FOR THE KIDS

Schock's involvement in the Mandan Rodeo Days paved the way for her to compete at the Miss Rodeo North Dakota pageant, where she learned about a PRCA event designed specifically for children with special needs.

"I'm an occupational therapist, and working with children has always been a passion of mine," says Schock. "When I learned about this children's rodeo event, I knew it was something we needed in Mandan."

Schock drew up a plan and presented it to the rodeo committee and the Remarkable Kids Rodeo was born.

The event caters to children with special needs and gives them an opportunity to compete in activities like stick horse barrel racing, goat tail tying and roping. The children also get the chance to ride a real horse through a barrel racing pattern with the assistance of volunteers.

"Growing up with horses and the rodeo taught me a lot about hard work and dedication," says Schock. "It's helped me become the person I am today. I think it's important for us to give the children in our community a chance to experience that too - especially if they wouldn't have the opportunity otherwise."

– Kayla Walden





North Dakota livestock farmers take pride in the care and safety of their animals

ORTH DAKOTA farmers understand that healthy animals produce quality products. That's why animal safety, health and biosecurity are so important to the state's agriculture industry.

TOP-NOTCH TURKEY

Sharlene Wittenburg and her husband, Carl, have been raising turkeys since they were married. Sharlene's been at it for even longer, as she grew up on a turkey ranch in northern Minnesota. Today, the couple raises approximately 100,000 turkeys annually for Northern Pride in Wyndmere.

"We've made many changes to our farming practices over

the years," Sharlene says, "and we're now raising turkeys antibiotic-free and organic."

Sharlene, who is also the past president of the North Dakota Turkey Federation, says that biosecurity is one of the top priorities on her farm, especially after there was an outbreak of avian influenza (AI) throughout the state in 2015.

"We will wash vehicles that are coming onto the farm, restrict visitor access during heightened risk times, wear separate footwear for all of the barns, put up netting on open-sided barns, and we installed a Danish entry system," she says.

A Danish entry is divided into a "clean" side and a "dirty" side, which helps significantly reduce the spread of disease.

Also taken into account is the potential financial risk of keeping unhealthy birds, as it affects the farmer's bottom line when a turkey or other animal is sick.

"Turkey farmers do what is necessary to protect our birds at all times and keep them healthy," Sharlene shares. "We're testing our birds for the presence of AI before any bird is shipped to market, and they're also tested for any residue."

According to Sharlene, these measures are taken for the protection of the consumer just as much as they are for any other avian livestock. "The consumers should know that we're looking out for the birds' welfare and their own."

STRONG SOWS

Turkeys aren't the only animals receiving top-notch care. Todd Erickson is the general manager of the North Dakota Sow Co-op, which has 10,000 sows for commercial production and another 2,500 sows for breeding.

The co-op owns and operates five farms in North Dakota, producing around 350,000 weaned pigs annually. Approximately 50 full-time employees work on the farms, and Erickson says that they all maintain strict biosecurity measures to keep the pigs protected from disease.

"We have a shower in/out and limited access for nonproduction personnel," he says. "We also impose a 72-hour downtime for people exposed to other pigs. Even veterinarians are asked to stay away from other swine for 72 hours before visiting us."

Thanks to these measures, Erickson says they've been able to produce healthy pigs with low antibiotics use, which is appealing for the consumer.

Employees of the farm also understand the importance of biosecurity, and all of them have been through the Pork Quality Assurance Plus program. This program teaches how to humanely handle pigs of all ages to help protect the community, public health and the environment.

"It's a very comprehensive program that the handler is tested on before being certified," Erickson says. "Producers need to be recertified every three years."

He adds that as a pig farmer, the animals are the lifeline, so it's to everyone's benefit to keep them healthy and safe.

"The pledge that American pig farmers live by every day is 'Doing what's right for people, pigs, and planet," he says.

- Rachel Bertone

Find more online

For more information about North Dakota livestock, visit NDAgriculture.com.

Animal agriculture in North Dakota is

Efficient



Economyboosting

> Forwardthinking

Learn more at ndfb.
org/know-the-truth



Exporting

How exports boost state agriculture and the economy

N NORTH DAKOTA, almost all farmers are directly or indirectly involved in the exporting business. This inherent call to export, and the hard work and determination that goes with it, can be seen in the latest data available from the United States Department of Agriculture (USDA), which credits North Dakota with \$4.5 billion in domestic agricultural exports in 2017. This makes North Dakota the country's ninth-largest ag-exporting state.

However, as a landlocked state,

many of North Dakota's ag exports are undercounted, as a variety of products are usually sold to portadjacent third parties that export them. This technicality aside, North Dakota's contribution is far from undervalued in the eyes of exporters.

Farmers, processors and manufacturers all count on exports to minimize the risks of unpredictable markets while simultaneously boosting the local economy. In the process, North Dakota has gained a reputation for delivering high-quality ag

products abroad. Here's a closer look at this important give-and-take relationship.

TOP EXPORTS & MARKETS

According to the U.S. Department of Commerce, several of North Dakota's food commodities showed strong annual growth in 2018, including corn (93.1%), wheat (26.8%), rapeseed (canola) (62.7%), and soybean oilcakes (70.6%).

Soybeans, already the top ag export for the state, also increased by 8% (to \$62.4 million), with over \$20 million going to Canada instead of China. Peas, chickpeas, lentils and flaxseeds are also key exports.

As in previous years, Canada and Mexico have remained North Dakota's strongest export partners, although Brazil, Australia and Germany are also strong markets. But of these countries, Brazil stands out as a trade partner with further growth potential. According to Heather Ranck, international trade specialist with the U.S. Department of Commerce, "Brazil has recently made travel visa-free for Americans, and it's a very large, vibrant growing market."



North Dakota Ethanol Trade Mission delegates visit the Temape Fuel Tank Terminal in Suape Port near Recife, Brazil

In August 2019, Ranck traveled to Recife, Brazil, to assist the North Dakota Trade Office (NDTO), the North Dakota Ethanol Council (NDEC), and five ethanol plants based in North Dakota in setting up meetings with Brazilian buyers and identifying new export opportunities. Looking to the future, she also sees Canada, Eastern Europe (especially Ukraine) and Western Europe as additional regions with strong interests for North Dakota products.

Over at NDTO, Rebecca Espinoza, who is the communications, grants and membership manager, notes, "We see a rise in specialty crops, especially as the population looks to plant proteins for health benefits." According to Espinoza, "NDTO partners with the North Dakota Department of Agriculture to increase opportunities for our specialty crop growers, such as reimbursement for sales trips and trade missions."

As developing countries all over the world continue to grow their economy and demand a higher quality of life, North Dakota's agricultural exporters will remain ready to supply these products whenever and wherever they are needed.

EXPORTS' ECONOMIC IMPACT

Exports are a critical part of North Dakota's agriculture industry, as farmers in the state are very effective producers, creating more ag products than its residents can use. Because of this, many products are either exported or processed (e.g. sugarbeets to sugar, canola seed to oil, durum wheat to flour/ pasta). "Without exports, our state would have excess commodities and lower prices," says Tom Wollin, business

development executive at NDTO.

Another benefit of exports to the local economy is increased sales revenue, which can be used to increase production and operation, ultimately leading to new and better employment opportunities.

"For the state government, increased revenue and employment means tax increases, and this also leads to more employment in the public sector to support and service exporting businesses," says Jiwon Kim, business development executive at NDTO.

From increased sales and revenue to higher wages and lower unemployment, it's clear that international trade can be an

effective way to distribute benefits that directly impact the economy.

For those interested in getting started selling abroad, there are numerous programs and grants available to help offset the initial cost in finding new customers. Not to mention NDTO export counseling, the North Dakota District Export Council, and EXIM Bank to help mitigate potential risks.

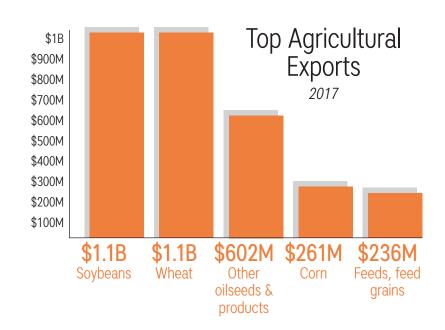
- Keri Ann Beazell

p Find more online

For more information about North Dakota exports, visit NDAgriculture.com.

66 Brazil has recently made travel visa-free for Americans, and it's a very large, vibrant growing market."

Heather Ranck, international trade specialist with the U.S. Department of Commerce



A is for **AGRICULTURE**

Students across North Dakota prepare to take on the ag jobs of the future

HEN IT COMES TO agricultural education, North Dakota students have ample learning opportunities - both inside and outside the traditional classroom setting. Through their involvement in collaborative activities and youth organizations, the state's young people are growing their leadership and career readiness skills in a big way.

As a result, North Dakota's ag industry is set up for continued success as the next generation prepares to put their knowledge to work.

HANDS-ON EDUCATIONAL **EXPERIENCES**

North Dakota's Agriculture in the Classroom program aims to increase ag literacy by creating agricultural education programming for students in kindergarten through 12th grade. This program helps teachers across the state easily and seamlessly add ag elements into their daily lessons.

For example, through grants given by Agriculture in the Classroom, the

North Dakota Farm Bureau offers educators a 55-lesson curriculum called Project Food, Land and People, which includes instructional units that address core content and meet state standards and benchmarks. In addition, the program participates

incorporated honey kits into her curriculum, with the goal of helping her students learn about pollination. As North Dakota produces the most honey in the U.S., it's important to teach children about this vital component of the state's ag industry.

66 The Agriculture in the Classroom program gives me the tools and resources I need to help students connect the dots in a fun, meaningful and creative way."

Elsie Sheldon, fourth-grade teacher at Grimsrud Elementary School

in Living Ag Classroom, a daylong event that rotates fourth- and fifth-grade students through 10 different hands-on activities related to North Dakota's production agriculture sector.

Elsie Sheldon, a fourth-grade teacher at Grimsrud Elementary School in Bismarck, loves using Agriculture in the Classroom resources to teach her students about agriculture. In 2019, she

According to Sheldon, the kits included honey sticks made from four different varietals of honey for students to taste-test - all harvested from North Dakota bees - along with activity guides and digital teaching materials that she used to enhance her lessons. Sheldon also used the kits' contents to help make the connection between the school's outdoor garden and the pollinators that enable its plants to thrive.



"Many of the kids who grow up in Bismarck don't know much about agriculture, so it's important for them to learn where their food comes from and to have an understanding of the ag products and natural resources that come from North Dakota," Sheldon says. "The Agriculture in the Classroom program gives me the tools and resources I need to help students connect the dots in a fun, meaningful and creative way."

YOUTH ORGANIZATIONS ENGAGE STUDENTS

Outside the classroom, organizations like the North Dakota 4-H Youth Development – the largest youth organization in the state – and the North Dakota FFA give young people the ability to explore their interests in ag through projects, competitions and other hands-on opportunities.

Along with raising livestock and cultivating crops, North Dakota 4-H and FFA members can take part in an array of leadership activities and events. Both organizations are also helping to ensure the state's youth

are prepared for the highly technical ag careers of tomorrow, providing an evolving catalog of resources and opportunities to stay in step with current needs and agriculture trends.

"Our program is steadily growing, and we're always introducing more materials that appeal to youth of all ages and backgrounds," says Brad Cogdill, chair for the Center for 4-H Youth Development at the North Dakota State University Extension. "We're offering new opportunities in areas like robotics and aerospace, and those are attracting groups of young people we haven't connected with in the past. Plus, these new opportunities are helping youth get more familiar with ag careers of the future, such as those that will involve unmanned aerial vehicles and other high-tech tools; that knowledge base is going to serve them well going forward."

– Jessica Walker Boehm

Prind more online

For more on the Agriculture in the Classroom program, visit nd.gov/aitc.





Learn how 4-H develops confident young people who are empowered for life today and prepared for careers tomorrow.

ndsu.edu/4h



EXTENSION



HEN YOU DIG INTO THE North Dakota agriculture industry, you'll quickly find that it goes far beyond wheat, cattle and sugarbeets. The state's diverse agricultural economy includes a variety of crops and unique products crafted with care.

DUCHESSA GELATO

Growing up, Maartje Murphy treasured time visiting artisan gelato shops with her grandparents. Murphy was predisposed to delicious dairy products, as she and her family operated a dairy farm in the Netherlands before moving to Canada in 2002. In 2010, the family moved to North Dakota and opened a new dairy farm.

"I always dreamed of having a gelato business in North Dakota," says Murphy. "My family thought I was crazy."

Not to be deterred, Murphy decided to pursue her passion. In 2017, she attended Gelato University in Chicago, learning the basics of how to make the sweet treat. Today, she operates Duchessa Gelato, using fresh milk sourced from her family's dairy in Carrington as the main ingredient. Compared to ice cream, gelato uses more milk than cream and is churned at a slower and warmer temperature for a smooth, creamy and rich taste. Murphy serves the homemade gelato at local events using an authentic gelato cart she purchased from Italy.





- Uneven Ground
- Inadequate Vegetation Established
- Pooling Water
- Slumping
- Soil Erosion
- Soil Mixing

RECLAMATION PROBLEMS?

Wind Energy ~ Oil ~ Gas ~ Water



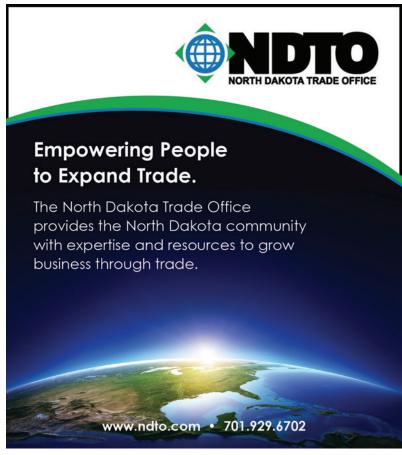
WE CAN HELP!

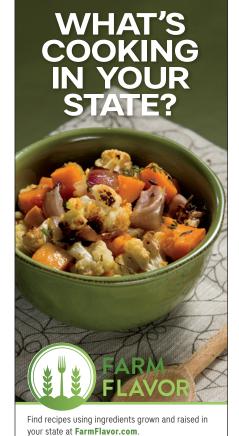
The North Dakota Department of Agriculture's program can assist in resolving land surface issues and concerns with wind energy and pipeline restoration and reclamation.

For assistance, contact us at 1-800-242-7535 or visit us online at www.nd.gov/ndda.



Agriculture Commissioner Doug Goehring





SCHWEITZER'S GOURMET MEATS

After owning a construction business for 20 years, Travis Schweitzer decided to finally pursue his dream of owning a butcher shop. In 2016, he put down the hammer and picked up the butcher knife. Returning to his agricultural roots, Schweitzer enlisted the help of his wife and seven children, and together they provide custom processing and retail cuts to the Bismarck area.

"We raise the best beef in the world, bar none. And I know that for a fact. I've tried beef all over this country," says Schweitzer.

He explains that dry-aging in a state-of-the-art cooler is preferable to wet-aging in a bag, a quicker process used by most grocery stores. Dryaging allows for more tissue breakdown, improving tenderness and flavor.

In Schweitzer's professional opinion, North Dakota producers raise some of the highest quality beef.

"I just think the way they handle the beef, they really take good care of their herds," says Schweitzer. "It's their livelihood and they

have a passion for it and they really take good care of their animals. That's a big part of getting a nice, tender steak, too."

BERRY DAKOTA

Kay Eagleson has been making jellies, jams, syrups and other products from North Dakota berries since 1996. The Jamestown business, called Berry Dakota, often uses berries picked by Native Americans in the Turtle Mountains. Eagleson says any merchandise made from the official state fruit is very popular.

"Any products that are made from chokecherry are my best sellers," says Eagleson. "I make something chokecherry almost every week."

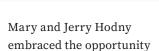
Other featured flavors include crab apple, wild plum, juneberry, wild cranberry and buffalo berry. Berry Dakota products are available at numerous retail locations, as well as at Pride of Dakota Holiday Showcases.

LEO'S POTATO DUMPLINGS

When Leo Bosh of Lankin retired from making Czech-style potato dumplings in 2009 at the age of 86,







to continue the legacy of Leo's Potato Dumplings. Like Leo, Jerry Hodny was also proud of his family's Czech heritage. Along with their son, Shawn, the Hodnys now run the business originally started by Leo, and focus on keeping ingredients local. They source potatoes from Red River Valley farmers, use flour from the North Dakota Mill in Grand Forks, and use local eggs when possible. Mary Hodny says potato dumplings vary based on the heritage, and they work to educate consumers about their product.

"It's kind of neat to teach them about heritage in different regions of our own state, because there are different nationalities in different towns," she says.

The dumplings are made with cooked, mashed potatoes. They can be frozen and are sold in bags as a convenience food for people to enjoy at home. The Hodnys also sell Czech fries, a creative invention made with the dumplings that aren't pretty enough to sell. These are fully cooked, cut up dumplings ready for the frying pan. The company also sells lefse and kolaches.

- Carrie Muehling

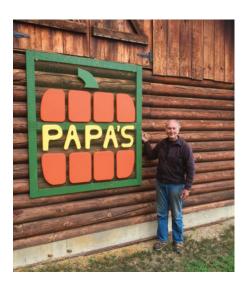
More Than a PUMPKIN PATCH

How this accidental pumpkin patch became a top agritourism destination

APA'S PUMPKIN PATCH has long been a favorite of the local community in Bismarck. They even landed a spot on the Travel Channel's Top 15 Pumpkin Patches in the United States. In addition to this most recent feather in their cap, the patch has been included in several nationwide rankings from companies like Yahoo!, USA Today, Travel & Leisure and more.

FROM HUMBLE **BEGINNINGS**

Papa's Pumpkin Patch began in 1983 when farmer Dave Pearce was



asked to grow a few hundred pumpkins for a local parade float. At the time, he was growing tomatoes and cucumbers in a greenhouse and had the extra land and expertise to undertake the task. However, when the parade date was unexpectedly moved up from October to September, Dave found himself unable to deliver the pumpkins in time to the float. Left with a field filled with hundreds of premature pumpkins, Pearce decided to open it up to the community.

Once the gourds were ripe and ready, Pearce invited local grade school teachers and their students out to the farm to enjoy a day of picking pumpkins to celebrate the season.

In the 36 years that have passed since that monumental day, the

farm has grown into quite the operation and an annual tradition for many in the community.

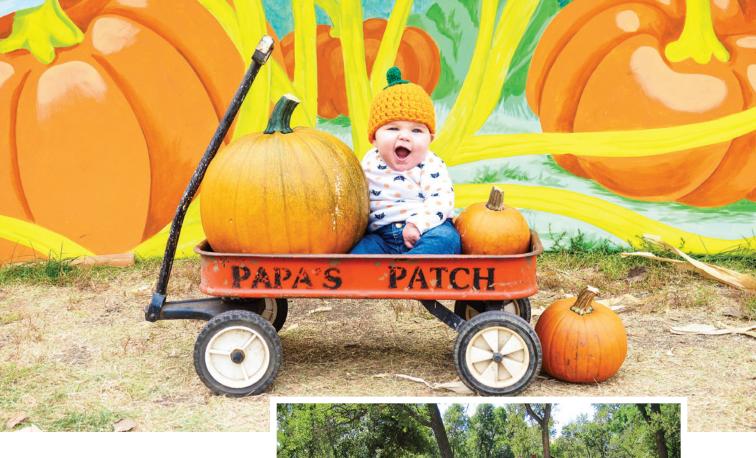
"We've been in business long enough for our original group of first graders to grow up, graduate and bring their first graders back to the pumpkin patch," says Pearce. "It's enough time for us to become part of the fabric of this community."

Named in honor of Pearce's father, Papa's Pumpkin Patch got its start with just a few hundred green pumpkins, but this season saw between 40,000 and 50,000 pumpkins, squash and gourds - and even more visitors.

"We average somewhere between 50,000 and 60,000 guests each season," says Pearce. "For the last decade, all of our produce comes from seven fields that span almost 35 acres, all within North Dakota."

66 We've been in business long enough for our original group of first graders to grow up, graduate and bring their first graders back to the pumpkin patch."

Dave Pearce, farmer



Picking pumpkins is the main event, but there are also countless activities on the farm for children and their families to enjoy. Free activities include hay bale mazes, slides, tire climbing piles, a super sandbox, slacklines, human foosball and a corn maze. Guests can even visit with the farm horses, Jesse and Kit.

BETTER TO GIVE THAN TO RECEIVE

While visitors are guaranteed to make memories that will last a lifetime, Pearce and his team see the pumpkin patch as more than an agritourism destination.

Since the beginning, Papa's Pumpkin Patch has donated more than \$1 million to charities and beneficiaries in the local community and beyond. Recipients include the Alzheimer's Foundation of America, Bismarck Parks and Recreation, Horizon Middle School, MOPS of Evangel Temple, North Dakota FFA Foundation, and the Salvation Army.

"Our inspiration for generosity comes from the Bible," says Pearce. "Luke 12:48 says 'For unto whom

much is given, much is required.' I received a plaque inscribed with that verse from two high school classmates, and it has been a focal point for me ever since."

THE IMPACT OF **AGRITOURISM**

Anyone who has visited Papa's Pumpkin Patch knows it's a wonderful place to spend an autumn afternoon. The family-friendly environment, activities and volunteers who come together to help orchestrate this seasonal event make for an extra special place for the people of North Dakota.

It also gives both children and

adults the chance to reconnect with their roots.

Pearce notes that even though many people are growing up away from farm life and rural community, they're often interested to learn about farming firsthand.

"Creating opportunities for people to visit, see and understand what life is like on a farm is the heartbeat of agritourism," says Pearce. "To quote the Future Farmers of America Creed, 'I believe that American agriculture can and will hold true to the best traditions of our national life and that I can exert an influence in my home and community."

– Kayla Walden

Technically TERRIFIC

Precision agriculture provides farmers with tools to feed their communities

HILE HUMANS HAVE been growing crops and raising livestock for centuries, old-school agriculture is being replaced with high-tech than ever before.

engineering at North Dakota State improve their operations."

The global precision agriculture



\$13.5 billion by 2023, doubling its current value, according to some estimates. Driving the trend are both increased demand for smarter, more efficient tools to monitor crop and livestock health and an increased willingness among farmers to adopt high-tech tools. is not new. Sun points out that farmers have been driving tractors and combines with autonomous controls and GPS since the early

technologies, such as robotics, drones, artificial intelligence and variable rate application of fertilizers, to propel precision agriculture to the next level, further improving their operations.

At NDSU, Sun is researching using optical sensors, machine learning and artificial intelligence to improve crop and livestock production. His current projects include using artificial intelligence to monitor plant growth and detect weed species; deploying drones to take inventory of cattle, utilizing heat sensors to mark the location of cattle that have strayed from the herd; and testing handheld thermal sensors for early detection of disease in cattle.

"We want to give ranchers tools to better manage their herds from birth to slaughter. The earlier we can detect diseases, the earlier we can treat them and avoid losing [crops or] cattle," he says. "Right now, we are doing some exciting field research."

Sun believes that the technological advances coming out of NDSU will not only impact individual farmers in North Dakota but have a ripple effect across the global food production system.

With the global population expected to reach 9 billion by 2050, farmers and ranchers will be tasked with figuring out how to feed more

people on less land - and agriculture technology can help address the need, according to Sun. First, the next generation of farmers needs to learn how to use the technology in the field.

CULTIVATING A COMMITMENT TO HIGH-TECH FARMING

Precision agriculture has become so popular that NDSU started offering both a major and minor in agriculture and biosystems engineering in the spring of 2019. The curriculum was designed to help aspiring farmers understand the role technology can play in improving their operations and feeding the world. It includes a

since last semester. Sun has been fielding questions from both current and prospective students who are considering the program, and he expects the number of students choosing to pursue precision ag will continue to increase.

"The university is one of the pioneers [in precision ag] with this program," Sun says. "The technology is always changing, and we need to teach the next generation of farmers to use it to benefit their future farming businesses." Agriculture technology is already being used on farms across North Dakota and around the world. Continued research at NDSU and beyond will help shape the future of farming, according to Sun.

66 Agriculture technology is changing the industry, and farmers are going to get the benefit from the technology boom."

Xin (Rex) Sun, Ph.D., assistant professor of agriculture and biosystems engineering at NDSU

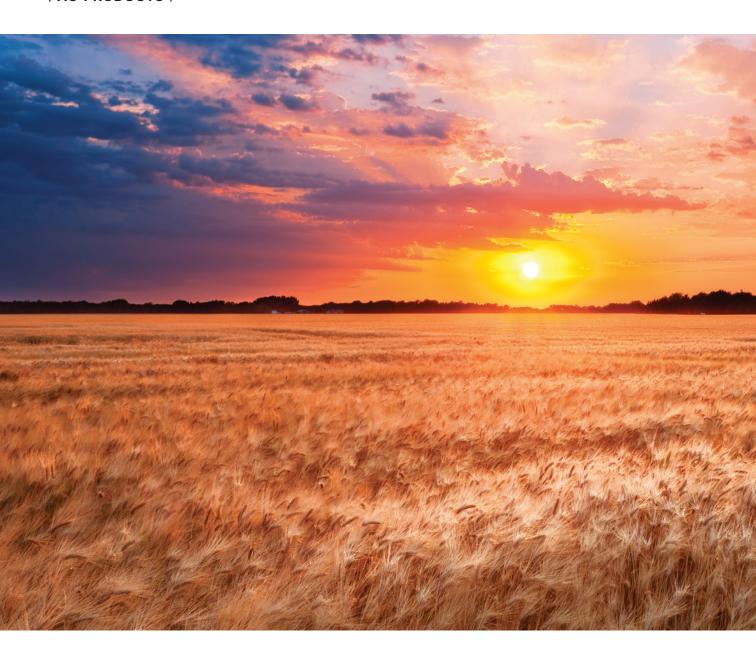
combination of classroom work and field experiences in agricultural engineering.

Enrollment in the precision ag major in the Department of Agriculture and Biosystems Engineering at NDSU has doubled "Whether farms are big or small, technology can be deployed to make things more efficient and, in the future, I believe every farmer will gain benefits from using agriculture technology."

- Jodi Helmer







Highlighting the HOTSPOTS

A closer look at North Dakota's booming agricultural production



NOWN FOR BOUNTIFUL farmlands and ranches, North Dakota boasts a few areas that stand out from the rest. These ag hotspots put the state on the map with impressive production numbers, quality products and significant economic impact.

THE RED RIVER VALLEY

Located along the eastern border of North Dakota, the Red River flows north into Canada and has been called "the crookedest river in the world," despite its straightforward appearance on

maps. The fertile land surrounding it has also earned an impressive accolade as "The Breadbasket of the World" because of how much food is produced there.

In fact, the Red River Valley is home to some of the richest soil on the planet, providing fertile ground for a variety of cash crops, including corn, potatoes, wheat and sugarbeets. Over the years, sugarbeets have become a staple of the valley's farm economy, supporting approximately 2,800 growers on approximately 425,000 acres.

This crop's impressive growth track started back in 1973 when beet farmers formed a cooperative to purchase American Crystal Sugar Company. Today, the cooperative still operates five processing plants in the Red River Valley, ensuring the sugarbeets' continued importance and viability in the region.

CATTLE CAPITAL OF NORTH DAKOTA

Although there are cattle raised in every county in the state, the city of Towner in McHenry County has

deemed itself as the "Cattle Capital of North Dakota" thanks to the publicity of a newspaper story in the 1960s. And since this catchy slogan stuck, the city has continued to embrace its heritage and expand its beef industry over the years.

The county that raises most cattle currently is Morton County. As of Jan. 1, 2018, Morton County's cattle inventory reached 115,000, with beef cattle totaling 63,000 and dairy cattle at 3,200. One of the reasons ranchers raise large quantities

of beef cattle here is that the cattle can be naturally fattened on the rich grasses.

Because of the continued hard work and determination of these ranchers, there is no doubt that Towner, and Morton County, have significantly contributed to North Dakota's verified reputation of having more cattle than people. Throughout the state, Angus, Hereford, Gelbvieh, Charolais and Simmental remain some of the most popular beef cattle breeds.

CASS COUNTY

Cass County's status as the "Soybean Capital of North Dakota" is a result of producing more soybeans than any other county in the U.S. In 2018, North Dakota soybean production ranked ninth in the nation, and soybean exports from the state increased by 8% (to \$62.4 million), with over \$20 million going to Canada instead of China.

The consistently high quality of soybeans coming from the county (and state) remains a point of pride as farmers and processors fulfill demands worldwide.

CAVALIER COUNTY

Over in Cavalier County, an aerial trip will quickly point out the area's No. 1 crop. From above, one can witness a stunning view of the bright yellow-green hues from the canola fields blooming. And in case the view isn't convincing enough, in 2018, North Dakota set a new record with 3.1 billion pounds of canola produced, an increase of 24% from the previous year.

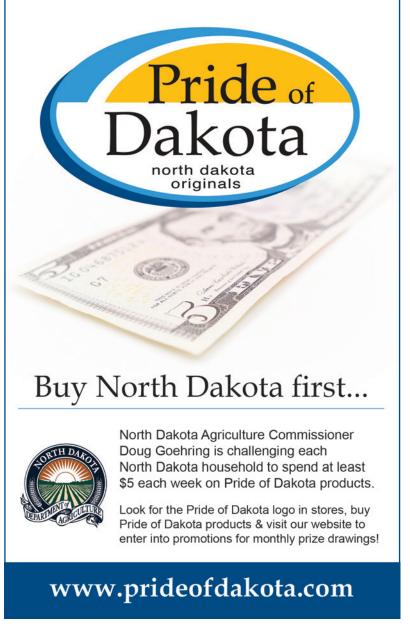
There is much optimism around canola these days, and towns such as Langdon, with its Research Extension Center, are staying ahead of the curve by looking for ways to maintain and strengthen its appeal. While the natural climate of northeastern North Dakota is considered good for canola growing, farmers and scientists are working together to find new ways to improve yields, reduce disease and increase frost tolerance.

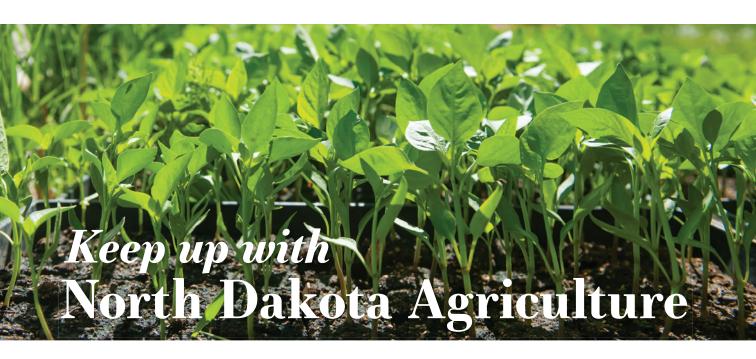
With this level of commitment and enthusiasm, the future of North Dakota's canola fields looks very bright indeed.

- Keri Ann Beazell

Find more online

For more information about North Dakota's top commodities, visit NDAgriculture.com.





Want to stay in touch with North Dakota food and farmers? Here are a few ways to get started:

Shop at a Farmers Market

With dozens of farmers markets across the state, it's easy to buy fresh, local produce, meats and other foods in North Dakota. Find a farmers market near you at nd.gov/ndda/NDLFMAP.

Keep Learning

Ag in the Classroom provides agricultural education to students across the state. For more information, visit nd.gov/aitc.

Buy Local Products

Want to support producers in your state? Discover products made in North Dakota at prideofdakota.nd.gov.

Stay in Touch

Keep up with the wide-ranging efforts of the North Dakota Department of Agriculture at nd.gov/ndda.

Visit a Farm

Picking berries, exploring a corn maze, selecting the perfect Christmas tree - these are just some of the fun things to do on farms. To learn more about North Dakota agritourism, visit ndtourism.com/agritourism.

Share Infographics

Download shareable graphics featuring the state's top 10 ag products, seasonal produce calendars and more at NDagriculture.com.

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North Dakota 4-H

www ndsu edu/4h

North Dakota Department of Agriculture www.nd.gov/ndda

www.ndfb.org/know-the-truth

North Dakota Mill and Elevator

North Dakota Farm Bureau

www.ndmill.com

North Dakota State College of Science

www.ndscs.edu

North Dakota Trade Office

www ndtn cnm

North Dakota Wheat Commission

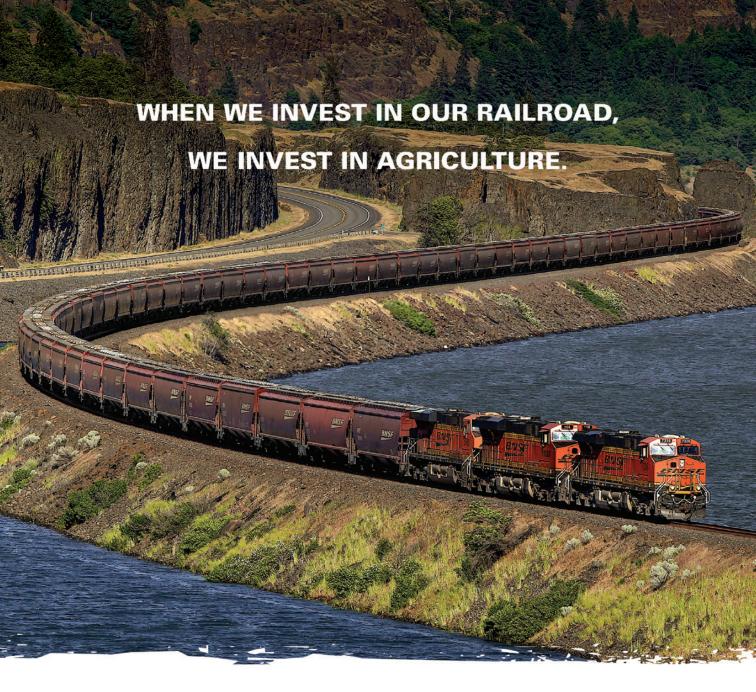
www ndwheat com

Northarvest Bean Growers Association

www.northarvestbean.org

Northern Plains Potato Growers

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