

THE NORTH DAKOTA Soybean GROWER MAGAZINE

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INSIDE:
North Dakota
Well Represented
at 2021 GTE
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Teachable Moments



For the past two years, Mustang Seeds has funded alfalfa pathology projects at Dakota State University (DSU) in Madison, South Dakota, spearheaded by Dr. Andrew Sathoff, assistant biology professor at DSU. Alfalfa is one of the many types of seed available from Mustang Seeds.

“I accepted a position at DSU in 2019 and quickly approached Mustang Seeds for potential research collaborations,” Sathoff says. “Both of the summers I’ve been researching at DSU, Mustang Seeds has generously funded my projects.”

Sathoff’s alfalfa research efforts led to a connection that gave some of his DSU students an up-close look at the science of soybean breeding.

Sathoff took part in Mustang Seeds dealer days, which brings seed dealers, growers and researchers together to visit research plots and to learn about

new products. Sathoff, who gave a presentation on his alfalfa research at the event, connected with Santiago Fleming, soybean breeder for Mustang Seeds’ partner GDM. Because the two scientists operate in different areas of plant life, Sathoff thought the connection presented an opportunity for his research students.

“I thought it would be a good learning experience for my students to be exposed to a bit of plant breeding,” Sathoff says. “I’m a plant pathologist, but another big wing of plant science is plant breeding. My students have no experience with plant breeding. I’ve had some plant breeding training, but nowhere near the level of Santiago or any of the other folks who are at that GDM facility, so I thought it would be a good learning opportunity. It was also a chance to see the different levels of research between a commercial

program and a university program.”

Earlier this summer, Sathoff reached out to Fleming to arrange a tour of the GDM facility near Hutchinson, Minnesota. For many of the students, it was their first in-depth exposure to plant breeding.

“I really had no idea about plant breeding, so it was all very new to me,” says Jenni Giles, a biology major from Madison, South Dakota. “I saw a lot of different things, including the breeding process from start to finish, how they cross different plants and the different seed lines that GDM produces. It was pretty cool to see how the process works from their end.”

Conner Tordsen, a senior biology major from Fairmont, Minnesota, also made the trek to the GDM facility.

“We do a lot of plant health work with our research team here at Dakota State, so it was interesting to see the other side, the plant breeding,” Tordsen says. “Breeders are going against different diseases to increase their yields that way, and we’re looking at doing it with fungicides and how we can stop the diseases. Seeing things from the breeder’s perspective was cool and it gave me the full picture.”

“The biggest takeaway I had was seeing the difference between what we do in lab and what plant breeders do,” added Travis Rebstock, a fourth year biology student from Redwood Falls, Minnesota.

In addition to learning about soybean breeding, Sathoff says the exposure to different areas of science could help students decide on a future career path.

“Some of my students don’t know exactly what they’re going to do after graduation, so I thought this opportunity may open a door for them,” Sathoff explains.

To learn more about what Mustang Seeds has to offer, visit us online at mustangseeds.com.





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n the cover

Soybeans are important to North Dakota, but North Dakota farmers are equally important to the soybean industry. Farmer leaders from across the state are committed to creating demand and cultivating opportunities for soybeans around the world through events like the Global Trade Exchange, which encourages connections between soybean producers and potential buyers.

—Photo courtesy of USSEC



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Water and Research

At this writing, wheat is mostly in the bin, and dry beans are moving along with harvest stopped for now because the radar shows the entire eastern half of North Dakota finally getting rain.

In this time of little precipitation, I have been sent to cover several water events. The first event was the Joint Summer North Dakota Water meeting. This year, the title was Water, Roads and Agriculture Working Together, and it was held in Grand Forks. Much of the full day was spent educating water resource district (WRD) managers about what happened during the previous legislative session. Senator Mark Weber was the lone legislator in attendance because the water-related bills were discussed along with the bonding and infrastructure bills.

The water world is pretty happy given that the bonding bill found big money for the Fargo Diversion and Minot flood-protection projects. The bonding bill leaves much more in the State Water Commission's budget for other projects. There were presentations at the summer meeting to explain the subsurface drainage or tiling bill, and subsurface drainage itself, as well as promoting the idea that WRDs would be much better off if they could follow the procedures that permit tiling in a uniform manner. In the past few sessions, some complaints have come about because there is unevenness in the way the WRDs conduct business. Therefore, a couple of sessions ago, there was a requirement for WRD board members to become educated, and a continuing education system was initiated. These joint meetings are part of that system, and while they were competing with a Water Users Association annual meeting in Medora, they were still fairly well attended. There was a segment on wetland mitigation banks and another from an experienced attorney titled "Being a Good Neighbor: Managing Water for the Long Term." His main advice after explaining North Dakota and Minnesota case law, which led to where we are today, was fairly simple and made sense: "try to get a private drainage agreement (with neighbors) in writing to avoid hiring attorneys." He also explained that what is considered to be "reasonable" behavior is how most cases are judged. Overall, I can report that almost all presenters gave credit to agriculture groups for their help during the legislative session regarding water issues, so you

folks who are members of the North Dakota Soybean Growers Association had an impact.

The Water Drainage interim committee has met once. Legislative Management—a select group of legislators—selected four major topics for this newly created committee to study. The first area was to merge a couple sections of the Century Code which are largely complimentary but contain enough differences that it would be wise to get the sections together. One section was written in 1955, and the other one is from 1981. Both areas address water drainage and drain boards. Everyone was in agreement that this work should be done, and we have heard no one argue this point. I have also been apprised of an effort which has already accomplished this work. I would suppose that, once this early document is presented to the committee, progress should happen rather quickly and result, eventually, in a bill draft which may be presented to the next legislature in January of 2023. The second, third and fourth topics are sure to be more controversial because they challenge the status quo when it comes to the authority and actions of water resource districts. Every square foot of our state is covered by one WRD or another. Mostly made up of farmers, the WRDs hold elections for assessment drains and end up hearing about what projects are needed or wanted in the area.

I was also present at the renaming of North Dakota State University's (NDSU) greenhouse complex for Jack Dalrymple. The change honored the support he gave, as a longtime legislator, lieutenant governor and governor, for agricultural research at that institution. The benefits of ag research were often touted to the individuals assembled because Jack stated that there is no greater return on investment. Mark Birdsall, chair of the State Board of Agricultural Research and Education (SBARE), reiterated and told the crowd about how many new crops can be



Veteran lawmaker and educator Phil Murphy is the NDSGA liaison between legislators and farmers.

grown in his part of western North Dakota due to the work of NDSU Research and Extension. Soybeans, in particular, were discussed by most of the six speakers as being the dominant acreage crop, the new value-added star with the planned crush plant or a valuable rotation staple.

Your organization has been working every legislative session and during the interims to promote the budgets for Research and Extension, the new Ag Research and Development Center and pertinent NDSU budgets so that researchers can maximize breeds and species for your benefit as producers. What made the August gathering special was who attended, including several legislators, the agriculture commissioner, the attorney general, and the aforementioned executive branch and staff. At times, these policy and regulatory people need to hear and to understand how important research is to our industry. We would be foolish to take what research has done for us during the past few decades for granted.

Thank you for your vigilance and membership to help our association continue moving forward.

**For more information,
you can see it all
for yourself at:**

<https://bit.ly/WaterDrainageCommittee-090221>



The Importance of Infrastructure

If anyone understands the value of a highly functioning infrastructure system, it's a North Dakota soybean farmer. Most of the soybeans we grow are bound for markets that are hundreds, even thousands, of miles away. The journey that those soybeans take often involves a range of transportation modes, from roadways and railways to waterways. Disruptions along any of the channels can cause shipment delays and lost opportunities.

It's no secret that much of the nation's infrastructure needs improvement. What was once our competitive advantage over other soybean-producing countries is gradually eroding. Many roads and bridges, especially in rural areas, aren't up to standard. Locks and dams are aging, and shipping ports need to have channels deepened in order to accommodate larger cargo ships. Without investment, all of these transportation modes will continue to degrade.

It's encouraging that infrastructure is getting attention on a national level and that substantial investment could be on the way. After months of debate, the U.S. Senate passed a \$1 trillion infrastructure package. Leaders in the House of Representatives are now working on their accompanying legislation.

While few people are opposed to investments that will help modernize our infrastructure system, there are concerns about how the massive bill will be funded. North Dakota Soybean Association and American Soybean Association leaders have engaged with lawmakers to express how important these investments for critical infrastructure are to farmers. We've also impressed upon the lawmakers that some proposed mechanisms to pay for the package would be detrimental to farmers.

The final Senate infrastructure package did not make any changes to the stepped-up basis for capital gains taxes or 1031 exchange provisions, both of which would negatively affect farm families. We will continue to advocate for funding mechanisms that don't injure the very farm operations that badly need improved infrastructure.

Every day, it becomes increasingly evident that we live in a global economy, complete with worldwide competition for soybean markets. In order for us to remain competitive, our infrastructure must be upgraded. We know that all comes at a cost. We're committed to supporting infrastructure investment that doesn't hurt the industries which need infrastructure upgrades the most.



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Membership Application

To join ASA and the North Dakota Soybean Growers Association, complete and return this application with payment.

Name: _____
 Spouse: _____
 Date of Birth: _____
 Farm/Company Name: _____
 Address: _____
 City, State, Zip: _____
 County: _____
 Phone: _____
 Cell: _____
 Email Address: _____

Occupation (Please check all that apply)
 Farmer Retired Agribusiness
 Finance Elevator Other

Do you raise:
 Cattle Hogs Poultry Dairy

Do you currently grow soybeans?
 Yes _____ No _____

Soybean Acres: _____ Total Acres Farmed: _____

How did you hear about NDSGA? (Please circle one)
 Recruited in person; Recruited by phone, Magazine;
 Internet; Mailing; Radio; Event; Other

3-Year Membership \$200 1-Year Membership \$75
 Check enclosed (please make checks payable to NDSGA)
 Credit Card: Visa / MasterCard / Discover / American Express
 Card Number: _____
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 Name on Card (Please print): _____
 Signature: _____

Mail application with payment to: North Dakota Soybean Growers Association; 4852 Rocking Horse Circle South; Fargo, ND 58104

FIELDS OF Opportunity

Clark Coleman's Bismarck-area farm is a study in diversity. Coleman farms with his twin sons and brother. Each year, they plant as many as 13 different crops, including soybeans, confection sunflowers, oil sunflowers, corn, malting barley, durum wheat, spring wheat, chickpeas and yellow peas. The diversity spreads out the fieldwork schedule and helps them react to market opportunities. The Colemans also raise about 600 head of cattle.

In recent years, agritourism has earned a place in the family's farming operation. The idea came innocently enough when Coleman, former president of the National Sunflower Association, was contacted by a man in Florida who wanted to propose to his girlfriend in a vibrant North Dakota sunflower field.

"That got us to really thinking that, if people are going to come from Florida to do this kind of thing, it's definitely something we've got to start looking at," Coleman says. "We're trying to think outside the box."

Several of Coleman's sunflower fields are marked on North Dakota Tourism's sunflower trail, which gives visitors up-to-date information about the status of

the picturesque plant's bloom status. Visitors come from across the country to see the fiery yellow flowers. Coleman has also planted corn mazes the past several years, but this year's maze fell victim to the drought.

Agritourism is a familiar concept for the family because Clark Coleman's wife, Sara Otte Coleman, is the director of tourism and marketing for the North Dakota Department of Commerce.

"Agritourism is an opportunity to educate and to really help consumers understand, number one, where their food comes from, but also what a profession farming and ranching is," Otte Coleman states. "People don't necessarily think about the technology involved, the innovation, the marketing skills and everything that goes into farming. They're really interested in just knowing about where the food comes from."

Otte Coleman describes how her eyes were opened to agritourism early in her role as the state tourism director. She was hosting the editor of *Midwest Living* magazine on a driving tour of the state and was mainly focused on the Lewis and Clark expedition.

"I'm talking about all this Lewis and Clark history, and all he could talk about was what's in that field,

what's growing over there, what kind of cows are those? Luckily, I could answer most of those questions," Otte Coleman recalls. "That experience made me realize the level of interest. From then on, because we farm and ranch, whenever people would call into the office with agriculture questions, the staff would forward those calls to me, so I could try to answer."

Capitalizing on the Opportunity

Farmers, ranchers and even entire communities are capitalizing on agriculture's attraction. Business enterprises and community celebrations around North Dakota celebrate agriculture.

"There might be fall festivals, pumpkin patches, corn mazes, wineries, orchards, you-picks. A lot of those things are how people start on agritourism," Otte Coleman explains. "In some cases, it's to diversify their farm and ranch operation or (to) provide their

kids some experience where they can have their own kind of micro business that they can work alongside the farm. In other cases, it's just a seasonal thing that complements their operation really well. So, there's a huge variety."

Otte Coleman says that farm stays, where visitors stay at a farm for several days to watch; learn; and sometimes, even help on a working farm are also gaining popularity.

Some agritourism ventures, such as building a winery or microbrewery, or converting an old barn into a wedding venue, require substantial investment. However, there are plenty of less-expensive options, including simply opening a farm up for travelers with recreational vehicles to park on the property. (Please see the article *Willing Hosts* on page 17).

A Sunny Connection

The North Dakota Department of Tourism promotes the state's

For more information:

bit.ly/NDAgritourism



agritourism resources, including establishing an online sunflower trail which identifies 17 sunflower fields that travelers can visit, hoping to catch the showy flowers at their peak color. Many of the field sites have mailboxes containing information about agriculture. The Department of Tourism also offer free sunflower samples and feature a QR code that visitors can snap with their phone to help tourism officials track the number of visits.

Coleman has two fields marked on the sunflower trail. They have attracted curious visitors.

“I was mowing a ditch when I saw a vehicle come driving up the road. They were from Tennessee. They had been looking at the sunflowers and just decided to drive in the countryside. They saw some of my other sunflower fields and wondered why they weren’t marked on the trail map,” Coleman states. “They thought there were only 17 sunflower fields



Clark Coleman and his wife Sara Otte-Coleman incorporate agritourism in their farm to help with agriculture awareness.

in the state.” Coleman describes how he talked with the visitors who asked if they could walk into the sunflower field. They were thrilled when he said yes, although he cautioned them not to get lost in the 300-acre field.

“They just had a ball,” Coleman recalls. “That’s the kind of experience that we love to have.”

Locals, Too

It’s not just out-of-state visitors who are intrigued by agritourism. Otte Coleman says that, despite being an agriculture-rich state, many North Dakota residents no longer have a direct connection to agriculture.

“A lot of residents are three or four or five generations removed from the farm now, so agriculture piques the interest even among local people,” Otte Coleman explains. “We’ve had some producers who have done combine ride-alongs. They can’t believe the interest that people have.”

Otte Coleman believes that some farmers are hesitant to open their farm or to connect with non-farmers because they may not feel their operation has anything special to offer. She begs to differ.

“I do think farmers would be

surprised how people have interest in just basic things that they do in their operation,” Otte Coleman states. “Number one, it helps elevate the awareness of what our producers do and how they’re being conservationists and feeding the world. It’s also just the fact that people are curious where their food comes from, and they want to see it. People really think our fields are beautiful, too.”

“We would like people to come out and see what we’re doing and realize that we’re trying to take care of the land,” Coleman adds. “We’re good stewards.”

Otte Coleman says that there are resources available through the Ag Products Utilization Commission and the North Dakota Department of Commerce. These resources will help North Dakota farmers to establish agritourism ventures.

—Story and photos by Dan Lemke

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Learning While Serving

Checkoff
Investment



It's not often that we, as farmers, are afforded an opportunity to serve our industry while simultaneously learning a great deal about what's driving that industry. Serving on the North Dakota Soybean Council (NDSC) is one of those rare occasions.

I will term off the NDSC in June of next year. I can honestly say that it has been a great experience. I have learned a lot about the soybean industry and have been able to go places and to meet people I, otherwise, would not have met. I've also been able to help steer decisions that I felt were good for North Dakota soybean farmers. At the heart of it, that's what we're here to do.

The NDSC does good work on behalf of the state's soybean growers. It invests checkoff funds into areas that will have a meaningful influence on North Dakota soybean farmers. Whether those decisions involve research or market development, the NDSC is committed to benefitting the state's soybean farmers.

I have learned a lot by being around a

group of committed and active farmers from across the state who have also chosen to give of their time in order to better the industry. This group of growers offers unique perspectives that help us thoughtfully move the soybean industry forward.

Not only have I learned about the soybean industry as a whole, but I've also learned things that I have taken back to my own farm. It's amazing what you can learn from a fellow farmer when you're on an 11-hour bus ride across Malaysia to meet with soybean customers.

There is, of course, a time commitment for serving on the NDSC, but it has certainly been worth my time.

Now, it's your turn. There are opportunities for farmers in this state to help shape the industry through organizations such as the North Dakota Soybean Council, North Dakota Soybean Growers Association, or the United Soybean Board.

NDSC elections are coming soon, and there are seats available in Districts 1, 5, 7 and

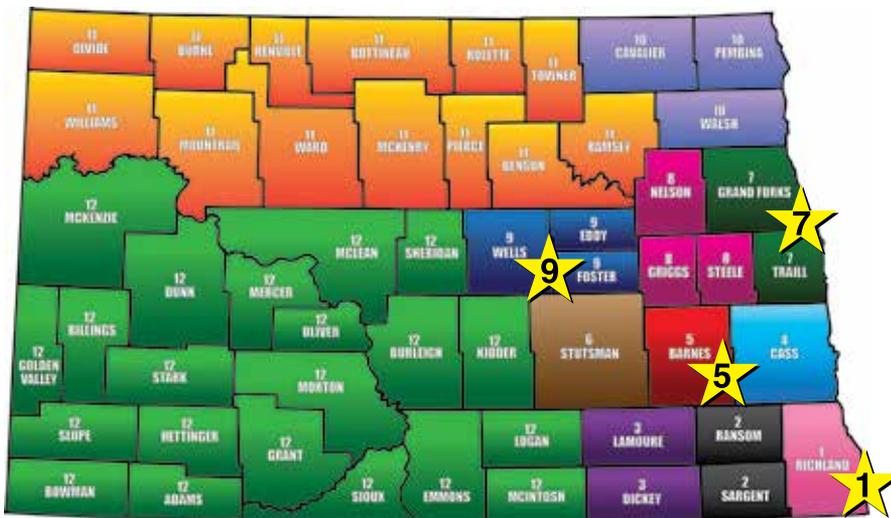


Mike Langseth, Barney, North Dakota

**Secretary,
North Dakota Soybean Council**

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mlangseth@ndsoybean.org

Website:
ndsoybean.org



9. In the coming weeks, if you live in these districts, you will receive NDSC nomination forms in the mail. The green nomination form will arrive in December. Please consider running for one of the available seats or nominating a farmer who you think would serve the industry well. This forward-thinking board does important work to help keep North Dakota's soybean industry strong.

For more information about the NDSC elections, visit ndsoybean.org/council-elections. I hope that you will consider serving.

I feel good about the work that the NDSC is doing, and I look forward to having new producers join the board in order to keep building momentum for soybean farming in North Dakota.



SAVE THE DATE

February 21, 2022 • 7:30 a.m. – 4:30 p.m. • FargoDome • Fargo, ND
Plan to attend. Plan to learn! • www.northerncornsoyexpo.com

Best Fuel Practices Before, During and After Harvest

Checkoff Investment



Harvest season often begins in the warmth of September and ends in the frigid temperatures of November and December, so fuel needs to perform at both weather extremes. To complicate matters, today's fuel and engines require attention for tank maintenance and for the use of best practices. Here are some general guidelines for worry-free fuel performance this harvest season and beyond.

1. Install a new, 30-micron or larger dispenser filter before harvest

Dispenser filters are a must on a storage tank in order to keep contaminants from getting into the equipment. With the onset of cooler temperatures in the fall, install a new, 30-micron filter to accommodate the increased fuel viscosity that can be restricted by even minor filter debris. **DO NOT** use hydrosorb filters. The pleats will become saturated with water and freeze at temperatures of 32°F or below.

2. Check for water: Remove water if it is present

Water is a major source of fuel problems. Over time, water accumulates in tanks from the condensation caused by warmer daytime temps and cooler nighttime temps, so you need to check every year. Water leads to icing, microbial contamination and fuel degradation. Visually check the tanks for free water by obtaining a tank sample from as close to the bottom as you can.

3. Winterize your fuel before the temperatures are below 15°F

Make plans to winterize your fuel, and don't wait until the cold temps are bearing down. Typically, No. 2 diesel starts clouding anywhere from -5°F to +5°F in North Da-

WHAT IS CLOUD POINT?



Cloud Point is the temperature at which small solid crystals are first observed as a fuel is cooled. Once these crystals become large enough, they can cause temporary issues in storage tanks and engines.

kota. No. 1 diesel performs at -40°F. North Dakota weather usually involves utilizing a combination of No. 1 diesel and cold-flow additives. The best advice is to have your fuel supplier deliver the winter blend. If you add your own winter additives, they should be administered when the fuel temperature is at least 10 to 15 degrees above the fuel's cloud point. When blending No. 1 diesel with No. 2 diesel, put the No. 1 diesel in the tank first. No. 1 diesel is lighter than No. 2 diesel and will not mix if it is put on top of No. 2 diesel.

4. You can use biodiesel in the winter

Biodiesel blends up to 5% have the same physical characteristics and perform the same as No. 2 diesel. Rob Rose, North Dakota Soybean Council (NDSC) treasurer from Wimbledon, can attest, "Biodiesel provides excellent lubricity to fuel, extending engine



A fuel containing 5% biodiesel (or B5) has a cloud point just 2.3° higher than that of 100% petroleum diesel.

life by reducing wear on moving parts, and directly benefits soybean farmers." Blends higher than 5% will raise the fuel's cloud

BIODIESEL "TREATMENTS" HELP ENSURE PERFORMANCE



Just like petroleum diesel, biodiesel blends are treated with additives during the winter to enhance their cold weather capabilities and prevent performance issues.

point and will require more No. 1 blending or the use of fuel additives. Try to get your blend down to 5% or less in the winter.

5. Fill your equipment before you put it away for the winter

After harvest, fill the fuel tanks on all your equipment. Keeping them full reduces the amount of air in the tank. Exposure to air causes fuel oxidation and degradation. Excess head space in the tank can lead to condensation and water problems. Below 32°F results in icing. The same advice holds true for your storage tanks, but at a minimum, fill the equipment tanks.

6. Diesel Helpline

The Diesel Helpline exists to assist diesel users with diesel and biodiesel related questions, troubleshoot and diagnose filter plugging problems and provide guidance on proper fuel handling and tank maintenance practices. If you have questions, encounter a fuel related problem, or need help troubleshooting the cause of filter plugging, please call the Helpline at 1-800-929-3437 or email info@megcorpnm.com. Fuel and filter samples can be sent in for diagnosis.

MEG Corp is a fuel consulting company providing critical expertise to fuel distributors, fleets, mechanics, and others who utilize fuel in their operations, earning the distinction as the fuel experts by:

- Providing technical, educational, and promotional support to commodity groups, the North Dakota Soybean Council, to advance the use of renewable fuels like biodiesel by fuel distributors, marketers and end users.
- Operating a fuel-testing laboratory to diagnose problems and conduct routine testing to assure quality.
- Conducting more than 75 workshops annually across the Midwest on the topics of diesel, biodiesel, gasoline, ethanol and best practices for tank management.
- Being accredited by the National Institute for Automotive Service Excellence as meeting the industry standards for providing continuing automotive service education.

To learn more about biodiesel, visit Biodiesel.org and NDSoybean.org/innovations.

—Story courtesy of MEG Corp.,
graphics courtesy of National Biodiesel Board

WHAT IS COLD FLOW?



All liquid fuels — including both petroleum diesel and biodiesel — must be managed to ensure proper cold weather performance. The temperatures at which issues occur are represented in terms of "Cold Flow" properties, such as "Cloud Point."



On June 24, NDFU held an open house to celebrate the grand opening of their new James River Farmers Union Camp. Rob Rose, Wimbledon, and Dan Spiekermeier, Sheldon, attended the open house on behalf of the North Dakota Soybean Council.

“Jamestown was the perfect location as we have another location on Lake Tschida outside of Elgin. That gives us a western and eastern camp, and can better serve our members and campers,” Sorensen adds. “Camp is always a work in progress. We plan on finishing up the landscaping this fall and next spring. We plan to add some other outdoor activities.”

“It’s the best decision we could have made,” Sorensen says. “We invest in the future of our youth, and this additional location gives kids more of an opportunity to attend and (to) be part of camp and our youth program.”

To learn more about the Farmers Union youth camps, visit ndfu.org/youth/youth-camps.

—Story by Daniel Lemke,
photos by staff



Happy Youth CAMPERS

In 2021, hundreds of North Dakota kids took advantage of a new opportunity to learn more about agriculture while developing their leadership skills and enjoying a new summer camp experience.

The North Dakota Farmers Union (NDFU) opened the newly constructed James River Farmers Union (JRFU) camp near Jamestown. The JRFU site includes a lodge, boat house and dormitories for campers and staff. The facility helps the Farmers Union staff members operate their youth programs, which are aimed at developing visionary leaders through interactive programs that facilitate commitment, teamwork, creativity, leadership and citizenship. Because the North Dakota Soybean Council (NDSC) is committed to the development of agricultural leaders, both present and future, NDSC proudly supported JRFU.

“The kids learn about cooperatives and form their own co-op to sell campers snacks and drinks,” explains Bri Sorensen, education director for the North Dakota Farmers Union. “They elect a board of directors and co-op manager. They use the co-op store to purchase these snacks and drinks and to make a profit for their fellow camper members. At the end of camp, they have an official board

meeting and liquidate the store and donate funds back to camp.”

In addition to indoor and outdoor recreation areas, the James River Farmers Union camp has a science, technology, engineering and mathematics (STEM) classroom, complete with 3D printers, robotics and computers.

Sorensen states that more than 600 youth participated in camps during the JRFU’s first year. There were eight camps offered, including five junior camps for third through sixth graders and three senior camps for seventh through 12th graders. Sorensen says that the

maximum number of campers the facility can hold is 130 per camp.

“The first year of camps went amazing,” Sorensen exclaims. “Kids had a blast, and we really got to see how the future will be impacted by this new facility. Kids got the full experience and loved every minute of it.”

Sorensen describes how the NDFU had rented other camp facilities around the state, but with growing camper numbers and a lack of dates available to accommodate all of its camps, the NDFU deemed it necessary to grow and to build its own facility.



Rob Rose, Wimbledon, and Dan Spiekermeier, Sheldon, reminisced about their summer experiences at North Dakota Farmers Union camp during JRFU’s open house June 24. Thanks to North Dakota Soybean Council’s support, one of the rooms in the new dormitory building highlights the versatility of North Dakota soybeans in fuel, food, feed and much more.

STC Hosts Summer Board Meeting in Louisville

After a year and a half of virtual meetings due to the COVID-19 pandemic, the Soy Transportation Coalition (STC) hosted an in-person board meeting on August 1-3 in Louisville, Kentucky. In addition to the business meeting, the STC's board of directors and staff from the sponsoring organizations visited McAlpine Lock and Dam along the Ohio River as well as Consolidated Grain and Barge's soybean and grain loading facility in Jeffersonville, Indiana. Chris Brossart of Wolford and Jim Thompson of Page, the North Dakota Soybean Council's representatives to the STC board, along with Stephanie Sinner, North Dakota Soybean Council executive director, participated in the board meeting.

"While the COVID pandemic has shown that technology and virtual meetings can allow us to continue to move forward with our work on behalf of soybean farmers, there is no substitute to in-person gatherings," Chris Brossart, STC's vice chairman says. "The STC summer meeting in Louisville was a reminder of how the quality of discussion and the amount of learning increases

when meeting in-person. It was refreshing to be able to, once again, meet with my fellow STC board members from across the country to discuss and strategize about the transportation challenges confronting our industry."

During the business meeting, the STC received updates and discussed next steps for the organization's key initiatives, including:

- "Top 20 Innovations for Rural Bridge Replacement & Repair." Implementing projects in the STC-sponsoring states where rural bridges are replaced utilizing innovative concepts that dramatically reduce costs and maintain safety.
- Deepening the Lower Mississippi River. Providing information about the progress for this capital improvement project that will enhance the number-one launching point for soybean exports.
- Promoting greater investment in locks and dams. Building a collaboration to promote the construction of Lock and Dam #25 on the Mississippi River.
- Promoting the use of soy-based concrete enhancers and asphalt sealants. Promoting a multi-state pilot project for which soy-based asphalt and concrete sealants are utilized.
- Monitoring and engaging freight rail, including monitoring the proposed acquisitions of the Kansas City Southern Railway by the Canadian Pacific and Canadian National railways.

Checkoff
Investment



- Navigating the Missouri River. Promoting the increased utilization of the Missouri River by the soybean and grain industries.
- Enhancing the technology for testing rural bridges. Reducing the likelihood of load restrictions while providing better stewardship of taxpayer funds.
- Partnering with the St. Lawrence Seaway and Great Lakes. Signing a "Gateway Incentive Agreement" with the St. Lawrence Seaway Management Corporation to promote the increased utilization of the St. Lawrence Seaway and the Great Lakes by soybean and grain exporters.
- Promoting the increased utilization of containerized exports for soybeans and soy products.

Established in 2007, the Soy Transportation Coalition is comprised of the North Dakota Soybean Council, 12 other state soybean boards, the American Soybean Association and the United Soybean Board. The organization's goal is to position the soybean industry to benefit from a transportation system that delivers cost-effective, reliable and competitive service.

To learn more about STC, please visit SoyTransportation.org.

—Story and photo courtesy of STC



During STC's summer board meeting, directors and staff had the opportunity to visit and tour McAlpine Lock and Dam along the Ohio River.

Demand, Disruptions Affecting Inputs

It's not just the agricultural commodities farmers produce that are part of the global market, so, too, are the inputs farmers need to grow crops. Global demand, tight supplies and production challenges are among the reasons that farmers are paying more and finding greater competition for fertilizer and crop-protection products.

According to an analysis by American Soybean Association (ASA) economist Scott Gerlt, the primary fertilizer ingredients used by farmers, nitrogen (N), phosphorus (P) and potassium (K), have experienced notable price changes in the past year but to slightly different degrees.

Monoammonium phosphate (MAP), a common source of

phosphorus and some nitrogen, along with diammonium phosphate (DAP) provide a key source of nutrients for soybeans. DAP cash prices have reached the high levels that were experienced 10 years ago (Figure 1). The price of potash has doubled and has also reached the 2011 levels. Anhydrous ammonia prices have not reached the 2012/2013 levels, but anhydrous ammonia costs are up over \$300 per ton in the past year.

Planted acres affect fertilizer prices. According to Gerlt's analysis, the 2019 and 2020 crops experienced a significant number of prevented planting acres, over 19.6 million acres and 10.2 million acres, respectively, compared to just 1.9 million acres in 2018. Improved planting conditions in 2021

allowed total plantings in the U.S. to return to more typical levels.

Hitting Home

Troy Schrader, chief operating officer for Prairieland Ag, Inc., in Fargo, says that there are multiple reasons why North Dakota farmers are seeing tighter fertilizer supplies.

"A big reason is supply and demand," Schrader states. "It started a year ago. Supply is tight; demand is up; and the system just hasn't caught up yet. World trade isn't balanced right now."

Schrader explains that there are different reasons why fertilizer ingredients may be in short supply. If China imports fertilizer or holds back some of its exportable inventory for domestic use, the supply gets tighter for the rest of the world. China has had little participation in the export market, which has put pressure on other exporters in the world market. Meanwhile, Schrader says that China has continued to do more importing than in the past, which has tightened the supply.

Checkoff Investment

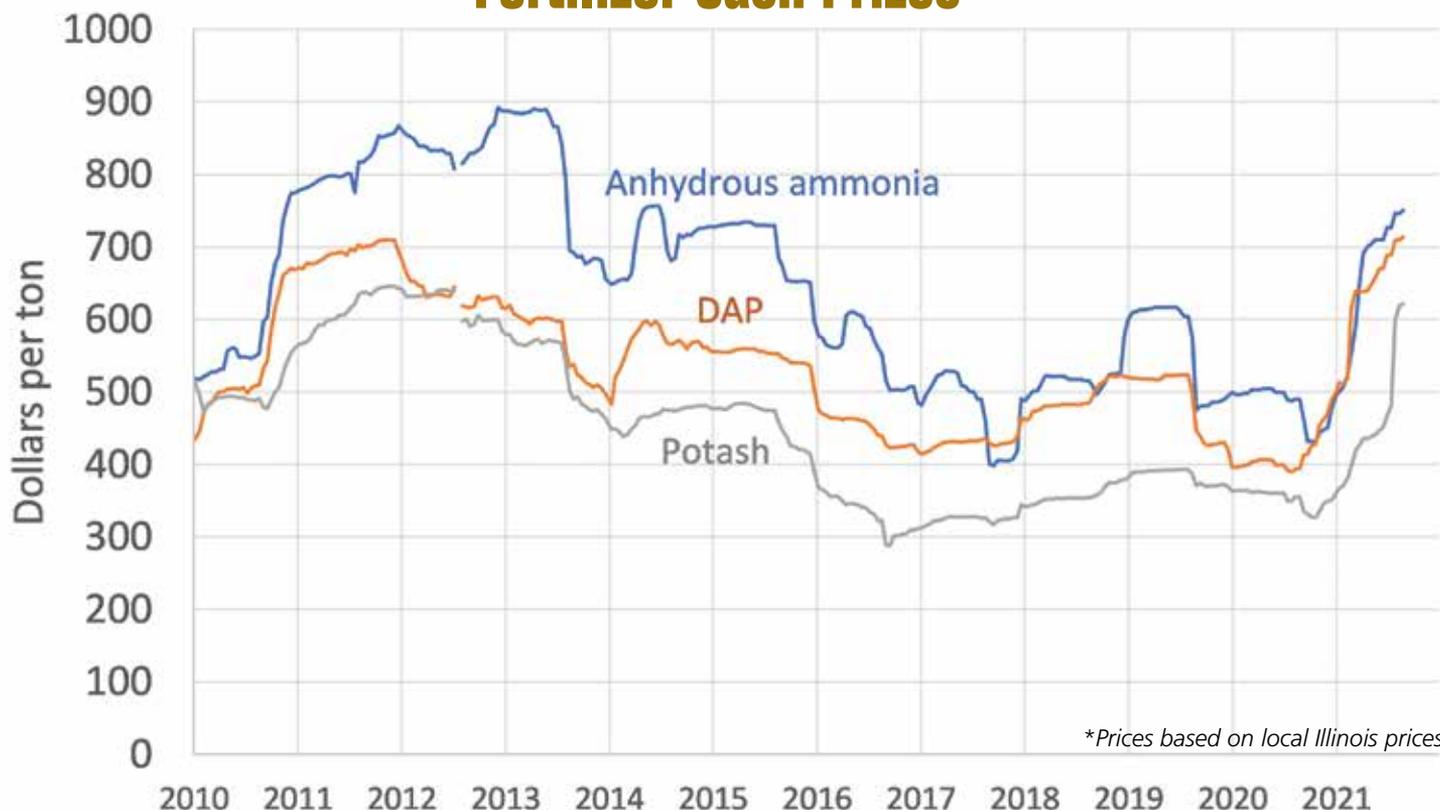


Some fertilizer manufacturing plants shut down temporarily due to COVID-19 and annual maintenance turn arounds, and the process of getting production facilities back up to speed is taking longer than first thought, which is also putting pressure on the markets. Hurricane Ida caused transportation and manufacturing issues for the U.S. Gulf region, affecting the movement and availability of some products.

"Commodity prices also drive fertilizer prices to a point," Schrader explains. "Even though the drought's not over, I thought we'd see a reprieve because of the drought, but we really didn't."

Gerlt says that fertilizer prices typically track closely with crop prices, which have increased in the past year. Higher prices encourage farmers to plant more, but prices can also change the optimal rate of fertilizer application. This extra demand for fertilizer pulls up prices.

Fertilizer Cash Prices*



*Prices based on local Illinois prices.

This graphic illustrates fertilizer prices over time and the recent rapid increase in prices.



Farmers are facing higher prices for inputs like fertilizer for a variety of reasons.

es. High crop prices also increase foreign demand and competition.

Protecting the Crop

Some crop-protection products, such as herbicides, are also in tight supply. Dave Dufault, director of crop protection for Prairieland Ag, describes how, for the past several years, manufacturers have tried to do a better job of forecasting demand and budgeting the needs of their customers and their inputs.

“Manufacturers have gone to the just in time delivery,” Dufault says. “This year, it was just in the nick of time delivery.”

That approach works well when the supply chain is moving smoothly, but this tactic can be problematic when there are disruptions.

As with fertilizer ingredients, Dufault says that U.S. farmers aren’t the only growers who are dealing with increasing costs and tighter product availability.

“It’s a global issue,” Dufault explains. “Globally, prices are up. Farmers around the world want to control weeds. Some parts of the world are just now getting access to these technologies, which increases demand.”

Dufault states that the biggest challenges for crop-protection availability are with glyphosate, the active ingredient in Roundup, and glufosinate, which is used in Liberty. The availability of those ingredients is being affected by hur-

ricanes, manufacturing disruptions and even the Olympics.

“The hurricane in the Gulf shut down the largest glyphosate plant in the world, which is in Louisiana,” Dufault says. “It produces a million gallons day. If that plant is shut down for two weeks, that’s a huge impact on supply.”

A glufosinate plant in India was damaged by an explosion and still isn’t back up to full speed, Dufault explains. Some plants in China are shutting down in order to improve air quality in advance of the 2022 Winter Olympics in Beijing.

“When Beijing hosted the Olympics in 2008, glyphosate prices went up,” Dufault says.

Plan Ahead

There are ample reasons why fertilizer and crop-protection products are in tight supply, but Schrader and Dufault emphasize that there will be products available for farmers to use in 2022. However, farmers need to plan ahead, and they ay need to be flexible.

“Growers have to connect with their dealers to put a plan in place,” Schrader states. “If they have pre-pay dollars available, start looking at where you want to position those dollars. The sooner the dealer can buy products, the better.”

“Planning, planning, planning,” Dufault emphasizes. “Some pre-emerge herbicide product orders

have to be in by July for delivery the following spring.”

Schrader and Dufault also recommend that farmers select some alternative strategies or products which they can use if the herbicides they initially want aren’t available. While there were some challenges with accessing products in 2021, Schrader says that farmers were still able to control weeds and insects, just maybe not with the products the growers had originally intended to use.

Issues with global fertilizer supplies and crop-protection product availability aren’t likely to be resolved quickly, and challenges with low inventories, transportation issues and COVID-19 aren’t going away soon. However, Schrader says that the industry has been here before and that farmers need to plan ahead and remain flexible.

“There will be alternatives,” Schrader insists. “We won’t run out, but the products may not be there when they’re needed or be what farmers originally intended.”

—Story by Daniel Lemke, photos courtesy of USB and graphic courtesy of ASA



Farmers are encouraged to plan ahead to make sure they have the crop protection products they need for 2022.



Investing in Our Future: How the Soy Checkoff Supports Tomorrow's Leaders

The North Dakota Soybean Council (NDSC) is committed to supporting the next generation of agriculture leaders who are seeking to help feed a growing world population, to address climate change and sustainable agriculture, and to protect water resources and the environment. The NDSC proudly funds opportunities for students who are exploring degrees that have careers in the agricultural industry.

Each year, the NDSC provides scholarships to undergraduate and graduate students at North Dakota State University (NDSU) who are

pursuing degrees in agriculture. In 2006, the NDSC began providing four \$4,000 scholarships.

In 2011, the NDSC provided funding to develop the Commodity Trading Lab (CTL) in Barry Hall at NDSU. The CTL is a unique, state-of-the-art resource that is invaluable to train students who are entering the world of agribusiness. Approximately 245 students per year use this lab for their classes. The room is also used for marketing and risk-management seminars that are hosted by the NDSC and are designed to help farmers and industry

leaders increase their knowledge and skills. International trade groups are often introduced to the facility and the resources that it provides when visiting North Dakota.

The NDSC's internship program for college students began in 2014 and is typically available year-round. Because of COVID-19, the internship program has been on hold. The NDSC looks forward to resuming this program later in 2021. From producer- and consumer-outreach projects to market development and research-project assistance, there are

opportunities for students to learn through hands-on experience with the NDSC.

In future issues of The North Dakota Soybean Grower Magazine, the NDSC will feature the students and young adults who have benefited from the opportunities and scholarships that the soybean checkoff has provided. The focus of the series will be to reconnect with past interns, scholarship recipients and CTL graduates to learn their success stories and "where are they now."

Scholarship Recipient has Hands-on Career

Since the doors opened on the North Dakota State University (NDSU) greenhouse complex, recently renamed the Jack Dalrymple Agricultural Research Complex, Julie Hochhalter has filled an important role. As greenhouse manager, Hochhalter has her hands full.

NDSU researchers request space in the greenhouse to conduct their experiments. A group of six faculty members decide who gets the space and Hochhalter takes it from there.

"I make sure that everything in the building is working and they have the supplies they need. If there's an alarm or anything broken in the building, I make sure it's fixed and taken care of," Hochhalter says. "I am one of those people who needs to have a lot of variety, and I like to be really, really busy, so it's good that way. Some days are too busy, but that's okay. We get done what we can and move ahead."

Hochhalter's career journey

started on the family farm near the town of Johnson, Minnesota. She attended the University of Minnesota-Crookston, earning a bachelor's degree in plant industries management with a horticultural emphasis. After graduation she worked for the University of Minnesota Extension as a 4-H program coordinator.

Hochhalter then decided to return to school at NDSU to pursue a graduate degree in entomology.

"I decided to go back to school to get my master's at NDSU in entomology. My master's degree in entomology focused on integrated pest management of soybean aphids," Hochhalter says.

While attending NDSU, Hochhalter received a scholarship in 2008 from the North Dakota Soybean Council help her pursue her education. The scholarships were established to support students at NDSU who are studying to enter the agriculture industry.

"The scholarship was extremely helpful for me because I wasn't a



Julie Hochhalter has been managing NDSU's Jack Dalrymple Agriculture Research Complex since it opened in 2010.

traditional student. I had already been in the workforce. I was an older than average student," Hochhalter explains. "I had to try to save money to go to college and to do this, so the scholarship was pretty important financially to be able to afford to get an advanced degree."

Hochhalter earned her degree and has been putting her education to work on the NDSU campus for more than a decade.

"I have incorporated a lot of integrated pest management into the greenhouse now. I oversee the Jack Dalrymple Agricultural Research Complex and in addition to that, I'm the greenhouse pesticide applicator on campus so there are five other facilities that I facilitate pest control in as well."

For Hochhalter, the greenhouse position allows her to put both of her degrees to work for the betterment of North Dakota agriculture.

"I like the I can combine my undergraduate degree with the horticulture experience a little bit and then I can use my master's degree as well with the pest control," Hochhalter says. "Here at NDSU we use integrated pest management in our greenhouses, which is starting to be more and more common in industry. We don't just apply pesticides to control the insects that we don't want in the greenhouses, we use biological control and other methods as well."

—Story by Daniel Lemke,
photo courtesy of NDSU

NDSC Visits Big Iron 2021



The North Dakota Soybean Council (NDSC) had an exhibit at the 2021 Big Iron Farm Show September 14-16 in West Fargo. The NDSC's booth featured innovative soybean products, including biodiesel, Goodyear tires made with soy, soy-based backed artificial turf, soy-based sandals and more, which have been brought to market thanks to the soybean checkoff. To learn more about how soy is making products better in a sustainable, environment-friendly ways, visit ndsoybean.org/innovations and soynewuses.org. Pictured right: NDSC Director of Research Kendall Nichols, left, and NDSC Director of Finance Molly Fern, right, visited with many farmers and industry representatives during Big Iron on September 16.



Forty Years Combined Service Recognized



During the North Dakota Soybean Council's (NDSC) board meeting on September 15, two work anniversaries were recognized. NDSC Director of Research Kendall Nichols, left, celebrated 25 years of serving farmers across the state, not only with the NDSC, but also through North Dakota State University (NDSU) Extension. NDSC Director of Finance Molly Fern, right, celebrated 15 years with the NDSC. Chairman Austin Langley congratulated both Nichols and Fern with appreciation plaques.

Carbon's Growing Influence

Daily, it seems, something new develops in the realm of carbon as it relates to climate and agriculture. Private companies are attempting to buy carbon offsets from farmers; the government is debating its role in overseeing and managing carbon markets; and farmers are trying to determine if there is a true opportunity for them to be compensated for the sustainable work that they're doing.

"The past couple years and especially in the last six months, carbon has just exploded in terms of an issue for a variety of reasons," says Dr. David Ripplinger, associate professor and bioproducts/bioenergy economics specialist with North Dakota State University Extension. "A lot of people are going to think it's because of the new administration, but really it's coming primarily from the private sector.

Dr. Ripplinger states that the renewed interest in carbon is coming from corporate America, not agriculture. He describes how interest is coming from numerous large, multinational companies that make zero-carbon pledges or are concerned about social governance and the environmental effects of their business. The best and easiest way to meet those promises is to engage with agriculture.

"The well-intentioned folks at Microsoft or Amazon who have these net-zero pledges have their own self-interest," Dr. Ripplinger explains. "It's not a bad thing, but they see this as a business opportunity. It's not a charity or altruistic thing they're doing. They're doing it because they perceive that it's going to create or retain value in some way for their business, and that's distinct from what might be in the best interest of a North Dakota soybean farmer."

Dr. Ripplinger describes how

attempts to start carbon markets 15 years ago failed because there wasn't interest on the demand side. Now, the businesses that want carbon credits are driving the conversation.

"The energy is coming from private-sector demand," states Debbie Reed, executive director of the Ecosystem Services Market Consortium (ESMC), during an Agri-Pulse podcast. "Companies have investigated their entire footprint, in part, because of consumer pressure. Consumers want to know the impact of the food and beverages they're consuming."

Because of agriculture's unique position, Reed describes how ag is attracting attention from businesses that are looking to improve their carbon footprint.

"Agriculture, while not a huge contributor to greenhouse-gas emissions, is different from most sectors in that it can both increase carbon sequestration to actively remove carbon from the atmosphere as well as reduce existing greenhouse gas emissions," Reed explains. "Agriculture and forestry are really the only two sectors that offer that."

Already There

Private carbon-trading markets are targeting farm production, but Dr. Ripplinger contends that farmers, including North Dakota soybean growers, are already involved with carbon markets. One example is California's low-carbon fuel standard.

"Farmers may never think about it, but the California standard certainly does impact them because it's driving the demand for lower carbon fuels for ethanol use, more for biodiesel, for renewable energy," Dr. Ripplinger says.

Other states have separate standards and programs that are driving the demand for lower-carbon fuels, such as ethanol,

biodiesel and renewable diesel.

Dr. Ripplinger points to the announcement of a planned soybean crushing facility near Spiritwood and the sale of the associated soybean oil to a renewable diesel facility in South Heart, North Dakota, as examples of carbon considerations influencing agriculture.

"Demand for low-carbon fuels like renewable diesel from soybean oil that will now be made in-state at Spiritwood make the project even more profitable," Dr. Ripplinger states.

Path Forward

Much of the agriculture industry is still learning what the opportunities are for carbon. Substantial attention is being given to carbon-credit markets that would compensate farmers for sequestering carbon through practices such as reduced tillage and the use of cover crops. Carbon trading is likely the beginning. Soybean industry leaders are looking at sustainability and ecosystem service markets more broadly, which could include water-quality trading and even biodiversity credits.

Congress is currently debating the role that the federal government should play with carbon markets. That decision will affect private markets as well as government policy.

"Government's role is to pay for things the market won't pay for or industry won't pay for," Reed explains. "For example, protecting existing soil carbon stocks

or paying early adopters who are really the peers from whom others learn. We need those participants who can't participate in a market because they're early adopters and innovators. That is a great role for the federal government."

Dr. Ripplinger says that there aren't a lot of resources available to help farmers understand the potential and the pitfalls associated with carbon markets. However, he states that it's important to pay attention to what is happening as the market develops.

"There's so much that's potentially on the horizon in terms of how this will impact production agriculture, that a lot of work needs to be done in terms of helping farmers understand the situation, the tradeoffs and how they might want to make their best decision," Dr. Ripplinger contends. "They don't have to be experts on it, but I think farmers need to know enough to understand why folks are talking about it and what it might mean to their business. Eventually, farmers are going to make decisions that are impacted by carbon markets because there's a potential to make decisions that involve significant amounts of money."

To help growers learn more about carbon markets, the North Dakota Soybean Growers Association partnered with the North Dakota Soybean Council, the American Soybean Association and the United Soybean Board for an educational webinar.

—Story by Daniel Lemke

For more information:

A recording of the Carbon Opportunities in Ag webinar is available to view at

<http://bit.ly/CarbonOpportunitiesinAg>



GILLING HOSTS

Not all agritourism ventures require a large investment. Some North Dakota farms and enterprises have delved into agritourism by becoming Harvest Hosts, a nationwide group comprised of winemakers, farmers, museums and attractions that in-

vite members to visit and to park their recreational vehicles (RVs) on site in exchange for supporting the hosts' business.

Fluffy Fields Vineyard and Winery in Dickinson, North Dakota, is one of the state's Harvest Host sites. Deb and Kevin Kinzel started their vineyard in 2009 and opened the winery in 2016.

"It started out as a hobby that got totally blown out of proportion, and we had to turn it into a business," owner Deb Kinzel quips.

In addition to a vineyard, winery and dining area, the Fluffy Fields venue includes a garden, an orchard and a wedding gazebo. Kinzel says that the winery enjoys support from local residents, but the clientele changes during the year, particularly as vacation travel increases.

"Summertime is a huge tourism time for us. We have great local support from people who really frequent Fluffy Fields, but in the summer, they're on vacation, and



Deb Kinzel and husband Kevin opened Fluffy Fields Vineyard and Winery in Dickinson in 2016.

they're wandering, so we bring in tourists," Kinzel explains. "A lot of people are looking for wineries, something different. They're surprised that we can grow grapes here. They're just very curious."

As with other aspects of agriculture, Kinzel describes how guests are interested in learning about growing grapes and about the winemaking process.

"People are shocked when they come in and see what we can grow and what we do. Even the winemaking process. Kids come in with their families, and they see the grapes on the vines, and they're like, oh, that's where grapes come from; they don't come from a store," Kinzel says. "People are just curious."

Through Harvest Hosts, Fluffy Fields has two RV sites available. As part of the Harvest Hosts membership, all camping

vehicles must be fully self-contained, have an interior toilet and built-in holding tanks or bladders for wastewater. Onsite cooking has to be done inside the RV.

Interested Harvest Hosts member campers just need to call ahead to make sure there's a spot available.

"It just brings a whole different group of people, and they have a good time," Kinzel explains.

In an era of social media, visitor reviews for the Fluffy Fields experience can travel far and wide.

"I had somebody in (a) Texas airport who was shuttling a person who was getting on a plane coming to North Dakota. They were Harvest Hosts who had traveled, and they recommended that the person coming to North Dakota visit Fluffy Fields. So, that's pretty cool," Kinzel states.

—Story and photos by Dan Lemke



Fluffy Fields is part of Harvest Hosts, a network of businesses that make campsites available to campers in recreational vehicles.

Learn more about
becoming
a Harvest Host site
by visiting

bit.ly/NDHarvestHosts



Popular Aphid Treatment *Revoked*

The Environmental Protection Agency (EPA) has announced that all agricultural-use tolerances for the insecticide chlorpyrifos will be revoked on February 28, 2022, effectively ending the use of the chemistry on food crops. Any crops found with residues of chlorpyrifos will be considered “adulterated” under the Federal Food, Drug, and Cosmetics Act.

Chlorpyrifos, often associated with the trade name Lorsban, is registered for use on 50 crops. Soybean farmers often use chlorpyrifos to treat soybean aphids, spider mites, and other pests. It’s also widely used on pests affecting sunflowers and sugarbeets.

“Chlorpyrifos is an important and significant tool for North Dakota farmers,” says North Dakota State University (NDSU) Extension Pesticide Program Specialist Andrew Thostenson.

Thostenson says chlorpyrifos is an effective and relatively inexpensive product, but it can be difficult to handle, so many farmers relied on custom applicators to apply it. With chlorpyrifos no longer an option, farmers will have to look elsewhere for pest control.

“There are other tools available for controlling aphids and mites in soybeans that work pretty well,”

Thostenson says. “We have had some resistance to pyrethroids, and chlorpyrifos was a good tool to deal with that. But there are some newer chemistries coming out and aphids are not resistant to them, but they are more expensive. Farmers may have to go to the newer, more expensive chemistry in order to deal with soybean aphids.”

Soybean aphids aren’t a problem every year. Treatment is only recommended when action thresholds have been met so that farmers can prevent the aphids from causing economic loss.

Thostenson says with one less tool available and with other options being more expensive than chlorpyrifos, it’s increasingly important for growers to monitor their fields for aphids, especially in July and August. Thostenson says researchers and farmers can typically discern if there is going to be an aphid problem in North Dakota based on what’s happening in South Dakota and Minnesota.

“Growers shouldn’t be surprised by soybean aphids if they’re properly scouting, monitoring and are paying attention to the NDSU Crop and Pest Report,” Thostenson explains.

Monitoring aphid populations will be increasingly important for farmers especially if treatment

options are fewer and more costly.

“If they have to go to more expensive treatments, farmers are not going to want to be casual about checking their threshold levels,” Thostenson states.

No Crop Use

Thostenson says it is critical that farmers do not stockpile chlorpyrifos and use it on food crops after the February 28, 2022. It may be tempting for farmers to buy the products before they’re unavailable and then apply the products themselves next year.

“Any pesticide residues that are found in soybeans from any application made after that deadline will be considered adulterated soybeans. It will have an adverse marketability on those beans, and those beans can contaminate other people’s beans,” Thostenson says.

“Farmers need to be scrupulous about not using these products in this manner, otherwise it could have a really detrimental impact on this market for not only your beans, but also everyone else’s.”

While it is unlikely that the presence of chlorpyrifos in soybeans would lead to serious health risks, it presents significant risk for loss of crop marketability.

Thostenson says farmers who have leftover products with chlorpyrifos on hand can still apply it for non-food crop uses. Potential applications include road ditches and grass waterways, but those areas then cannot be chopped for hay or grazed.

“Whatever you do, do not put it on a food crop,” Thostenson explains.

—Story by Daniel Lemke,
photo courtesy of NDSU



Andrew Thostenson, North Dakota State University (NDSU) Extension Pesticide Program

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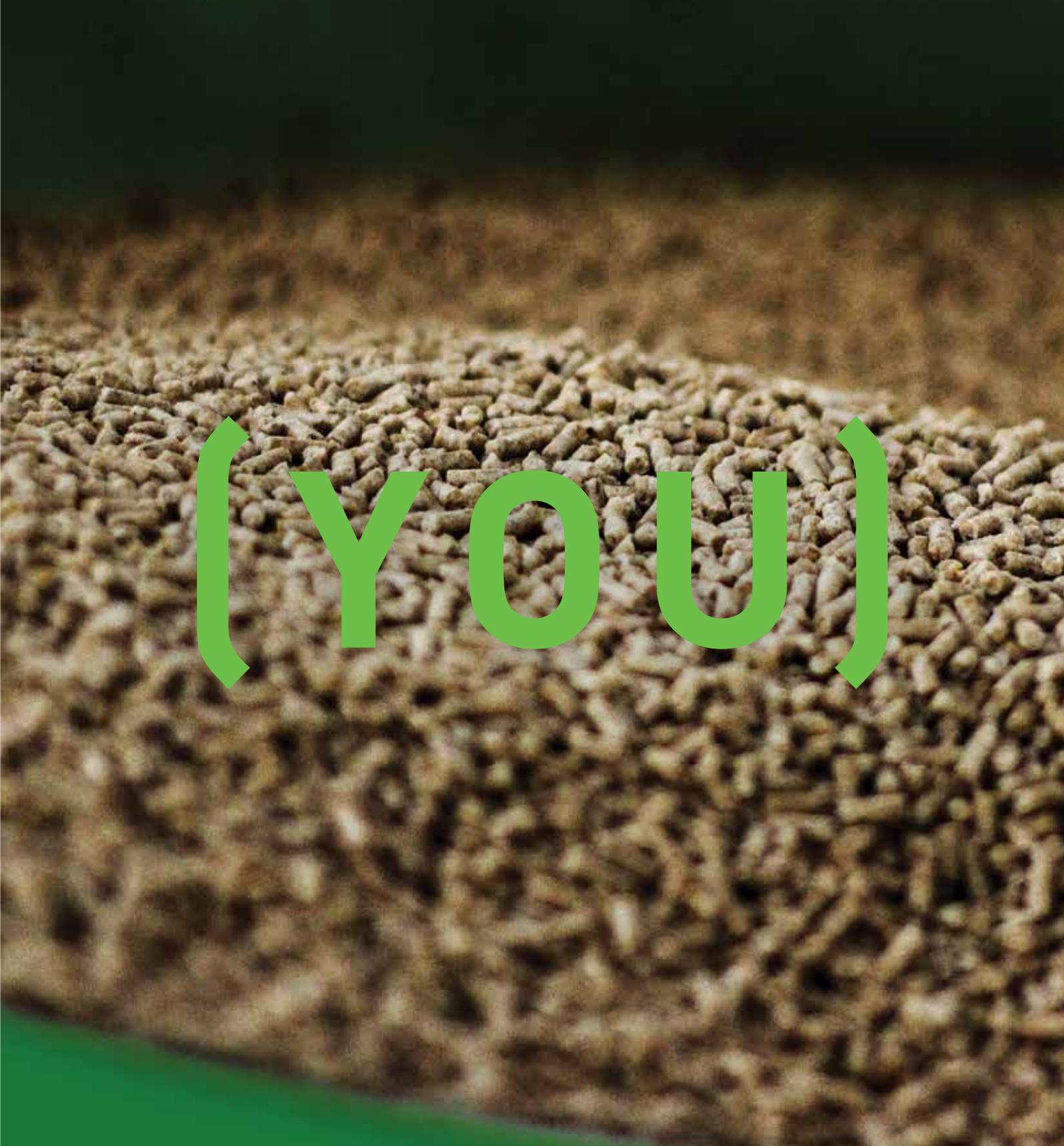
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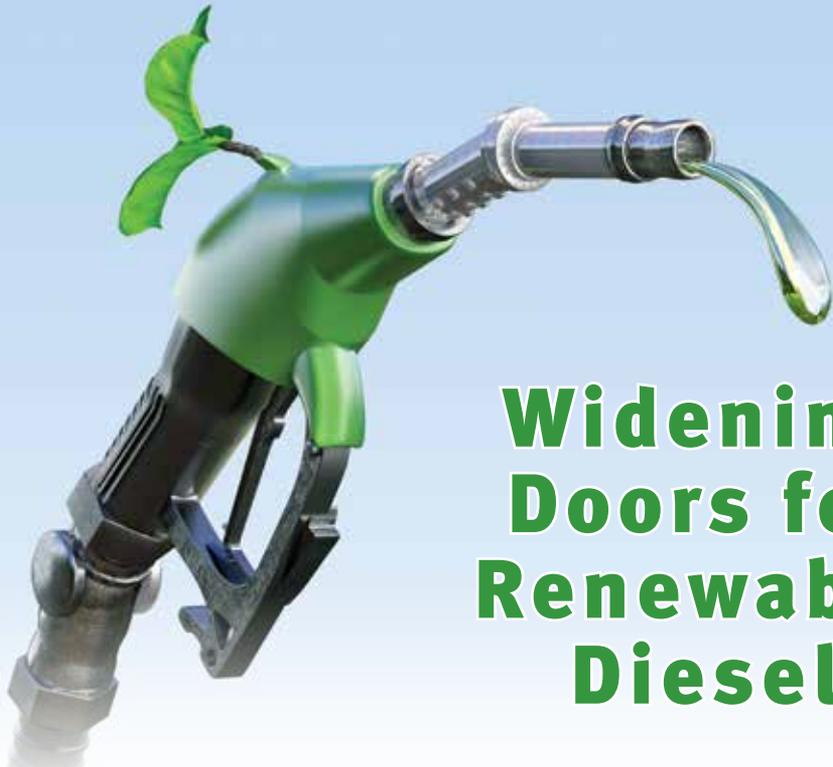
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Moving Soy Forward.
Moving You Forward.





Widening Doors for Renewable Diesel

oil for renewable diesel production, but this agreement will significantly expand our collaborative relationship. Together, MPC and ADM have the expertise, scale and capabilities to deliver sustainable outcomes that start on the farm and go all the way to the fuel in millions of commercial and personal vehicles—and in this case, supporting renewable diesel demand that we believe may be as much as 5 billion gallons by 2025.”

“At MPC, we are challenging ourselves to lead in sustainable energy,” explained Dave Heppner, MPC’s senior vice president of Strategy and Business Development. “This joint venture marks another step in advancing our ability to optimize and source logistically advantaged feedstock for our nearby Dickinson facility, and also creates a platform for further collaboration with a world-class partner as we continue to invest in a sustainable, energy-diverse future.”

MPC’s Dickinson Renewable Diesel Facility has the capacity to

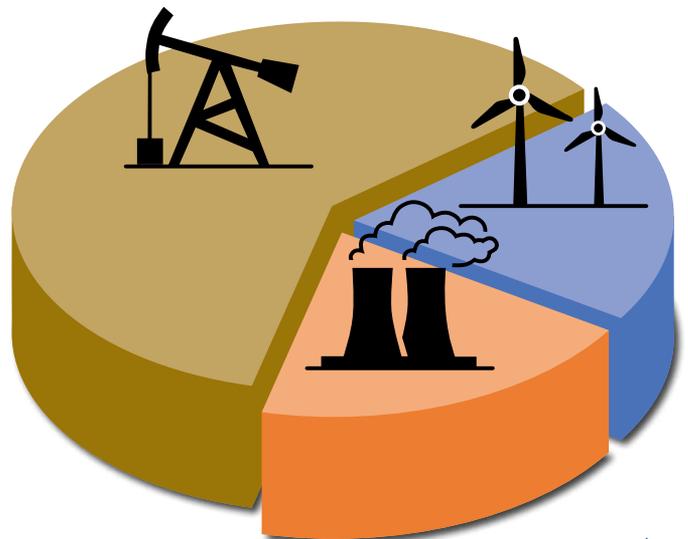
North Dakota will soon add to its status as one of the nation’s leading energy suppliers, and locally grown soybeans will be the source.

In August, Marathon Petroleum Corporation (MPC) and ADM announced a feedstock partnership to support renewable diesel production. MPC and ADM agreed to form a joint venture for the production of soybean oil to supply the rapidly growing demand for renewable diesel fuel.

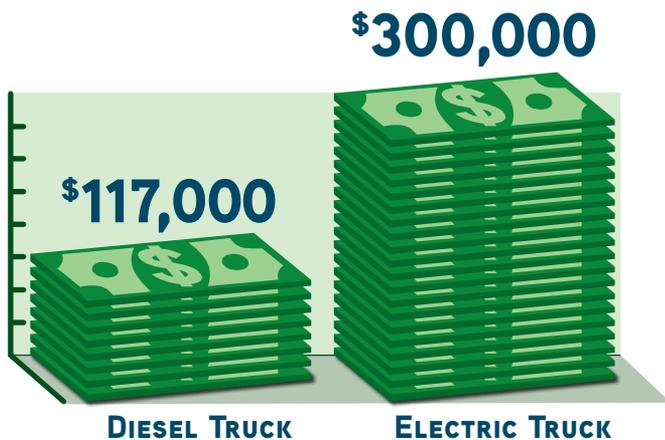
Under the terms of the agreement, the joint venture will maintain 75% ownership by ADM, with MPC owning the remainder.

When completed in 2023, the ADM Spiritwood facility will source and process local soybeans and will supply the resulting soybean oil exclusively to MPC. The Spiritwood complex is expected to produce approximately 600 million pounds of refined soybean oil annually, enough feedstock for approximately 75 million gallons of renewable diesel per year.

“ADM has always been at the forefront of innovative fuels made from nature, and we are uniquely positioned to take action to reduce the carbon intensity of our business and lead our industry as we live our purpose,” said Ken Campbell, ADM’s president of North America Oils, Biodiesel and Renewable Chemicals. “We already provide MPC with soybean



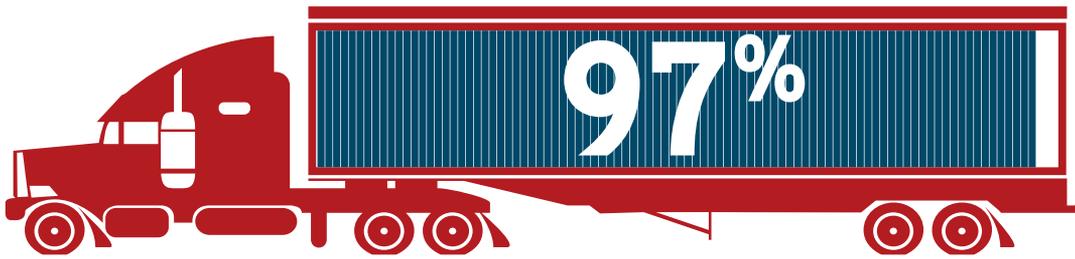
Source: www.eia.gov/tools/faqs



Sources: CA HVIP TCO Estimator and www.statista.com

The purchase price of a Class 8 Electric truck and battery packs can be upwards of \$300,000 compared to an average of \$117,000 for a Class 8 Diesel truck, on top of the sizeable cost to install sufficient charging infrastructure onsite for public or private fleets.

Currently, the U.S. Energy Information Administration estimates about 20% of U.S. electricity is generated by renewable energy sources; over 60% of the electrical grid comes from fossil fuels and the balance from nuclear energy.



Currently 97% of Class 8 big rig trucks are powered by diesel engines; 76% of all commercial vehicles are powered by diesel engines. Fleet replacement cycles average from 5 to 15 years, and the average age of commercial vehicles is about 14 years. California predicts only up to 20% of Class 7-8 trucks will be electric Zero Emission by 2040.

produce approximately 184 million gallons of renewable diesel each year. This is currently the second largest renewable diesel plant in the U.S.

When completed, the approximately \$350 million complex in Spiritwood will have the capacity to process 150,000 bushels of soybeans per day. The facility will employ approximately 75 people once operational. The Spiritwood complex is expected to begin production for the 2023 harvest.

Farmer Benefit

Farmers should be among the beneficiaries of the increased demand for soybean oil to make renewable diesel and biodiesel. National Biodiesel Board (NBB) Director of Environmental Science Matt Herman states that the financial firm StoneX conducted an analysis which shows how biodiesel and renewable diesel add about 13% to the value of every soybean bushel.

“This is real money that farmers can put in their pockets each year,” Herman adds.

The momentum toward renewable diesel and other low-carbon fuels appears to be building. In addition to California, other states are pondering ways to help reduce carbon.

“There is a clear trend across the country that governments and private organizations are willing to pay for carbon reduction,” Herman says. “America’s farmers, including those in North Dakota, are positioned to produce the ‘oil patch’ of the next 100 years as society switches to consume more biofuel and less petroleum. Every climate goal, reduction target or use man-

date represents a new and larger market for agricultural products.”

California Driven

One of the big drivers in the growth of renewable diesel comes from the West. California has adopted a low-carbon fuel standard (LCFS), and the state has, roughly, a 4-billion-gallon per year diesel market. The U.S. is approximately a 60-billion-gallon diesel market.

California plays a strong role in the demand for both biodiesel and renewable diesel. Herman explains that some California-specific restrictions impede the wider adoption of biodiesel.

“Those same restrictions do not exist for renewable diesel, contributing to its popularity in meeting the California LCFS requirements,” Herman adds.

Herman says that both biodiesel and renewable diesel reduce a significant amount of life-cycle emissions compared to petroleum diesel and more than any other commercially available liquid biofuel on the market. Thanks to the diverse feedstock mix used to produce both fuels, biodiesel and renewable diesel, on average, reduce emissions by about 74%. Highly sustainable fuels can reduce emissions by nearly 90%.

“These are the deep and dramatic reductions California and other progressive jurisdictions are hoping to achieve years from now through greater adoption of electric vehicles and the like,” Herman states. “Both biodiesel and renewable diesel significantly reduce tailpipe emissions in legacy

vehicles, which make up about half the vehicles on the road.”

In addition to tailpipe emissions, biodiesel has been shown to reduce particulate matter by 86% in certain applications.

Powering the Future

Biodiesel and renewable diesel have been widely successful in California. According to the NBB, in 2020, the fuels displaced over 850,000,000 gallons of petroleum diesel, an increase from 2019. Herman describes how the increase shows the staying power of diesel engines, even during lockdowns, as goods and freight continued to move around the country.

As more states pursue low-carbon fuel standards, electric vehicles are frequently touted as the solution. Herman says that the University of California-Davis, a leading researcher for this policy, has forecast that, in the absence of widespread electrification for the light-duty market, biodiesel and renewable diesel would need to displace nearly 80% of the California’s diesel by 2030 for the LCFS to achieve its targets.

Herman explains that there is immense potential for both biodiesel and renewable diesel in a wide range of transportation modes. In 2019, the world consumed over 100 billion gallons of jet fuel, 450 billion gallons of diesel fuel and nearly a 100 billion gallons of residual fuel for ships. The world produced roughly 11 billion gallons of biodiesel and renewable diesel at the same time.

“This means we replaced less than 2% of the addressable market,” Herman explains. “If we see the upper end of the predicted expansion of renewable diesel, increasing capacity by 6 billion gallons globally by mid-decade, that effectively displaces 1% more of (the) global diesel demand.”

Unlike the light-duty sector where there are an increasing number of electric options for consumers, the options are significantly more limited and are significantly less advanced for the heavy-duty sector. Herman says that, even with California’s electric truck mandate, the state is only expecting to electrify about 10% of Class 7 and 8 combination tractor-trailers by 2040.

“Even in the event of sudden and deep electrification of the distillate market, biodiesel and renewable will still have a market for decades to come, if not forever,” Herman states.

—Story by Daniel Lemke,
graphics courtesy of
North Dakota Soybean Council

To learn more about biodiesel and renewable diesel, visit



Biodiesel.org



NDSoybean.org/innovations

Fall Tasks With an Eye Toward '22

Checkoff
Investment



Dan Spiekermeier, left, and Rob Rose, right, reminisced about their summer experiences at North Dakota Farmers Union camp. Thanks to North Dakota Soybean Council's support, one of the rooms in the new dormitory building highlights the versatility of North Dakota soybeans in fuel, food, feed and much more.

With soil moisture in short supply for most of 2021, many farmers may need to consider foregoing fall tillage in order to conserve what water there is in the soil.

Greg Endres, cropping systems specialist at the North Dakota State University (NDSU) Carrington Research Extension Center, says that farmers need to evaluate whether any potential benefits from fall tillage would outweigh the negatives.

"We certainly saw a lot of soil erosion in the spring and then were very short on soil moisture throughout most of the season," Endres explains. "Farmers need to say, 'If I'm going to do a planned tillage operation, is it important? Will it have a positive impact on my crop in 2022, and economically, will this tillage help my crop?'"

Endres describes how soybeans perform very well in reduced or no-till situations, either direct seeded into grain stubble or into corn residue, particularly if stalks are left standing and if soybeans are planted between the stalk rows. Data compiled from 37 NDSU tillage trials, looking at soybean performance and averaged over any type of reduced-tillage environment, ranging from strip till to no till, show an average of a 4% yield increase with the conservation tillage system

versus the conventional tillage.

"Certainly, this year, it was a big advantage having less tillage out there which, in most cases, translates to more moisture, and we needed all the moisture we could get," Endres stated.

Drought conditions over much of the state also reduced the amount of corn and small-grain growth. With less residual crop biomass to manage, reduced tillage options could be even more attractive this fall.

Endres says that this year may be a good time for growers to consider including cover crops in their operation. Some late-August rains have increased the soil's moisture levels, which help with cover-crop germination and establishment. Getting cover crops, such as cereal rye, established this fall can help to reduce soil erosion, plus the plant growth and root system can help to capture and to hold the rain and snow that come during the winter.

Soil Sampling

While tillage may be discouraged, farmers are encouraged to collect soil samples. Sampling, both for soil-nutrient levels for the 2022 crop's plant nutrition and the presence of soybean cyst nematode (SCN), can pay dividends down the road.

"We continue to be concerned about having this nematode in the state," Endres explains, "and this

year, especially, the drought may mask effects from this pest."

Anyone interested in soil sampling for SCN can get up to three pre-labeled SCN soil test bags from the county Extension office. The laboratory fees for the SCN samples submitted through the sampling program are covered by the North Dakota Soybean Council. A total of 2,000 SCN soil test bags will be available to growers on a first-come, first-serve basis. To learn more about NDSU's SCN Sampling Program, visit bit.ly/2021SCNprogram.

Weed Awareness

Fall is an excellent time to scout for weeds and to make note of the problem areas. Fall may also be a good time to control weeds and to get a leg up on spring weed management, especially for weeds such as kochia and horseweed.

"If we can control them this fall, that gives us much more confidence that we'll keep troublesome weeds in check as we grow (the) soybean

crop next year," Endres states.

Late-season rains have not only been helpful for filling out crops, but the added moisture may also spur new weed growth, which can make herbicide applications more effective.

"Rains will certainly help weeds to regenerate new growth, and that will be an advantage for us if we choose to make a herbicide application," Endres explains. "It will be easier to kill the weeds with new growth as a target for the herbicide application versus a weed that was nearing maturity and then cut during the harvest operation."

Endres describes how there is ample growing season left for weeds, such as kochia and waterhemp, to germinate, to grow and to produce seeds before winter, so fall is no time for farmers to let down their guard.

"Be out there this fall watching for weeds and planning strategies either this fall or in preparation for next year," Endres says.

Contact your local NDSU Extension agent with questions, or visit ndsu.edu/agriculture/extension.

—Story by Daniel Lemke,
photo by staff

Contact your
local NDSU
Extension
agent, or visit:

ndsu.edu/agriculture/extension



North Central Soybean Research Program Update

The North Central Soybean Research Program (NCSRP) is a regional effort to address soybean production challenges which occur in, or are a threat to, the north-central region of the country. There are now 13 state soybean-checkoff organizations that contribute to this entity each year, including the North Dakota Soybean Council (NDSC).

The NCSRP operates under the

direction of a farmer director from each of the member states. Mike Schlosser of Edgeley, North Dakota represents NDSC on NCSRP's director board. In addition, state research directors, including NDSC Director of Research Kendall Nichols, participate in the program with an informal advisory role while the executive director, Ed Anderson, coordinates the program from his dual role with the Iowa Soybean Association.

The NCSRP board of directors and state research staff gather each summer at a host state location in order to learn about soybean production issues. This summer, the group was hosted by the South Dakota Soybean Checkoff. The gathering included opportunities for collaboration among farmer directors, state research staff and some researchers. A tour of South Dakota research highlights included drone-based image

technology and the new precision ag center at South Dakota State University. The group also visited a new facility that is processing soybean meal into a higher-value feed product for aquaculture, swine and pets. This open sharing of successes helps Qualified State Soybean Board (QSSB) representatives to improve their knowledge and experience.

Another important task at the summer meeting is to select research projects for funding in 2022. With contributions from the 13 member states, the total funding amount will be about \$4 million. Teams of the top researchers in the region collaborate to build research project proposals that will address critical soybean production issues. While the directors have made funding decisions, negotiations are ongoing with researchers before the funding announcements will be made.

The NCSRP is a very efficient and effective system of addressing the most pressing soybean production issues in the country's largest soybean-growing area. NCSRP is another example for the wise investment of soybean grower checkoff contributions. To learn more about NCSRP, visit ncsrp.com.

Research results of NCSRP's funded projects, along with results of other QSSB soybean checkoff funded research across the country, including research funded by the North Dakota Soybean Council, can be found on the Soybean Research & Information Network (SRIN) website at soybeanresearchinfo.com.

—Story courtesy of NCSRP, photo by staff



NDSC Director Mike Schlosser, left, learns about drone-based image technology at South Dakota State University.



Valley City farmer Monte Peterson made his pitch for U.S. Soy at the St. Louis Cardinals game on August 24, 2021.

drought, it's important that Chip Flory and the other farmers on the panel let our customers know that most of the rest of the country is doing better, and the U.S. is still expected to produce its third best soybean yield this year."

"The vast majority of soybeans grown in North Dakota travel by rail to the Pacific Northwest, where they are then shipped to Asia," Peterson states. "North Dakota farmers can take pride in knowing that our relationships with these customers are being maintained and are as strong as ever through hybrid events such as last month's GTE."

To learn more about the U.S. Soybean Export Council, visit ussec.org. To learn more about the Specialty Soya and Grains Alliance, visit soyagrainsalliance.org.

—Story and photos
courtesy of USSEC

North Dakota Well Represented at 2021 GTE

Despite a global pandemic, the demand for soy has continued to rise.

While staying connected has remained a challenge for many people, the soy value chain continues its work to forge and to strengthen relationships.

The U.S. Soybean Export Council (USSEC) and the Specialty Soya and Grains Alliance (SSGA) hosted the 2021 U.S. Soy Global Trade Exchange (GTE) & Specialty Grains Conference August 24-26 in St. Louis. On the heels of the 2020 event being entirely virtual, this year's conference boasted a hybrid format. About 300 people attended in person, with another 900 individuals from 59 countries joining online.

Participants learned about a range of pertinent topics, including supply and demand, crop quality, shipping and transportation, and sustainability, from subject matter experts, including soybean farmers themselves.

Each year, the event kicks off with a local activity, and this year the group took in a St. Louis Cardinals game. Monte Peterson, USSEC chairman and American Soybean Association (ASA) director from Valley City, North

Dakota, threw out the first pitch.

Peterson reiterated the importance of safely bringing together growers, exporters and customers of U.S. Soy. "Relationships are at the heart of what we do," Peterson says. "USSEC has worked very hard throughout the pandemic to maintain relationships through the use of technology, but getting to be with at least some of our customers in person felt great. It's also good to know that we were able to effectively connect with so many others until we can all be face-to-face once again."

Fellow North Dakotan Bob Sinner also played a key role at the GTE. Sinner serves as the president of the SSGA and SB&B Foods. Sinner states that the demand for identity preserved (IP), non-GMO U.S. soybeans is currently exceeding the supply. With this continued demand across a variety of sectors, the SSGA is encouraging more U.S. growers to consider IP production.

This year, U.S. Soy teamed up with Pro Farmer to unveil the results of the annual Crop Tour at the GTE. Langseth took part in the panel discussion, providing a grower's perspective on this year's crop quality and progress, along

with anticipated yield. "One of the most common questions that all farmers hear from buyers is "What's going on in the field?" Participating in this panel gave me a chance to have that conversation virtually with hundreds of buyers around the world and assure them the U.S. is going to have a great crop for export," Langseth says. "Even if my growing region is going to have a short crop this year due to



Barney farmer Mike Langseth (left) enjoys a light-hearted moment during the Pro Farmer U.S. Crop Quality Tour Results session at the 2021 GTE. Also pictured (L to R): Bob Suver, Ohio; Doug Winter, Illinois; and Robert Alpersk, Missouri.



Clean Beans

Experts Say that Farmers Have Options to Keep Foreign Material Low

“On the farm here, it’s one of our goals to keep our beans as clean as we can.”

A clean crop is the most effective way to maximize the highest value at the marketplace; otherwise, Dr. Naeve warns, exporters are in danger of their shipments being rejected by overseas customers.

“That doesn’t affect the farmer directly, but then it costs the export company a bunch of money to redirect the vessel, and that cost will trickle back to the farmer,” Dr. Naeve states. “It can be a tough message, but it’s best to act altruistically.”

Dr. Naeve tells farmers that, if they do have weed issues with their crop, they should separate and store that portion from the bulk of the crop after harvest. Employing these practices will prevent contamination, a penalty at the elevator or pushing their crop over the 1% FM limit.

“That’s one of the easiest things farmers can do: isolate their ugliest beans,” Dr. Naeve says.

To learn more about managing FM, visit bit.ly/FM-NSMvideoserries for a series of videos funded by NSM and the soybean checkoff.

—Story and graphic courtesy of Northern Soy Marketing Group

A farmer’s mission to manage weeds and to keep foreign material low doesn’t end with the growing season.

Growers in North Dakota, South Dakota and Minnesota should continue to be mindful of controlling weed seeds and keeping spread at bay, says Minnesota Soybean Director of Research David Kee. Spreading weed seeds, such as waterhemp or ragweed, can lead to significant yield loss.

“You don’t want to turn your combine into a weed-seed distributor,” he said. “If you blow through that pocket of weeds, it’s going to spread out.”

The historic drought that’s affected farmers throughout the Upper Midwest can also play a role in weed control.

“Because of the drought, we’ve seen fields dropping leaves early and opening canopy,” Kee explains. “Now, we’ve got rain on the soil, and it’s ideal conditions for late weed emergence because they’re below the crop canopy. They’ll bust through it.”

Kee recommends that farmers design and implement a weed-control strategy. Keep it simple, he says.

“You could harvest the weed stuff last and then make your weed control based on what your weeds were

last and the crop you’re rotating for next year,” Kee states.

University of Minnesota (U of M) Agronomist Dr. Seth Naeve agreed, saying that controlling weed seeds is important to maintain the crop for domestic and export purposes.

“Farmers should take notes of where weedy patches are, and get back to them and control them for the future,” Dr. Naeve says.

Keeping Foreign Material at Bay

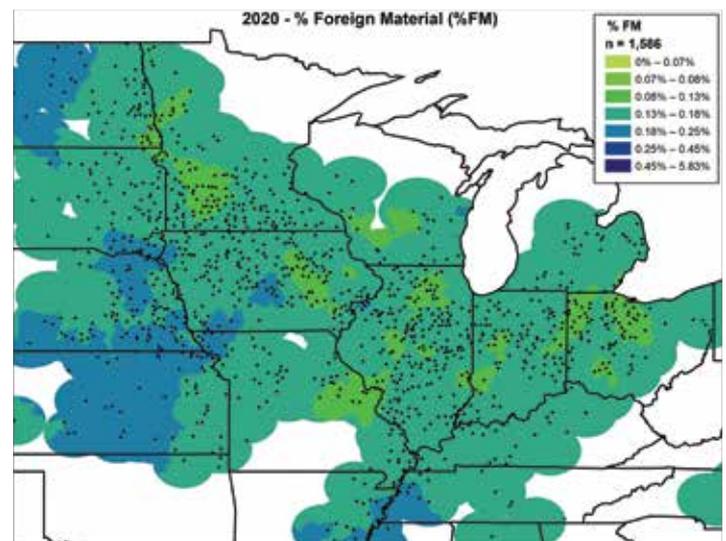
Besides their outstanding quality, soybeans grown in North Dakota, Minnesota and South Dakota are consistently among the cleanest in the world. These soybeans, which are exported to markets worldwide, have limited foreign material (FM), thanks to strict management practices throughout the process of planting, growing, harvesting and storing.

“Farmers need to continue doing all they can to keep their beans clean from the beginning to allow the system to stay clean all the way through,” Dr. Naeve explains, who also works with farmers through projects funded by the farmer-led Northern Soy Marketing (NSM) group.

In December 2017, the U.S. Department of Agriculture (USDA)

and Chinese government agreed that future soybean shipments from the United States to China containing more than 1% FM would require an additional declaration on the phytosanitary certification indicating such. According to the 2020 United States Soybean Quality Annual Report, the percentage of FM in the soybeans sampled in northern-grown states meets China’s threshold: 0.3% in North Dakota and 0.2% in Minnesota and South Dakota.

“We know that being free of weed seed and being free of FM is a significant role player for all marketplaces,” NSM Director and North Dakota farmer Mike Langseth says.



Percent foreign material across soybean growing region.

POWERED TO PULL

Checkoff
Investment



Rob Bell has a lot to consider before he steers one of his two Hot Stock tractors to the sled in order to make his run at a tractor pull. The process isn't as simple as hooking up and blasting full speed down the track.

"It's deciding where to have the weight on the tractor because, if it looks like it's going to be a track that has real good traction, then we put more weight to the front so that you can hold your front end down and still be able to control the tractor," Bell ex-

plains. "If the track doesn't have as good of traction, then we'll want to have more weights to the back because we won't get the front end off the ground as easily. You'd have more weight to the back, so you get better traction."

Bell has been pulling competitively for more than 30 years. His dad took him to tractor pulls when he was a child. Those experiences instilled a love for the sport. Bell is now a member of four different pulling clubs and usually participates in more than 20 events a year, so he has hundreds of events under his belt.

Bell pulls with two different tractors, both in the Hot Stock class, which limits tractors to 3,000 rpm and a 2.6" inlet turbo. One tractor is a John Deere 4430 called the Deere Doctor, and the other is a Farmall 1206 called Farmboy's Dream.

Inner Power

One thing that Bell doesn't have to worry about is the fuel he uses to power his tractors. Bell runs both machines on a blend of 20% biodiesel and 80% petroleum diesel called B20.

"People are under the impression that biodiesel has less power than what you can get out of petroleum diesel fuel, but that's not true because you can push more fuel to it with less smoke," Bell says. "So, if you are running a machine with an exhaust filter, you're not plugging your exhaust system as quickly, and number two, for my case, I can give my injection pumps probably another quarter turn more fuel and not get too much fuel to where it just makes more smoke and no more power."

Bell has more than pedestrian knowledge of biodiesel performance. For 37 years, he's worked in the service department at the John



Rob Bell fires up his Farm Boy's Dream Farmall tractor in preparation for a pull in Leonard, North Dakota.



Bell pulls with his John Deere 4430 and Farmall 1206 in the Hot Stock class.

Deere dealership in Hillsboro, North Dakota, working primarily

with tractor engines and power trains. It was in that role where he

To learn
more about
biodiesel, visit:
Biodiesel.org



gained a fuller appreciation for what biodiesel could provide.

“I was the service manager for 10 years here at Valley Plains Equipment in Hillsboro, and I went to a service manager’s meeting when the ultra-low sulfur diesel fuel came out. We were discussing how many future failures we were going to have on our fuel injection systems due to the lower concentration of sulfur in the diesel fuel that was required to meet emissions,” Bell recalls. “A fuel expert at this meeting said that, even at 2%, soy biodiesel has better lubricity than the old high-sulfur diesel fuel we used to use. That’s what really sold me on it. I thought, why are

we not using biodiesel to prevent wear in our fuel systems? So, that’s what why I started using it.”

Initially, Bell bought straight biodiesel and splash blended his own mixture. Now, he sources his fuel from Minnesota, which has a B20 mandate during the summer months, eliminating the trouble of mixing it himself.

Bell can confidently speak to the quality of biodiesel as a fuel, but he’s also a proponent of farmers helping themselves by using a product they grow. As a farm kid whose family still farms and raises soybeans, Bell is committed to doing his part to promote biodiesel.

Fun with a Message

Bell spreads the biodiesel message at tractor pulls throughout the Dakotas, Minnesota and Canada during the summer. In recent years, he’s taken a tractor to Florida for pulls during the winter. The travel, fun and camaraderie are part of what drives him to keep pulling.

“You’re part of every town celebration. Every weekend is a county fair or town celebration or something, and you get to be part of the entertainment,” Bell explains, “and every weekend when we go, it’s like a family reunion.”

With dozens of pulls on his schedule each year, Bell has a lot on his plate to keep the Deere Doctor and Farmboy’s Dream running smoothly. He just won’t be concerned about his fuel.

—Story and photos
by Daniel Lemke



Bell’s biodiesel-powered tractors are entered into events across the Dakotas, Minnesota, Canada and even Florida.



(YOU)

You're where the rubber meets the road.
And the engine. And the interior.

All soybean farmers, including you, are busy replacing petroleum with your soy oil. How? By pooling your resources through your soy checkoff. Learn how your soy checkoff is bringing tangible returns back to you and your operation at unitedsoybean.org/hopper.



Moving Soy Forward.
Moving You Forward.



Fore! the Fun of it



Thank you for making the 18th annual Fargo golf tournament a success! The tournament is a way for the North Dakota Soybean Growers Association (NDSGA) to thank its members and supporters. Your membership dues and sponsorship of NDSGA events help provide the necessary funds to continue policy and advocacy work in Bismarck and Washington, D.C. We're proud of our past successes and are continually working to make things better for soybean growers throughout North Dakota.

Congratulations to our tournament winners:

First Place

Team Alton Grain Terminal:
Cory Tryan, Nick Moen, Wade Burke and Jason Tryan

Second Place

Team Ag Insurance Services:
Scott Mitchell, Kyle, Bob Green and Joel Mitchell

Third Place

Team BASF #1: Amber Fyre, Chad Fyre, Mike Olson and Jerome Olson

Congratulations to our contest winners:

Closest to Hole #4: Connor Klingele
Longest Putt #6: Brent Roeder
Longest Drive #9: Spencer Rehovsky
Closest to Hole #11: Nick Moen
Longest Drive #16: Wade Burke
Longest Putt #18: Derrick Rogers

Thank you to our tournament sponsors:

Hole Sponsors: Advance Trading, Inc.; AgCountry Farm Credit Services; AgWeek; American Federal Bank; BASF; Bell Bank; Bremer Insurance; Central Sales; Dyna-Gro Seed; Ellingson; FMC; MEG Corp-Biodiesel; Mosaic Company; Mustang Seeds; National Biodiesel Board; North Dakota Soybean Council; Proseed; Titan Machinery and Visjon Biologics.
Lunch: Cray, Golden Harvest
Dinner: BNSF Railway
Golf Balls: Asgrow
Golf Carts: Northern Crops Institute
Signs: D-S Beverages



—Story and photos by staff



Scholarship Winner Has a World of Options

A college education helps prepare students for future opportunities. Billie Lentz, a senior at North Dakota State University (NDSU), is from Rolla, North Dakota, and is the recipient of the 2021 North Dakota Soybean Growers Association (NDSGA) scholarship. She may have a difficult time choosing which path to take.

Lentz is majoring in agriculture economics, with a minor in business administration. She's also earning a certificate in professional sales.

"I'm really interested in taking over the management of my family's farm and then becoming involved in maybe some commodity organizations as well," Lentz says. "I also have a lot of interest in possibly getting my MBA

from NDSU. They have an MBA with an emphasis in agribusiness program, which is interesting to me. But then, the internship that I have right now is also sparking some interest for some possible full-time work once I graduate. So, there are a few options out there that I'm interested in for sure."

Lentz worked with John Deere as a marketing and customer product support intern with the Waterloo, Iowa, team over the summer. She recently accepted a full-time position with John Deere in their Marketing Development Program and will begin working there in June 2022.

"It was interesting working with the large tractor division," Lentz states. "It was a really rewarding experience."

Lentz is no stranger to involvement, being active in Future Farmers of America (FFA) throughout high school. During her freshman year at NDSU, she was a North Dakota state FFA officer. She ran to be a national FFA officer in the fall of 2020.

In addition to her formal education, Lentz has had a personal view of agricultural advocacy. Her father, Doyle Lentz, served on the North Dakota Barley Council, the Northern Crops Institute, and the State Board of Agricultural

Research and Education. He also chaired the U.S. Grains Council's international market-development efforts, earning him a spot as a World Trade Organization negotiator. Billie Lentz explains how that exposure has opened her eyes to the many facets of agriculture.

"My dad has definitely been the biggest influence on who I am as a person and the kind of path I want to take with my future," Billie Lentz says. "He's definitely shown me how agriculture is more than just the labor of the land, that we need advocates for agriculture. We need educators; we need communicators; and every level of agriculture is equally important. To be able to see all the different opportunities that he's had and the leadership role that he's taken on and being able to use his voice for the industry has really inspired me to want to do the same."

The \$5,000 NDSGA scholarship is available to students enrolled in the NDSU College of Agriculture, Food Systems and Natural Resources who have completed a minimum of 90 credits by the fall semester.

Applicants must also be the child or grandchild of an NDSGA member.

Billie Lentz takes a long view of the benefit that the NDSGA scholarship offers to her future.

"A lot of times, people think of a scholarship as being short term, when it's a lifelong impact. As the first generation of my family to go to a four-year college and get a bachelor's degree, my sisters both pursued higher education as well. Having that opportunity was something that we never took lightly because we know that there are so many different routes to go in life, and we really valued being able to have that education," Billie Lentz explains. "We knew that there were barriers that come along with that, finances probably being the biggest one. So, when you're able to just truly focus on the degree you're actually getting, instead of having to worry about those outside factors like finances, it makes for an even more impactful educational experience."

—Story by Dan Lemke,
photo courtesy of Billie Lentz



Billie Lentz

For application information, visit:

bit.ly/NDSGAScholarship21



NDSGA Announces Results of Officer Elections

The North Dakota Soybean Growers Association (NDSGA) held officer elections during a recent board of directors meeting. The elected NDSGA officers were

President Kasey Bitz of LaMoure and Treasurer Spencer Endrud of Buxton. Vice President Ryan Pederson of Rolette and Secretary Greg Gussiaas of Carrington were

re-elected to office.

Monte Peterson of Valley City and Josh Gackle of Kulm will continue to serve as the American Soybean Association representatives,

providing a voice for North Dakota soybean producers on national farm policy. Andrew Cossette, Fargo, is the Corteva Agriscience Young Leader on the board of directors.

—Story and photos by staff



Kasey Bitz



Ryan Pederson



Greg Gussiaas



Spencer Endrud



Weather Worries in 2021

The full influence of weather challenges on soybean yields won't be known for some time, but it's safe to say that 2021 delivered more than the usual share of headaches for North Dakota farmers.

The problems started early.

Most crops were seeded in a timely fashion to start the growing season, but a cold snap, including a late-May frost, damaged young crops in portions of the state. North Dakota Agricultural Weather Network (NDAWN) Director Daryl Ritchison says that there are weather records for Fargo dating back to 1881. Only 12 of those 141 years had a later last spring frost than 2021.

"Even by our North Dakota cold standards, that's a testament to just how unusual that frost was," Ritchison stated. "The southern half and some of the western part of the state really got cold. We had an NDAWN station in south-central Cass County drop down to 25 degrees on May 28."

That May frost killed untold acres of crops and forced many North Dakota farmers to replant some soybeans.

Drought Dilemma

The most widespread weather issue was North Dakota's lack of rain. For nearly the entire growing season, drought conditions hampered crop development over large parts of the state. Some parts of North Dakota get very little rainfall in a

normal year, and if the rains don't come in late spring, the crop-forecast picture becomes much bleaker.

Moisture issues were compounded by an extended early season heatwave that pushed early June temperatures into the triple digits. With little widespread rainfall and limited soil moisture in some places, the early blast of unseasonable temperatures came at an inopportune time.

"That heatwave really came at a very, very bad time because, even though the subsoil moisture was not all bad, everything is dependent on the top three or four inches, and that heat dried things off really quickly," Ritchison explains.

Rainfall continued to be spotty during the bulk of the growing season, so farmers are going into late fall with varying degrees of soil-moisture concerns.

What Lies Beneath

For much of the year, the U.S. Drought Monitor considered large portions of North Dakota to be in extreme to exceptional drought. Ritchison stated that, while the U.S. Drought Monitor provides a view of the current conditions, the information may not reveal the entire picture.

NDAWN has about 50 weather stations that include soil-moisture probes, "so for the first time, those stations give us a very widespread view of what's really going on," Ritchison says.

Probes collect soil-moisture data at depths of 2 inches, 4 inches,

8 inches, 20 inches and 40 inches. Soil moisture is displayed by volumetric water content, which is a measurement of what volume of the soil is water. Soil is comprised of solids, water and air.

"Most soil types could never get beyond 50% water because the solids are always going to be there. Sometimes, people look at a volumetric water-content page on our website and go, wow, 20%, that's really bad. It's not. In fact, in some soil, that's the maximum you can ever get," Ritchison explains. "It depends on the soil type, what that volumetric water content actually means."

Ritchison says that NDAWN has a cloud service where data from each NDAWN station are available to view. Stations that have the soil probes will have that information listed. NDAWN staff has translated information from those sites into percentages based on the soil type.

"Zero percent would be the wilting point, and 100% is pretty much a flooded field," Ritchison states. "This will give people a little bit better understanding because 20% volumetric water content in Fargo clay in the Red River Valley would be considered dry, but in some sandy soils on the beaches along the edge of the valley, that might be as high as you can ever get because it just rains through the sandy soil so quickly."

Hitting Refresh

Ritchison describes how there is moisture in the ground but that most of the moisture is deep in the soil profile. The top foot of soil needs to be replenished. Some soil recharge could still take place this fall before the soils freeze. Ritchi-

son says that the soil doesn't typically freeze completely in North Dakota until around Thanksgiving. Rainfall from mid-October until the ground freezes would be helpful, but it's not often plentiful.

"From mid-October to freeze up, those six to seven weeks, we don't average much precipitation. Even if we get average rainfall in that time period, you're still going to go into next spring dry," Ritchison states.

Winter snow offers little help to recharge the soil moisture. Snow doesn't contain much water, plus the ground is usually frozen when the snow starts to melt, so there's very little ground penetration. Hope for soil-moisture replenishment may have to wait until next spring.

"It will likely come down to next April and May when the ground is thawed. Most of North Dakota averages in June what we average for moisture in November, December, January, February and March combined," Ritchison explains. "You can catch up your soil moisture very easily in the spring and summer, not so much in the winter."

While he's not ready to say that North Dakota is entering a dry cycle, Ritchison expects the state to trend back to the drier side.

"Most parts of North Dakota haven't been dry for more than just a season since the 1980s. We're so overdue for two, three or even four years in a row of dryness," Ritchison says. "No way is every year going to be as dry as 2021, but it's just going to be more years of below-average precipitation than above-average precipitation."

—Story and photo by Dan Lemke

For more
information:
bit.ly/NDAWNCenter



Getting to Know Your NDSC County Representative



Carie Moore
Rocklake, North Dakota

Tell us about your farm.

Our farm is about 40 miles from the Canadian border. We grow soybeans, canola, barley, wheat, and oats, and we've implemented a lot of work with cover crops to manage our salinity and improve our soil health. The farm consists of me and my husband, Jason, and we crop share with Jason's parents.

What do you like best about farming?

I really like the ability to be outside all the time, especially in the summer. I enjoy the physical labor and the busy work of the farm. I love just being outside in equipment with my coffee and listening to music.

Did you always know that farming was something you wanted to do?

Yes, I always wanted a career in agriculture. Since I did a lot of work in the livestock industry in years past, I thought I would be primarily involved with livestock versus primarily involved with crops. I also do some custom bailing and cattle-sale assistance, which allows me to be involved with livestock.

What's most exciting about the upcoming soybean harvest?

We have a really nice soybean crop. The beans got hit with rains at the perfect times, so I am excited to get them harvested and see what

our yields are. Our wheat and barley did not fair well this year.

Why did you get involved with the North Dakota Soybean Council as a county representative?

Our county had not had a county representative for quite a while. After I attended the See For Yourself Program in 2017 with the North Dakota Soybean Council to the Pacific Northwest, I learned that the county representative position was available. I nominated myself and was elected.

Why are soybeans part of your crop mix?

The prices for soybeans have been a lot better for us than other crops, and the yields have been good for us. Soybeans are a great rotational crop for our grass crops because it's adding nitrogen back in the soil.

If you could change something about the current operating climate for North Dakota farmers, what would it be?

I would like to see more swine facilities go up in our area. Livestock is a perfect outlet for all our crops here in the state.

What has changed most about farming since you've been involved?

The size of the farms along

with improved technology and equipment.

What changes do you expect to see on your farm in the next five to 10 years?

I think our kids will definitely have a more active role, which means we will, hopefully, grow in size. That will allow me to do more custom bailing, seeding, swathing work.

What do you like to do outside farming?

I am pretty active in my county. I do a lot with our local 4-H and sportsman club. I like archery and hunting also.

If you could go anywhere, where would it be?

I am up for any place that is warm and sunny with a beach.

What's the one piece of farm equipment or technology you wouldn't want to be without?

My laptop.

Carie is one of the North Dakota Soybean Council's county representatives. To learn more about serving on the North Dakota Soybean Council as a county representative or board member, visit ndsoybean.org/council-election

—Story by staff, photo provided by Carie Moore

Bean Briefs

House Ag Committee Members Protest Biotech Barriers

House Agriculture Committee Chairman David Scott and several Democratic members of the committee have sent a letter to Secretary of Agriculture Tom Vilsack and U.S. Trade Representative Ambassador Katherine Tai regarding non-tariff trade barriers

that were imposed on agricultural biotechnology products. In the letter, Chairman David Scott and the members expressed their concern that these trade barriers undercut key elements of the Biden administration's Trade Policy Agenda and offered their support for stronger enforcement action.

The letter says that biotechnology is one important tool that can

facilitate sustainable solutions in agriculture and can help combat climate change. Biotechnology crops enable agricultural practices—such as no-till farming—which can help sequester carbon, reducing greenhouse gases.

The Ag Committee members said that, when trading partners erect non-tariff barriers for these technologies, their actions have

a chilling effect on the global adoption and commercialization of new technologies. As a result, farmers at home and abroad are forced to choose between innovative technologies or access to foreign markets. China and Mexico are two nations that are failing to comply with their commitments to science-based and timely regulatory approval processes.

Getting to Know the Expert



Brian Jenks
Weed Scientist, NDSU North Central Research Education Center (REC), Minot

Where did you grow up?

I grew up in southern Idaho, growing potatoes, dry beans, wheat and barley.

Where did you go to school?

I went to school for agronomy, received a B.S. and M.S. degrees at Utah State, a Ph.D. at the University of Nebraska, focusing on weed science.

What led you to study weed science?

I got interested in weed science during my undergraduate work. I did an internship with a chemical

company for six months, so that's probably what got me interested in weed science.

How long have you been at the North Central REC?

I've been here since 1997.

What is the goal of your work?

We focus on trying to find solutions for problem weeds. We've studied weeds like Canada thistle, common milkweed, wild buckwheat and narrow leaf hawksbeard, trying to help farmers find solutions, primarily for some of our minor crops where we have fewer herbicide

options. We've worked with over 24 different crops, but we generally focus on 12 to 15.

We do a lot of herbicide testing, trying to develop data that will show crop safety. So, if there's a certain crop that has few options, can we find a herbicide that will be safe on that crop?

Have weed issues changed?

Weeds have definitely changed, but it depends on weather. (With) dry cycles, for example, kochia becomes a much bigger problem. In wet years, kochia becomes less of a problem, but other weeds become bigger issues.

In North Dakota, we have glyphosate resistance in about five different weeds. We're working, now, with how to control kochia in a burndown. If glyphosate doesn't control the kochia anymore, how do you control the kochia or other weeds in a burndown situation?

Instead of focusing on controlling weeds in the spring, we've been looking more at fall applications to control winter annuals, but also have a residual herbicide applied in the fall that will carry over into the spring and help us reduce the weed population that emerges in the spring. That's been effective and would certainly help a soybean grower. We've been applying Valor®

in the fall as late as possible. We've seen a 60% to 90% reduction in kochia emergence in the spring. If you can reduce kochia that much, it becomes easier for your burndown application in the spring because you're spraying much fewer weeds, and it makes that application much more effective.

Has weed control become increasingly important in farm management?

Absolutely. If you look at the weeds that are now glyphosate resistant, kochia is a big one, horseweed. In the eastern part of the state, waterhemp is a problem, and that is typically glyphosate resistant, so that has completely changed our strategies for controlling that weed. We're starting to get Palmer amaranth in a couple of counties, so herbicide resistance is certainly driving how we're having to change strategies.

What do you like to do away from work?

Spending time with family. I have some musically oriented kids, so I enjoy going to their concerts and following them in their music. We enjoy golfing and just spending time together.

—Story by Dan Lemke,
photo courtesy of Michael Wunsch

China has long subjected agricultural biotechnology products to import-approval process delays. Under the U.S.-China Phase I agreement, China committed to predictable and consistent average timelines for regulating biotechnology products for import, agreeing not to request information that is unnecessary when assessing a product's safety for its intended

use. However, nearly a year and a half into the two-year agreement, product-approval timelines for imported goods still average more than seven years.

Grower Groups Disappointed with the Neonicotinoid Draft Biological Evaluation

Grower organizations representing a variety of crops are disap-

pointed with the Environmental Protection Agency's (EPA's) draft biological evaluation (BE) for several neonicotinoid products, including imidacloprid, thiamethoxam and clothianidin. The groups, representing farmers across the country, say that failure to consider real-world usage data in the analysis conducted as part of the Endangered Species Act

(ESA) could limit growers' ability to protect their crops and livelihoods, and would not assure that endangered species are any safer.

The American Farm Bureau Federation, the American Soybean Association (ASA), the National Cotton Council and the Minor Crop Farmer Alliance say that ESA analyses are, by law, required

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to “use the best scientific and commercial data available” in order to ensure that endangered species and their habitats will not be adversely affected by an agency’s action. The groups point out the draft BE does not use the “best available data” and cite multiple examples of assumptions made in the EPA assessment that do not align with the growers’ real use of neonicotinoid products.

Kevin Scott, a soybean farmer from South Dakota and the ASA president, says that the draft BE compares proverbial apples to oranges: “USDA survey and commercial use data are available and show how growers actually use these tools, but the draft BE, instead, includes application rates, numbers, types, and reapplication timing for these neonicotinoid products that are remarkably inconsistent with the actual, available data. These erroneous assumptions could have real, negative consequences for farmers and other end users if they are used for the final ESA analysis.”

ASA Comments in Support of the USDA Proposal to Exempt Additional Gene Edits

The American Soybean Association (ASA) submitted comments supporting a proposal from the U.S. Department of Agriculture’s (USDA) Animal Plant and Health Inspection Service (APHIS) to exempt certain genetic modifications from regulation that could have otherwise occurred through conventional breeding. In the USDA’s revised plant biotechnology regulations, which were finalized in May 2020, the USDA included a provision that allows for additional genetic edits to be exempted from regulation if they could be demonstrated to have otherwise occurred through

conventional breeding and do not pose a plant pest risk. With this proposal, the APHIS expressed an intent to deregulate three “loss of function” edits which will allow breeders and developers to deactivate or to delete segments of DNA with gene editing.

The ASA’s comments support the APHIS’ proposal and detail how genetic loss of function can allow for the deactivation of genes that otherwise allow plants to be susceptible to disease. Genes can be deleted to help plants better manage water resources or other inputs, improving drought and stress tolerance. The comments go on to describe how equipping breeders and developers with these new tools would allow for the swifter development and deployment of new varieties to meet changing environmental, pest or market needs at reduced costs to growers.

In the comments, the ASA expresses concern with the APHIS’ plan to limit the exemptions to genes on only two chromosomes. Soybeans, for example, have four copies of chromosomes and, often, require editing copies of the genes on all four chromosomes for the modification exemptions to offer maximum value to growers. The ASA’s comments urge APHIS to expand the exemptions beyond two chromosomes and also to provide examples in nature and conventional breeding where modifications take place across more than two chromosomes.

Ag Groups Show Support for Phase I Agreement

The American Soybean Association, along with 30 other business associations, engaged with U.S. Treasury Secretary Janet Yellen and U.S. Trade Ambassador Katherine Tai in a letter voicing continued support for the China Phase I agreement and asking for swift resolutions to the ongoing tariffs.

The groups applauded the Biden administration’s continuing support for holding China accountable, per the Phase I agreement, to its commitments. They strongly urged the administration to continue working with the Chinese government to increase purchases of U.S. goods through the remainder of 2021 and to implement all structural commitments of the agreement before its two-year anniversary on February 15, 2022. The letter notes that, while the chapter three commitments have been good for American agriculture and address most long-standing market-access barriers, there is still more work to be done.

In addition to ensuring full implementation of Phase I commitments, the letter urged the administration to reinstate a new, fair and transparent tariff-exclusion process and to continue negotiations with China in order to remove both nations’ counterproductive tariffs as soon as possible.

Growers Ask the EPA to Re-Register Enlist

In a letter sent to the Environmental Protection Agency (EPA), the American Soybean Association, the American Farm Bureau Federation, the National Corn Growers Association and the National Cotton Council voiced support for the re-registration of Enlist.

The registrations for Enlist One and Enlist Duo for over-the-top use on soybeans, corn and cotton are slated to expire in January 2022. The grower letter urges the EPA to re-register Enlist for these purposes and details the important weed-management, environmental and herbicide-resistance mitigation benefits of the tool. The letter also discusses how seed and input supply chains need a timely registration decision in order to provide certainty ahead of

the 2022 growing season. Growers need to make planting decisions, and supply chains take months to react to regulatory or market developments. To prevent any significant supply chain disruptions, the grower groups encourage the EPA to make a re-registration decision no later than early fall.

The EPA Approves Paraquat Applications

In an interim registration review decision, the Environmental Protection Agency (EPA) announced that grower access to the herbicide paraquat will continue to be allowed, including uses for soybeans, and aerial applications will continue to be permitted under certain circumstances.

The herbicide has been under scrutiny for alleged links to Parkinson’s disease, but the EPA, in its decision, clarified, “there is limited, but insufficient, epidemiologic evidence to conclude that there is a clear associative or causal relationship between occupational paraquat exposure...and Parkinson’s.”

Originally, the agency had proposed an end to aerial applications aside from cotton desiccation, but upon further review, the EPA decided that it would allow aerial applications on up to 350 acres within a 24-hour period for all uses, except for cotton desiccation which will not face limitations.

To minimize human-health and occupational bystander risks, additional protective equipment requirements have been imposed as well as lengthening the time-frame from field re-entry after application from 24 hours to 48 hours. Importantly though, the EPA’s decision will keep paraquat available and meaningfully useable for growers who need it to protect their crops and to maintain conservation practices.

—Story by staff

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