

THE NORTH DAKOTA **Soybean** GROWER MAGAZINE

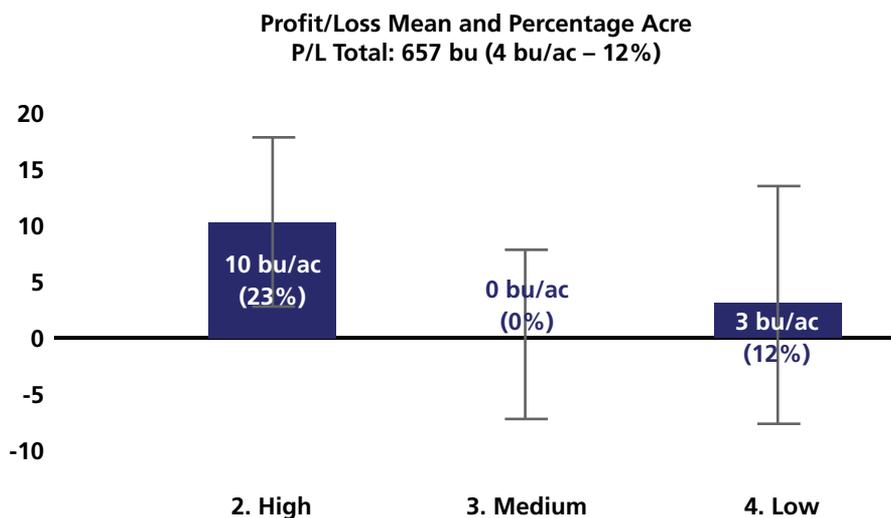
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INSIDE:
**Fertilizer's
Wild Ride**

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Optimizing Soybean Profitability



Farming is all about getting the most from the soil, seed and inputs that are needed to produce a quality, profitable crop. Soybean farmers in North Dakota, South Dakota and Minnesota are optimizing their profit potential by utilizing an innovative tool from Mustang Seeds and GDM called Optimus.

“Optimus is an analytics tool that’s mainly used for agronomic decisions,” says Tyler Strahl, Mustang Seeds precision agriculture specialist. “The Optimus tool is being used to create multi-variety and variable rate seeding prescriptions, and then analyzing those fields after harvest.”

Developed by GDM, the Optimus program has been used in Argentina and Brazil for several years. Mustang Seeds and GDM introduced the program to the United States in 2020. Since then, Optimus has been used by growers in Minnesota and the Dakotas as a tool to help them fine tune their management.

“Optimus allows you to view your management zones and separate the higher performing areas compared to the lower performing parts of the field,” Strahl says. “You’re analyzing your applied rates and comparing them to your harvest maps to see if any management zone changes need to be implemented for the next season.”

Strahl says Optimus can also help farmers identify areas of the field where less seed may be needed to achieve maximum yields.



“In variable rate soybean fields, we are applying less seeds per acre in the high productivity zones and achieving a higher yield and return on investment in those zones,” Strahl explains. “We’re also working with variable rate fertilizer using those same management zones. The combination puts a greater emphasis on the profitability per acre and allows you to focus on where you’re spending your dollars.”

Farmers who have used the Optimus system have seen positive results.

One example of how Optimus helps farmers achieve greater productivity is from a South Dakota soybean field shown in the graph.

Using a control treatment across all manage-

ment zones allows us to compare the variable rate population to a fixed rate in each management zone. The graph on the right shows that the high zone had a 23% yield increase when using the variable rate population compared to the flat rate population. Across all zones in this field, the variable rate population had a 12% yield increase compared to the flat rate population.

Already a groundbreaking technology, Strahl says GDM is investing significant resources to continually build and enhance the Optimus program to give farmers even better information.

“There’s an entire digital product team working on this. They also have agronomists working on it as well as data scientists,” Strahl says.

While Optimus is only available through Mustang Seeds and GDM, Optimus works with existing management programs farmers may already be using like FieldView and Ops Center.

“Optimus focuses more on the in-depth analysis of those management zones and looking to see what we can improve for next year,” Strahl explains.

Because of Mustang Seeds strategic partnership with GDM, Mustang Seeds customers can access the unique Optimus technology to optimize their profitability. Contact your local Mustang Seeds dealer to learn more about Optimus or call (605) 256-6529.

Optimus⁺
by GDM





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In addition to a late start to planting and a dry growing season across many parts of North Dakota, farmers dealt with a sharp increase in fertilizer prices. Due to a wide range of factors, growers will likely have to contend with ongoing price volatility as they prepare for the 2023 crop.

—Photo by Wanbaugh Studios



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Countdown to North Dakota's 68th Legislative Session

You know what happened in the election of 2022 by now, but I write this column just as soybeans across North Dakota are beginning to enter the combines. Regardless of the election outcome, I can tell you some of what will be happening during the 80 working days of the session from early January to late April.

Hanging over the proceedings until the very end will be the lack of experienced leadership for both houses. Only Democratic House leader Josh Boschee will return, leaving Republican leadership in the House and Senate to people who are new to that job. Also new will be the Democratic leader in the Senate as well as two new chairs for the money committees: Appropriations. To be sure, all replacements will be seasoned veterans of the law-making branch but seeing how they handle the many responsibilities and pressure is a big deal for the entire state. Our leaders, these past couple of sessions, had ratcheted down the friction between the two houses, resulting in a much-improved ambiance.

One topic to be addressed will be taxation. Of course, taxation is always an issue, but this time, it may well be focused on reducing income versus property tax, probably not both. The governor has joined a proposal for a 1.5% flat income tax while he dislikes the proposals put forth so far to reduce property taxes. His reasoning is that, because property tax is a local tax, local governments (counties, school districts, etc.) would need to reduce their spending. He also says that, so far, legislative fixes for property taxes are not a true tax cut because, with these prior (and proposed) plans, the state picked up more of the cost for local government services, such as human services and education. These proposals are merely a shift in who picks up the tab, not a true reduction of taxes. Taxation Committee Chair Sen. Dale Patten summed up the work of his interim tax committee by saying that, while members have

learned a lot about income and property tax, the reduction for the coming legislative session has not at all been decided. Sen. Patten noted that it will be a hot topic and that he has no idea which approach will prevail. Sen. Patten also stated that, in his 20 years as a county commissioner, he heard people complain about property taxes but never once had anyone ask for fewer services. From my decades of public service, I would agree.

The water discussions your North Dakota Soybean Growers Association (NDSGA) entered during this interim period seem to have some direction going into the winter, but nothing is certain. Our interest in seeing that rural water maintains a 75% state cost share seems to have found some footing among state water commissioners, and we hope that they vote in that manner. So much of the infrastructure is aged, and our need for good rural water only increases. As far as drainage is concerned, there has been progress with coordinating North Dakota Century Code that deals with drainage, while another bill requiring economic analysis will run into stronger headwinds. Delays and costs are part of that issue.

Lately, corporate farming laws have been discussed often by the governor and will probably get some attention. There is no prediction on that topic, however. Also seeing some interest will be efforts to streamline or to standardize the correct establishment of animal feeding operations so that the “not in my backyard” status is diminished. North Dakota lags far behind Minnesota and South Dakota in raising turkeys, chickens and hogs. With so much open space and the ability of modern facilities to be relatively odorless, we are hoping that our state can do better. Cooperation among counties, townships and the state will come into play here while workforce shortages provide some other headwinds. Obviously, with what looks like two soybean crushing plants coming



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

online in the next years, we will have big piles of prime feed to distribute. As always, NDSGA will continue to push for road and bridge funding, to support North Dakota State University Research and Extension efforts, and to spend time trying to defeat any bills that may be to soybean growers' detriment.

Please keep in mind that urban areas have more legislators than rural areas and that it really helps if you can keep up with the legislature and the issues affecting the North Dakota soybean industry. I plan on being there and blogging a few times a week during the session so that you can be apprised of what is happening and can get in touch with your representatives and senators if needed. Go to NDSGA's website at www.ndsoygrowers.com to read the blog. Get to know legislators, if possible, because most of them want to know the issues and make things work for their constituents. It is common in our current culture to badmouth them, but politicians are usually good people who want to serve you, your district and the state.

Follow what's happening in the North Dakota Legislature with agriculture policies and issues

Phil Murphy, NDSGA's liaison between legislators and farmers, writes the “Murphy's Law” blog.

Scan to subscribe to “Murphy's Law” blog today!



Looking Back and Ahead

By now, the bulk of the 2022 growing season is in the rearview mirror. Most of the crop has been harvested; the tillage is largely completed; and preparations are being made for the impending winter. While it's rarely helpful to live in the past, there is a time to look back on the year that was and to use some of that knowledge to make improvements for the next year.

Each year comes with its own unique challenges, and 2022 was no different. At times during this growing season, parts of North Dakota were too wet while others were too dry. As we all know by now, there's not a lot we can do about that situation. We prepare, formulate a plan and work that plan to the best of our ability. Sometimes, we get it right; sometimes, we don't.

Even if things didn't go as we planned or hoped in 2022, we can use that information to put ourselves and farms in a better position for next year. Maybe we've learned which varieties performed better. Perhaps, the new weed management strategy that we tried was very effective. Even if things didn't go exactly

as we planned, there is still something to be learned from 2022 that we can apply in 2023.

Most farmers are optimists. We have to be. Otherwise, we wouldn't put seed in the ground each year and do our best to manage what we can control while hoping for good results. There are many things outside of our control that affect us, which is why it's important to do what we can to make good decisions that put us on the path to be successful.

For North Dakota farmers, there is good reason for optimism. The global demand for soybeans remains high, and North Dakota is known for producing high-quality soybeans. With the addition of two soybean crushing plants set to begin operation in the coming years, we will likely have marketing opportunities unlike anything that we've seen before in this state. That development is exciting and is also very promising for the long-term viability of soybean production in North Dakota.

I hope that 2022 was a good year for you. I trust that all of us can glean something from the experience and that we can head into 2023 optimistic about our future.



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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)

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

Blood, Sweat and Tears



Career paths, like growing seasons, are rarely predictable. Cindy Pulskamp, who farms with her husband, Neal, near Cummings, can attest to that fact.

Cindy Pulskamp grew up near Harvey, North Dakota, but farming wasn't in her plans. She says that she was looking for her life in the business world, having worked for Great Plains Software, ConAgra and even serving as the human resources manager at Mayville State University.

"I have a different background than most farmers," Cindy Pulskamp explains. "I've been in the Fortune 1000 business world. I've been in human resources. I've been in software. I've been in broadcasting. It's just the opportunities that came, and I'm one of those people who says, sure, why not?"

After the death of her father in 2001, Cindy Pulskamp, who has a master's degree in management, was moving to Minneapolis to start work for Cenex Harvest States when fate intervened.

"I was brokering fertilizer into the area, and a cousin of mine is an

aerial applicator. He was hosting a customer appreciation night, and he invited me to come up because he knew I was moving," Cindy

Pulskamp recalls. "I drove up to Hillsboro, North Dakota, and that night, I was introduced to this charming man. So, the famous last

words when you leave the farm are 'I'm never marrying a farmer.' Well, never say never. About a year and a half later, we were married, and I've been farming side by side with him full time ever since."

Several months after the pair married, Neal Pulskamp's mother passed away, so Cindy and Neal bought the farm from his father; Cindy Pulskamp became a full farming partner. Now, the couple raises soybeans, wheat and sugarbeets on the Pulskamp farm that's been in the family for nearly 110 years.

Industry Involvement

Not one to stay on the sidelines, Cindy Pulskamp was involved as a commodity organization director and a CommonGround volunteer, telling agriculture's story. Her passion for and knowledge about agriculture were noticed by North Dakota soybean leaders who approached her about becoming a United Soybean Board (USB) director. The USB is comprised of 78 farmer-leaders from across the country who invest soy-checkoff funds in research, market development and other areas intended to improve the opportunities for soybean farmers.



Neal and Cindy Pulskamp raise soybeans, sugarbeets and wheat on land that has been in the Pulskamp family for nearly 110 years.

Cindy Pulskamp interviewed and was selected to be one of North Dakota's representatives. She was appointed to the USB and was seated on the board in February.

"I'm really working at understanding all of the different research and the various avenues that are out there with people trying to find new utilizations for soybeans," Cindy Pulskamp states. "I enjoy going through the process of awarding those research grants and investing checkoff monies to make sure that it's something that I can tell my fellow farmers here in North Dakota that this is what your checkoff funds are being used for, and this is how it's going to benefit us growing soybeans in the future. It has been just absolutely wonderful learning that."

Cindy Pulskamp describes how the process of learning more about the many aspects of the soybean industry has been rewarding. She is particularly intrigued by the myriad of new uses being developed for soy products.

"I'm impressed with all the minds that are out there thinking of new uses or new possibilities, like biofuels and BioHeat," Cindy Pulskamp explains. "It's amazing how soy can go from cooking oil



Cindy Pulskamp (in tractor) didn't intend to become a farmer, but she's been a partner with her husband in the farming operation for 20 years.

to running your car to the bottom of your shoes. We just had some dust retardant sprayed on one of our gravel roads at a nearby plant here. Those products are all from soybeans. All the different ways that this one product can be used, something that we grow on our farm, is just so fascinating to me."

Cindy Pulskamp's wide-ranging experience is an asset to the USB. However, she says that she's not afraid to ask questions because many of the topics which the board addresses are highly complex.

"It's okay if I don't know, but if I don't ask, I'm never going to know," Cindy Pulskamp asserts. "I do have the capability to look at things just a little bit differently based on my different experiences."

Love for Agriculture

Cindy Pulskamp is passionate about agriculture and is more than willing to share that love with anyone willing to engage in a conversation, whether it's on her farm or in an airport terminal.

"I just love explaining agriculture to people," Cindy Pulskamp

contends. "It may be about what they have in their food that probably came from somewhere in the upper Midwest where I farm. It's amazing when they start asking you questions. That's what I love. I love to tell them not necessarily what I do, but how much gets accomplished up here and how much it affects their daily lives, and they just don't even know it."

Careers like farming involve risk. Cindy Pulskamp left a life in the business world for a life on the land that offers a deeper connection.

"I've always believed if you haven't lost some blood, put some sweat into it or cried over it a little bit, it didn't mean that much to you. Those are some of the emotions that agriculture brings out of you, but it also brings out exhilaration and accomplishment," Cindy Pulskamp explains. "Just seeing that all your hard work for many days and, sometimes 24 hours a day, and then all of a sudden, it's like okay, we've got a decent looking crop, and it's positive. With the good Lord willing and Mother Nature cooperating, we're going to be able to bring it to harvest. That's what I look forward to every spring."



In addition to farming, Pulskamp is a United Soybean Board director and a willing advocate for agriculture.

—Story and photos
by Daniel Lemke

Game Changers

Checkoff
Investment



It's not often that we get to be part of moments that have the potential to transform an entire industry. Individuals who are involved with soybean farming are at that point right now.

North Dakota has solidified its position as a reliable supplier of high-quality soybeans. We've become one of the nation's top soybean producing states and the #2 exporter of whole U.S. soybeans. The construction of two soybean crushing plants in North Dakota is going to open even more avenues for soybean farmers to provide food, feed and fuel to the world.

The Green Bison Soy Processing plant at Spiritwood and the North Dakota Soybean Processors' Casselton facility will offer farmers options to market crops in a way that best fits our operations. We should not only see an improved basis, but also year-round domestic demand for our beans will help to smooth out some of the volatility that comes with supplying global markets.

These facilities, the first for North Dakota, open new avenues for farmers in North Dakota and around the region.

Soybeans will be processed into meal and oil. Soybean meal is already a highly sought feed ingredient because it is a tremendous source of protein and essential amino acids for livestock. Hogs, poultry, cattle and fish perform well when they are fed diets that are rich in soybean meal. Having a consistent supply of high-quality meal will be a boon to

livestock producers in the state and around the region. That steady supply should also encourage further livestock development in North Dakota because there will be an ample supply of quality feed ingredients available year-round. It's also likely that soybean meal will become another export opportunity for North Dakota.

The oil portion of the soybean is also in demand and is a renewable feedstock for fuels such as biodiesel and renewable diesel. Soybean oil from the Green Bison Soy Processing plant will be further refined into renewable diesel and will be supplied to meet the demand for decarbonization. Renewable diesel from soybean oil is a drop-in fuel that is helping states and corporations meet greenhouse gas emission goals. This situation isn't hypothetical; it's happening now, and the potential for growth is substantial.

If those opportunities are not cause enough for excitement about the soybean industry, new value-added uses, including soy-based tires, shoes, dust suppressants, and even sealants for asphalt and products that protect concrete, are creating even more demand for what we grow.

These opportunities are game changers for North Dakota soybean farmers. The North Dakota Soybean Council has worked diligently and has invested checkoff funds judiciously to help grow new avenues for the state's soy producers. We will continue to do so and to



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help support these and other opportunities that have the potential to better our industry.

It is exciting to see the opportunities that are unfolding before us and to, hopefully, steer the direction of the industry. For me, it is a once-in-a-lifetime chance to be part of something with this magnitude. I'm grateful to be a part of this time for tremendous growth and opportunity, and I can't wait to see what the future holds.

2023 Best of the Best in Wheat and Soybean Research

Wednesday, February 8 in Grand Forks at Alerus Center
Thursday, February 9 in Moorhead at Courtyard by Marriott

The annual Best of the Best in Wheat and Soybean Research workshop offers growers a chance to learn the latest in checkoff-supported wheat and soybean production from researchers and extension specialists.

Featured session topics: Weed control, weather issues, pest management, cover crops and more!

Meetings are free. Registration is requested. Visit www.mnwheat.org for more details.



Best of the Best is proudly sponsored by: MN Association of Wheat Growers, MN Wheat Research & Promotion Council, MN Soybean Research & Promotion Council, ND Soybean Council, ND Grain Growers Association and ND Wheat Commission

Farmers Shaping a Bright Future



Most growers enjoy the independence of farming and the satisfaction that comes from shepherding a farm business through varying economic and agronomic conditions. When the crop is in the bin following another successful growing season, farmers can take inventory of the decisions that they made which contributed to the achievement.

North Dakota's soybean industry has grown and thrived in recent years not only because of the increased global demand for soy products, but also because forward-thinking farmers got involved to help shape the state's soybean future through their involvement with the North Dakota Soybean Council (NDSC).

Dennis Feiken of LaMoure served on the NDSC from 2004 to 2010. He was the secretary/treasurer before becoming vice chair and then, eventually, the NDSC chairman.

"A friend of mine got me started in it," Feiken says. "He was on the NDSC board at the time, and he encouraged me to take it on."

Feiken had been involved with the Farm Bureau, including the Young Farmers and Ranchers program, in North Dakota. When that program was completed, Feiken was encouraged to run as an NDSC director.

"I didn't really know anything



Third from the right, Feiken tours the construction of NDSU Agriculture Experiment Station Research Greenhouse Complex in 2009 with fellow NDSC farmer-leaders.

about what the council did," Feiken admits. "I obviously grew soybeans, but that's about the extent of it. If it hadn't been for my friend Matt, becoming a director probably would never have happened."

Feiken was elected to the NDSC board and quickly learned the extent to which North Dakota farmer-leaders are involved with contributing to the future of the soybean industry. The NDSC is involved with many aspects of North Dakota agriculture, including directing the investment of soybean-checkoff funds.

"It's very interesting. There are a lot more ins and outs to the soybean industry than I would have ever dreamed," Feiken states.

The NDSC supports important initiatives such as soybean research, consumer education and market development. Feiken was

most interested in the international marketing.

"I was interested in the trade side of the industry because most of our beans in North Dakota were going out of state," Feiken explains.

Biodiesel was among the new uses for soybeans that was growing in interest and importance in the state when Feiken was on the NDSC board. Now, the opportunities to broaden North Dakota's soybean industry have expanded to include two new in-state soy-processing facilities; a strong demand for low-carbon fuels, such as renewable diesel made from soybean oil; and the potential for growth in animal agriculture driven by the supplies of soybean meal.

Feiken sees all those developments as new opportunities for the state's soybean farmers.

"You can't just ship off whole

beans and think you're going to make big money," Feiken asserts. "You've got more profit potential when you can break soybeans down and profit on every aspect of it."

Each year, the NDSC holds elections to fill director positions with farmers who are willing to help build on the state's soybean successes. North Dakota soybean farmers are encouraged to contribute by running for open county representative position with the North Dakota Soybean Council.

The North Dakota Soybean Council's 2023 election process will begin in December 2022. There are openings in the following counties:

District 2: Ransom and Sargent Counties

District 8: Nelson, Griggs and Steele Counties

District 10: Cavalier, Pembina and Walsh Counties

District 12: McKenzie, Dunn, Billings, Golden Valley, Slope, Bowman, Stark, Hettinger, Adams, Mercer, Oliver, Morton, Grant, Sioux, McLean, Burleigh, Kidder, Logan, Sheridan, Emmons and McIntosh Counties

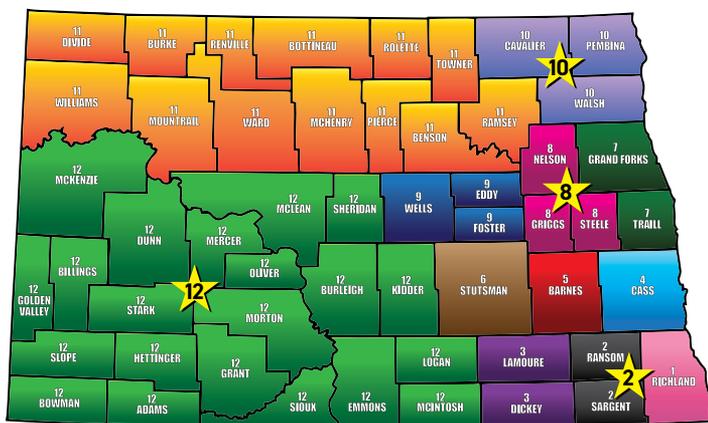
Feiken says that not only do farmers on the NDSC make decisions about where and how to invest soybean-checkoff funds, but the board members also learn a great deal about the soybean industry.

"I learned a lot about soybeans and the many different ways you can possibly use soybeans," Feiken states. "I would definitely encourage farmers to run."

Farmers who are interested in the opportunity to help shape soybean's future in North Dakota should nominate themselves for the NDSC election.

—Story by Daniel Lemke, photos by staff and Scherling Photography

Learn more about the NDSC election process at bit.ly/NDSCelections23



Past NDSC Chairman Dennis Feiken.

Closing the Yield Gap: The Farmer's Share

Checkoff
Investment



selection is complicated because varieties turn over rapidly and because what worked this year may not be available next year. Varieties from a certain company may perform well one year but lose to the competition the next year.

“If producers always buy from the same company, they may or may not pick the highest-yielding variety for the farm,” Dr. Kandel says.

Variety selection is also vital if producers are dealing with problems such as iron deficiency chlorosis, soybean cyst nematode or phytophthora. Then, picking varieties that have resistance or tolerance to those conditions will play an even more important role in maximizing yield.

Learn more about specific NDSU soybean varieties at bit.ly/NDSUsoyvarieties

Maturity Groups

Within reason, NDSU research has shown that planting longer-maturing soybean varieties contributes to higher yields. Dr. Kandel states that shifting to a slightly longer-maturity soybean may pay off in terms of yield.

“That is based on the fact that later maturity typically means a day or two or three longer within the field. If the plants can intercept more sunlight, then we would have higher yield,” Dr. Kandel explains. “If you go from an 0.5 to an 0.6, on average, you probably pick up 0.6 to 0.7 bushel per acre more yield. So, by picking a later-maturing variety within the zone that the farm is in, you would be able to pick up some yield.”

beans. Some factors, such as weather, are outside the farmers' control. However, there are steps that farmers can take to close the gap between the yield potential and the current yield.

Variety Selection

One area where Dr. Kandel believes that farmers are leaving yield on the table is variety selection. North Dakota State University (NDSU) trials involve more than 250 soybean varieties from varying maturity groups. Seed offerings are ranked based on performance according to maturity group.

“If you rank all the offerings in that maturity group, you get some that are higher than average and some that are lower than average,” Dr. Kandel asserts. “If a producer picks varieties within the maturity group that are higher than the mean, we would be able to increase the yield potential.”

Dr. Kandel acknowledges that variety



Soybean yields across North Dakota have steadily increased over the year, but there is still a gap between potential and what farmers achieve.

Regardless of the brand, the maturity group or the parent line, each soybean seed comes with yield potential. That seed has genetic potential to produce strong yields, yet very few soybeans live up to what is genetically possible when they're planted in the farm fields.

Yield potential is the yield of a specific variety when grown with optimal management; non-limiting water and nutrient supplies; and the perfect control of weeds, pests, and diseases. Weather during the growing season (sunshine, temperature and rain) determines the yield potential for a certain field in a given year. (See Figure 1, red bar.)

However, actual farm yield is typically below the yield potential due to yield-limiting factors, including water, nutrients, non-ideal crop management, the soil's physical and chemical constraints, insects and weeds, etc. (See Figure 1, green bar.) The difference between the yield potential and the actual yield is called the “yield gap.”

Soybean-yield trends in North Dakota have climbed steadily for the past 80 years. From the 1940s to 2021, there was an average increase of 0.3 bushels per acre each year. North Dakota State University (NDSU) Extension Broadleaf Crops Agronomist Dr. Hans Kandel attributes that growth to better plant genetics, farmer adoption of improved management practices, and a longer growing season between the last and first frost.

Despite gradual growth, on-farm yields typically fall below the variety's trial levels. Therefore, producers have the opportunity, via their management practices, to narrow the current yield gap and to maximize the soybeans' yield potential in a given year.

There are many reasons why farmers may not be able to unlock all the yield potential for soy-



Weather conditions play a major role in determining yields, but agronomic decisions also can impact soybean yields.

Planting longer-maturing varieties does come with risk because they may be susceptible to frost before they've reached physiological maturity.

For more information on soybean maturity groups, visit bit.ly/NDSUsoybroadleafcrops

Planting Date

NDSU research shows that the soybean planting date helps to determine how well the crop will yield. Dr. Kandel asserts that, if conditions are right and farmers can plant early, they should do it.

Dr. Kandel describes how mid-May is go time for soybean planting.

"If you go the southern part of the state, it may be a week earlier; if you go north, maybe a few days later; but the middle of May is probably prime time for planting," Dr. Kandel states. "If we can go a day earlier, if it has been

a nice stretch of warm weather, soil is warm and there's no forecast of frost, then we will pick up about a third of a bushel of yields by earlier planting."

If farmers are willing to push the planting envelope, Dr. Kandel describes how seed treatments do increase the number of plants that are established based on the seeding rate. Dr. Kandel says that better soybean stands translate into higher yields, based on a comparison of treated versus non-treated soybeans in variety trials.

NDSU's Soybean Production Field Guide has more information on planting dates. Visit bit.ly/NDSUSoyProductionGuide

Population and Row Spacing

Not all seeds germinate and become a live plant. Dr. Kandel explains how farmers should calculate the seeds' germination rate with the

desired, established plant counts to determine the seeding rate.

Dr. Kandel asserts that NDSU research shows how maximum yield is obtained in North Dakota at 150,000 established plants per acre. "That's when you get optimum yields," Dr. Kandel explains. "But the economics are something that farmers need to consider because of increasing seed price."

Row spacing is another variable that farmers can consider to maximize soybean yields. Dr. Kandel states that, because of North Dakota's short growing season, optimal widths are in the 15- to 22-inch range.

"When we go from 30 inches down to 22 inches to 15 inches, even to 7 inches, we can increase our yield potential," Dr. Kandel contends. "Within North Dakota in general, 30 inches row spacing is too wide. It takes too long for the crop to canopy. Because our season is so short, if the crop is not closed, you are not catching all the sunlight. Some of that sunlight hits the soil in between the row until it is closed. If you go to 22- or 15-inch rows, compared with 30-inch rows, you have a better coverage earlier in the season, and that translates to a higher yield."

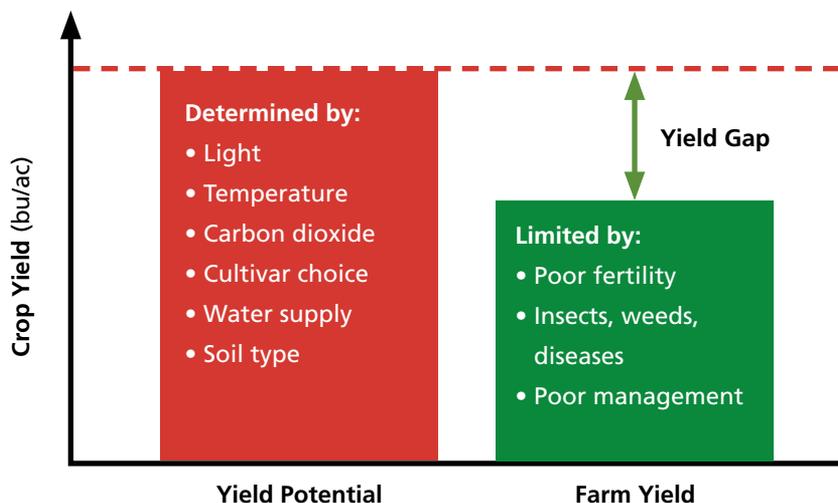
Dr. Kandel explains that, in certain areas, water is a major factor for determining yield. While it is a sizeable investment, some fields could benefit greatly from tile drainage.

NDSU has a publication which details the influence of seeding rates and row spacing. That publication is available at bit.ly/NDSUsoyplanratesrowspacings

In summary, it is evident that producers are not achieving the soybeans' full yield potential due to many yield-limiting factors, such as weather, water, nutrients, non-ideal crop management, soil constraints, insects, weeds, etc. While it is impossible to control the yield-limiting factors related to weather, farmers can maximize the soybeans' yield potential by selecting the right varieties that are suitable for the growing region, plant early when possible and plant at the recommended seeding rate with less than 22-inch row spacing. It is also beneficial to follow the best soil- and pest-management practices to unlock the soybeans' full yield potential.

—Story by Daniel Lemke, photos by Matt Ferm and Wanbaugh Studios

Figure 1. The difference between the yield potential and the actual yield is called the "yield gap."



A SWINE EDUCATION

Checkoff
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state could make use of the new soybean-processing infrastructure. Biosecure hog-feed manufacturing is going to be increasingly important as animal ag-production grows.

In addition to the educational component of the swine-development event, Boeshans describes how the conversations with lenders and government officials were also very productive.

“We had county and township officers and planning and zoning staff in attendance to learn how to invite livestock into their areas,” Boeshans explains. “A point of emphasis for us was to connect with folks who must make some of these siting decisions. We wanted to get involved in discussions in a neutral, comfortable situation where we are able to talk about zoning rules and livestock placement in their communities.”

—Story by Daniel Lemke,
photos courtesy of North Dakota
Corn Utilization Council and the
United Soybean Board

**Presentations
and information
from the swine-
education event
can be found at
bit.ly/PigsNDBrightFuture**



The expectation of having a large supply of soybean meal for feed is one big reason that farmers and livestock companies are eyeing North Dakota for possible expansion. Another strong consideration is the biosecurity for both the feed and the animals.

With two soybean-processing facilities under construction that will likely add millions of pounds of soybean meal to the market, existing livestock producers and interested farmers are eager to learn more about the potential for livestock production in the state. Soybean meal is a primary ingredient of the feed rations for hogs, poultry, cattle and even fish.

In September, the North Dakota Livestock Alliance (NDLA) held a swine-education event in Fargo to help farmers, lenders and local government officials better understand what’s involved with swine production as well as to provide information about the potential for increased animal agriculture in North Dakota.

“This event really showed that the people who can responsibly grow livestock in North Dakota, are paying attention, they are actively involved, and North Dakota is ready to grow,” says NDLA Executive Director Amber Boeshans.

Boeshans states that the

swine-education event drew about 100 people from various sectors involved with agriculture. The event featured a trade show as well as presentations on the daily activities and management of sow barns and hog-finishing facilities. That education was important, Boeshans asserts, because some farmers who are interested in expanding into hogs may not have a lot of hands-on experience working with pigs and because labor can be in short supply.

Biosecurity is a critical component of swine production. Keeping diseases from the animal herds helps the swine producers to raise healthy animals. Because North Dakota offers ample space

between pig barns, growers are eyeing the state’s potential.

“The potential for biosecure production is causing farmers who are interested, and companies already involved in hog production, to give a long look at relocating production to North Dakota from densely swine-populated areas like Iowa and Minnesota,” Boeshans says. “North Dakota is really getting a lot of attention industry-wide now for our biosecurity. People are very interested in coming to North Dakota to raise healthy, successful pigs.”

Boeshans states that many participants at the NDLA swine event were interested in learning more about how farmers in the



The expected increase in locally produced soybean meal is a positive factor in potential growth for North Dakota’s hog industry.

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Dad might not request motor oil for Christmas, but he won't complain when he receives it as a gift, especially if the motor oil is good in engines, is sustainable and supports U.S. soybean farmers. Help support longer engine life and U.S. soy with Biosynthetic® motor oil.

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Pile the entire family into a new Ford vehicle this Christmas, and enjoy the comfort of seats made with foam derived from U.S. soy. Not only are Fords stylish and comfy, but the seats in every vehicle produced in North America are also made with sustainable components that anyone in the family can get behind.

Learn more about Ford's soy-based seating at bit.ly/SoyFoamSeatsFord.

—Story courtesy of the United Soybean Board, photos by the United Soybean Board, staff and Adobe Stock

Are you still looking for the perfect Christmas gift for friends and family? There are even more products that use U.S. soy as a main ingredient. Learn more and shop at bit.ly/USsoyproducts



This Holiday Season, Add Soy to Your Christmas List!

Eating extra calories; counting blessings; listening to crackling fires; and, of course, giving gifts are the thrills of the holiday season. Plus, harvest is probably over, which means that there's a little more time for online shopping to score the perfect Christmas gifts for your loved ones.

As the holidays approach, the lists of wants and needs grow. With the help of the soy checkoff through checkoff-funded research efforts, you can add coveted gifts that include sustainable U.S. soy.

From housewares to clothing, this list of potential gifts has something for each of your friends and family members.

Okabashi Flip-Flops



It's impossible to have too many slip-on shoes or comfortable sandals around when the weather gets warmer. These flip-flops have a very special ingredient: U.S. soy. Okabashi's fashionable footwear uses U.S. soybean oil and recyclable material.

To order, visit okabashi.com

Skechers Tennis Shoes



Get your kids outside the house or prep yourself for a hike with new shoes from Skechers. These soy-based shoes use the technology that began with the soy checkoff's collaboration with Goodyear Tires. Soybeans, comfort and sustainability come together for fashionable and better-gripping functionality shoes.

Order online at bit.ly/SoySketchers

Rust-Oleum



Are you a DIY gift-giver, crafting unique presents for the people on your list? Rust-Oleum Varathane® wood stains are perfect for you. Use these soy-based stains for the homemade signs and décor that you plan to

FANS OF THE *Hometown Team*

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about land-grant university genetics.”

Cost is also a factor for many growers who plant NDSU seed. “If you can save yourself \$40 or \$50 an acre in seed cost, that’s a tremendous help to the bottom line,” Kjelland contends.

David Teigen of Rugby, North Dakota has been planting NDSU varieties for the past five years. He planted them because of curiosity, but he has stayed with the public seed because of performance. Teigen encourages other growers to put the NDSU seed to the test on their farms.

“I think the biggest holdup is people are brand specific, whether it’s a tractor, a pickup or a soybean seed. If someone’s used to another brand, it’s hard to get them to switch,” Teigen explains, “but for the ones who have tried it, I think the varieties have been received pretty well.”

In addition to farming, Teigen is on the North Dakota Soybean Council’s research committee. The committee invests check-off funds into projects that are designed to improve North Dakota’s soybean production. That investment includes supporting the NDSU soybean breeding program.

“The checkoff money we put into the breeding program, there’s

Planting public soybean seed varieties is not a new phenomenon on the Kjelland farm near Park River, North Dakota. Aaron Kjelland is the fifth generation to operate the family farm and the second generation to plant soybean varieties which were developed at North Dakota State University (NDSU).

“We’ve been raising almost exclusively NDSU varieties for 25 years,” Kjelland says. “Dad started growing soybeans before I came back to farm. He planted a soybean variety by the name of Jim. He was learning how to incorporate soybeans as a crop

into our rotation.”

After Jim, the Kjellands tried an NDSU variety called Cavalier.

“Cavalier soybeans were really wonderful to us,” Kjelland explains. “We probably raised them for close to 15 years. We were in a food market, and the buyers loved them. They were a nice, big, clear hilum bean that yielded well for us and were very resilient to the challenges we have in our area.”

Kjelland describes how Cavalier has been replaced by other NDSU varieties. He keeps coming back to the public seed options because knowing the genetic history is important.

“One of the things that I really

like about NDSU is the clarity of the genetics. You can talk to the land-grant university, and they will tell you the parentage, what it descends from, and it is labeled clearly,” Kjelland asserts. “It’s interpretable to the farmer, and that is really valuable for me.”

“We haven’t had that kind of relationship with any of the other brands that we felt like we 100% know what is going to work without just trying 40 acres, and trying 40 acres these days is an expensive gamble,” Kjelland says. “You kind of want to know what’s going to work before you invest that kind of money in something, so that’s primarily what we like



David Teigen of Rugby has planted NDSU soybean varieties for five years.



NDSU soybean varieties have been the seed of choice on Aaron Kjelland’s farm by Park River for more than two decades.



parentage, is cheaper to purchase originally, and you can grow your own seed, if you are careful and you pay attention to your quality and your weed control, you can actually sell it for a premium market. That's a win on all sides of the equation, in my opinion."

For questions regarding NDSU's breeding program and NDSU soybean varieties, contact Dr. Carrie Miranda via email at carrie.miranda@ndsu.edu or call (701) 231-8136. For more information about NDSU soybean varieties for sale, visit ndcropimprovement.com.

—Story by Daniel Lemke, photos by staff, NDSU and Agweek

To learn more and see if NDSU soybean varieties are an option to improve your yield and bottom line, visit bit.ly/NDSUsoyvarieties



Lower seed cost and competitive yields from NDSU soybean varieties are attractive to many North Dakota farmers.

more than that in seed savings by farmers every year," Teigen states. "It gives me confidence from the research committee end that we're using that money well, and from the farmer end, paying the checkoff, it makes me confident that those checkoff dollars are being spent well. We can see a true positive return on investment for our checkoff dollars."

periodically will plant something else from a private company just to test what works and what doesn't. The land-grant beans seem to outyield everything else we've tried, and of course, they're significantly cheaper. It just seems to work really well for us. I'm really hoping for the next bean that fits well for us to be released."

In addition to performing well at a lower cost than most private varieties, Kjelland states that there's also the potential to sell public varieties into higher-value markets.

"We've actually found value-added markets for a lot of these varieties," Kjelland contends. "Not only do you have a bean that you can trace the

Looking Ahead

Kjelland describes how he's had conversations with NDSU soybean breeder Dr. Carrie Miranda about new varieties that are in the pipeline. He remains optimistic that new varieties which work for his region of the state will come.

"It would be fun to see another real slam dunk come through the pipeline for our growing area," Kjelland asserts.

Because soybean production can be very dependent on soil conditions, growing degree days and other regional factors, Kjelland says that, when he sees a variety that consistently performs, it's difficult to switch.

"When you get a variety that just seems to work, it's fun to just keep going with it until you're proven that something else is better," Kjelland explains. "We



The North Dakota Soybean Council invests checkoff funds to help the NDSU breeding program develop varieties that fit the state's growing conditions.

Fertilizer's *Wild Ride*

Fertilizer prices have gradually dropped following the high-water marks set for nutrients in March and April, but as most farmers can attest as they plan for the 2023 crop, prices remain significantly higher than in recent years.

“When you look at these prices versus historical norms, they’re still insanely high, and it doesn’t look like that situation is changing anytime soon,” says Joshua Linville, vice president of fertilizer for the StoneX Group.

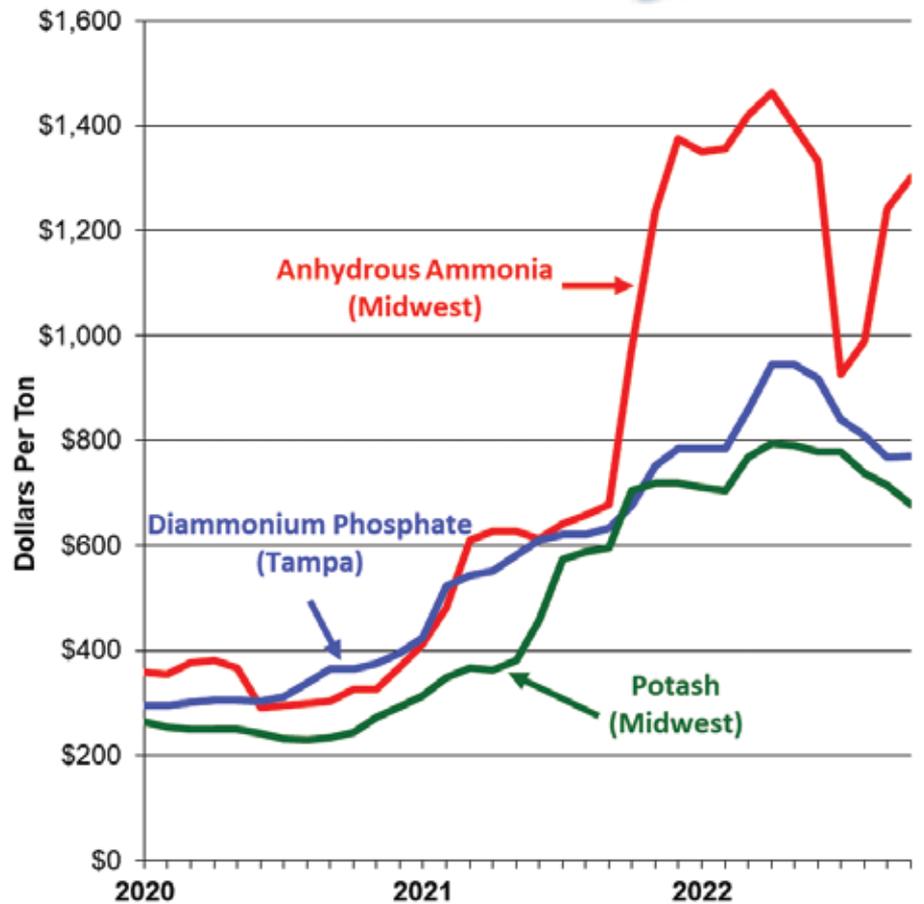
The rapid runup in prices caused sticker shock for farmers worldwide as global demand, supply disruptions and geopolitical conflicts combined to drive fertilizer prices skyward. The price increase was even more alarming because farmers had been enjoying a period of relatively affordable fertilizer.

“When you look at the time period between about 2016 and the end of 2020, we were experiencing decade-low fertilizer prices,” explains Jason Troendle, the economist at The Fertilizer Institute. “Growers got used to paying \$350 to \$450 for a ton of ammonia in the Midwest. Potash was closer to the \$250 to \$300 range, and phosphates were closer to \$350, so we came from a period of very low prices.”

Troendle asserts that ammonia prices peaked around \$1,400 a ton in April; fell by about \$400 per ton by August; and then rebounded back to around \$1,200 per ton in late September. Potash and monoammonium phosphate



Jason Troendle is an economist for The Fertilizer Institute.



Source: Weekly prices reported in Green Markets (A Bloomberg Company).

(MAP) prices were around \$700 and \$775 per ton, respectively.

Ongoing Uncertainty

Prices for nitrogen, phosphate and potash may have dropped from recent highs, but some of the underlying factors that caused the prices to spike in the first place are still unresolved. Volatility remains a reality for the fertilizer markets.

As with crops, fertilizer is a globally traded commodity. Troendle states that 44% of all fertilizer is exported from the country where it’s produced to be used elsewhere. Worldwide fertilizer demand is one factor keeping nutrient prices elevated.

A year ago, China put bans on its fertilizer exports. Troendle describes how, historically, China made up 25% of the global phosphate market. Taking one-quarter of the world’s supply from the market is going to drive up the price.

“How and when China comes back to the market is definitely something that is currently

weighing on the market,” Troendle explains.

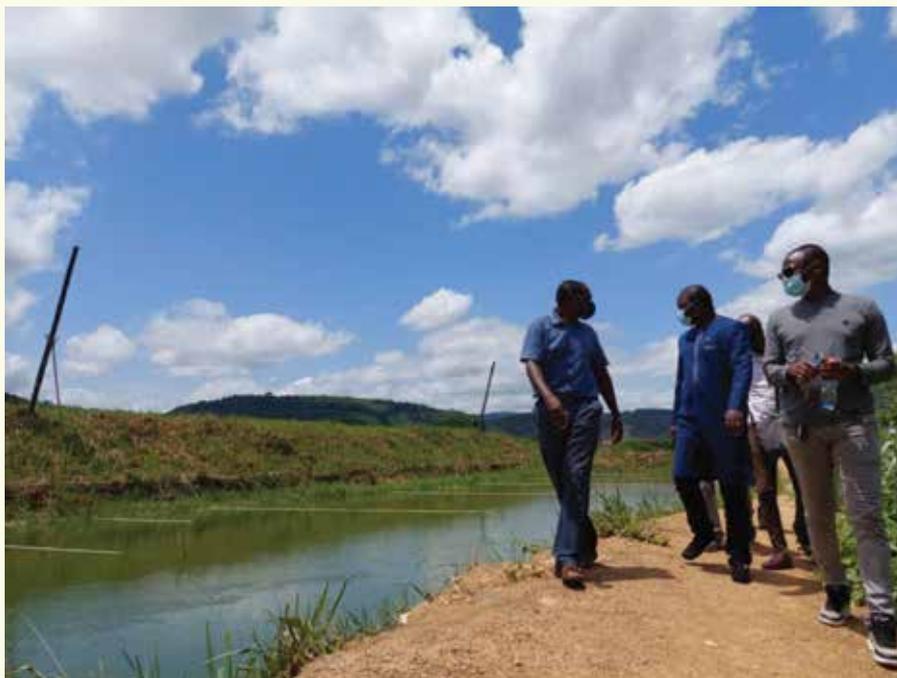
Troendle says that most of the Western world has placed economic sanctions on Belarus, which supplies about 21% of the global potash market. Because Belarus is unable to export much of its potash, there’s less supply to go around. Russia also has about 21% of the global potash market and may limit its trade to countries that it views as friendly.

Russia has also supplied a lot of energy for Europe, which produces about 9% of the global nitrogen supply. Troendle states that Europe has shuttered a lot of its nitrogen facilities because of the high price for natural gas. If they’re not producing it, European countries must turn to the global market to purchase nitrogen, which puts more upward pressure on the market.

Russia’s threats to withhold energy supplies to Europe as the war with Ukraine drags on are another factor contributing to market volatility.

—Story continued on page 18

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WISHH is a program of the American Soybean Association and is funded in part by the United Soybean Board and state soybean board checkoff programs.



Despite dropping below highs set in early spring, farmers can still expect to pay higher than historical average prices for their fertilizer in 2023.

—Continued from page 16

“We’re watching it very, very closely because we’re really fearful that we’re going to see a lot more announcements that production cuts are coming, and the world is tight already. The market can’t handle a whole lot more of that,” Linville asserts.

High prices for domestic natural gas, which makes up a large component of the cost of nitrogen ammonia production, also weigh heavily on the expense.

Planning Ahead

With so many variables likely to affect the price of key nutrients, farmers are left to make some tough decisions when planning for the 2023 crop.

“We’re heading into 2023 with fertilizer costs still high, maybe not as high as last

spring, but still high,” says Dr. Bryon Parman, North Dakota State University agricultural finance specialist.

Dr. Parman says that any price drop won’t come quickly but would likely take months to gradually occur. Farmers should plan on nutrient costs staying elevated.

“Normally, this time of year, I’m talking about the seasonality of fertilizer prices,” Dr. Parman states. “Typically, fertilizer prices are less expensive in the fall than in the spring. That seasonal concept is being swamped by remaining supply chain issues and overseas conflicts that will weigh more heavily on prices than the typical seasonality would.”

“I’ve been telling guys, if you want to buy in your fertilizer, you need to be looking to sell some of that 2023 grain against it because that’s the best hedge the farmer has,” Linville explains.

Troendle suggests that farmers work with their fertilizer supplier because the suppliers will understand the local market and availability. The supplier may also be able to help farmers layer in purchases that they expect to need for the next growing season.

“We recognize it’s a really difficult time to make those decisions because there’s a lot of moving parts,” Troendle asserts.

Troendle also recommends that farmers soil test to make sure they’re only applying the nutrients they need where they need them to keep costs down and to ensure maximum efficiency while also reducing losses to the environment. Now is the time to implement the 4R practices of the right source, right rate, right time and right place to get the most from their crop nutrients and the soil.

Fertilizer availability has improved since this

spring when some supply disruptions occurred. Linville says that access to fertilizer when it’s needed is another factor for farmers to consider.

“Look at how far away you are from resupply. If you’re going to change your practices, let’s say you’re only a spring application person, and you decide you’re going to go fall this year or vice versa; you need to be having conversations with your suppliers because I know a lot of the growers I speak with are very, very nervous about these prices,” Linville states. “That retailer is just as scared of buying at these prices in the hopes that the farmer may or may not show up on a doorstep. So, my biggest fear is that a lot of people wait until the last minute before fall and then show up at the doorstep and say, ‘Hey, I’m ready to buy,’ and the retailer doesn’t know when they can get supply.”

Whatever strategy that farmers employ for making their fertilizer purchases, it’s uncertain whether prices will go up or go down, or if a new normal has been established.

“It’s just a lot of volatility with a lot of moving parts,” Linville asserts. “We’re an industry that has learned how to normalize very tight inventories. We’ve really learned that we can do a lot more with a lot less sitting in reserves. The problem with that, if you’ve got really small reserves, you don’t have a lot of wiggle room. It doesn’t take many downtime production announcements to move this market in a huge way.”

Linville will provide an update on fertilizer cost and availability at the 2023 Northern Corn and Soybean Expo.

—Story and photo by Daniel Lemke, photos by staff, the Fertilizer Institute and NDSU



Dr. Bryon Parman is agriculture finance specialist at North Dakota State University.



Josh Linville (right), StoneX Group’s vice president of fertilizer, on a panel at the 2022 Northern Corn and Soybean Expo.

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WISHH is a program of the American Soybean Association and is funded in part by the United Soybean Board and state soybean board checkoff programs.

North Dakota soybean farmers found varying yields in their fields this fall, largely due to sporadic rainfall during the 2022 growing season. Following a very wet spring that delayed planting in many areas, generally dry conditions took a toll on yields for some locations while other places thrived.

“It’s been pretty variable,” says Randy Martinson of Martinson Ag Risk Management. “The southern third of the state, yields struggled. It was too wet for too long, so there were tough planting conditions, then heat at the wrong time. A lot of yields were a little disappointing, coming in at that 35 to 40 bushel per acre area. But once you got to about Interstate 94 and north, that’s when yields got to be good. I had some customers saying it was the best ever soybean crop for them; their yields were that good.”

Some variability is inherent with every growing season. Overall, Martinson expects a solid statewide soybean crop this year once the final yield results are gathered.

“I think we’re going to have a fairly decent crop when it’s all said and done,” Martinson states.

Despite a generally dry growing season across most of North Dakota, crops were able to tap into existing soil moisture. North Dakota Agricultural Weather Network (NDAWN) Director Daryl Ritchison asserts that soil moisture has sustained crops the past several years.

“The last three growing seasons, we lived off of a small duration, really wet period,” Ritchison explains. “This year, most areas lived off the spring.”

Planting was delayed in many areas of North Dakota due to wet conditions. That moisture was the most substantial rain some crops saw all season.

Ritchison says that average rainfall in western North Dakota during the core summer months

Solid Yields but Moisture Concerns

of June, July and August is about eight inches of rain. Eastern North Dakota typically gets about 10 inches in that same period. Some areas of the state were five to seven inches below average.

“That means they only got three, maybe four inches all summer. That’s why in a lot of areas, the soybeans really suffered. We didn’t get the yields because it just didn’t rain much in August over a lot of the state. The part of the state that did the best was in northeastern North Dakota because a lot of areas got a pretty good timely rain in August,” Ritchison says. He adds that some areas of the state didn’t pick up any appreciable rainfall after Memorial Day.

Down the Road

With the lack of summer and fall moisture over much of the state, there are real concerns for longer-term implications.

“The soil moisture is pretty much lacking everywhere,” Martinson states. “What I’ve been hearing is that we’re short and in desperate

need of some rain. Some guys aren’t even looking at doing fall tillage because the ground is so dry that it’s just pulling up lumps. A lot of guys are waiting to do some fall tillage. That means there’s not going to be as much fall-applied fertilizer because there’s nothing to activate it, so it could be another interesting spring.”

Ritchison explains that, in general, the top foot of topsoil is extremely dry in many areas of North Dakota. An October rain brought some relief, but only about 20% of the state got in on that rain, Ritchison estimates.

“I will say that below 12 inches, most of the state has a lot of soil moisture yet,” Ritchison contends, “It’s just that small grains and soybeans can’t get there, but corn and sugar beets can.”

North Dakota is still in the grips of a La Nina weather pattern. Ritchison describes how this La Nina has lasted three years, which only tends to happen once every 20 or 30 years. La Nina patterns favor drier weather for areas of the upper Midwest.

Recharge Needed

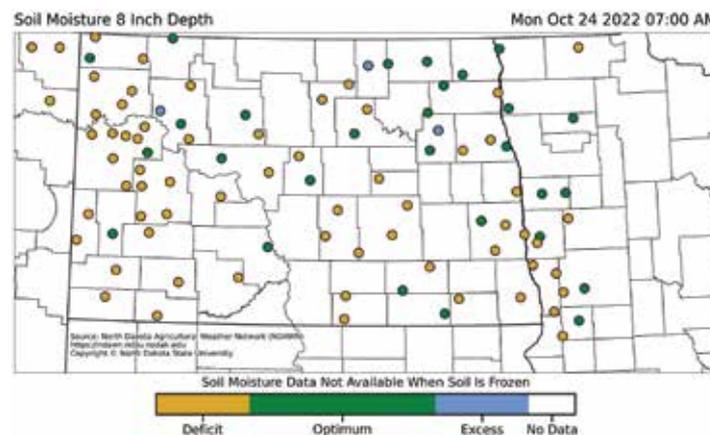
While soil moisture recharge is needed, fall and spring rains are most effective. Snow doesn’t typically offer much help.

“Our average liquid, what’s in the snow, that liquid equivalency precipitation from November 1 through March 31, those five months in most areas is very close to our average precipitation just in the month of June. That tells you that our winters tend to be dry here,” Ritchison says. “We don’t think of them as dry some years because you have to shovel 40 or 50 inches of snow. But within those 40 or 50 inches of snow, there may be just three or four inches of liquid. It’s really hard to do any catch up in the winter.”

Besides the fact that many North Dakota winters are relatively dry, most snow melt occurs when the ground is still frozen, so water typically runs off to fill streams and wetlands rather than soaking into the soil. The best opportunity to replenish soil moisture will come with rains next spring.

NDAWN soil-moisture readings show that much of the state is lacking soil moisture while other areas are in good shape. A few locations have an excess. Drought is likely weighing on farmers across North Dakota, but Ritchison says that a few timely spring rains can alleviate some worry.

“I understand that there are concerns, but it really would only take one good storm to get us off to a good start and give us the moisture that we could use for a while,” Ritchison contends. “If you’re concerned about the soil moisture moving forward into 2023, I obviously understand it. All the data suggests that what you’re thinking is true. I would just contend it only takes one or a couple of well-timed precipitation events to get us into a good start into 2023.”



Data collected from the North Dakota Agricultural Weather Network shows that many areas of North Dakota are lacking in soil moisture. (Graph source is NDAWN)

—Story by Daniel Lemke



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From Field to Table

Vicki Shanta Retelny had seen combines working in the fields before, but she had never gotten an up-close look at one in action until an October visit to Jim Thompson's farm as he harvested soybeans near Page, North Dakota. Shanta Retelny is a nationally recognized lifestyle nutrition expert, culinary and media consultant, and writer from Chicago. She has written several books and numerous magazine articles about health and nutrition.

"The ride in the combine was so fun because I'd never ridden in one," Shanta Retelny says. "It's just a unique opportunity to see how farmers actually harvest the soybeans; the respect and the time commitment and passion that goes into this was so great to see."

Shanta Retelny was one of several dietitians, nutritionists, social-media influencers and culi-

nary students who participated in the North Dakota Soy Nutrition Workshop and Farm Tour, which was sponsored by the North Dakota Soybean Council (NDSC).

"I love soy products. I've eaten soy products for most of my life, and I just enjoy the whole farming community and the initiatives that farmers do," Shanta Retelny explains. "I just think soy has such a great place in the diet. I wanted to learn more about the farming practices and also the latest research behind it."

"It was great that participants got to see the hard work and care that farmers put into their soybean crops each year," states Shireen Alemadi, the NDSC outreach and education coordinator. "For some participants, it was the first time they had seen how the combine works to harvest the soybeans and how much work it takes."

Food Focused

Alemadi describes how the goal of the North Dakota Soy Nutrition Workshop was to provide dietitians, influencers and culinary students with the opportunity to learn more about North Dakota's soybeans. In addition to seeing the soybean harvest, attendees learned where the soybeans go after harvest, how the crop is processed and where the soybeans are transported. In addition, the participants learned how to make soymilk and tofu during a demonstration at the Northern Crops Institute. Attendees also worked in teams to cook and to taste a variety of recipes that included a variety of soy-based ingredients.

"For many of us growing up in the Midwest, we didn't have a lot of soy," says Linda Funk, executive director of the Soyfoods Council. "Soy was certainly being grown around us, but we probably didn't

consume it directly."

Funk helped lead the North Dakota Soy Nutrition Workshop and Farm Tour to help dietitians and culinary students learn simple ways to include soy ingredients in their diets and the recipes they develop.

"It's not an all-or-nothing proposition," Funk explains. "It's really saying, how do you take baby steps to start adding some soy into your diet?"

In 1999, the Food and Drug Administration provided a health claim that states, if people consume 25 grams of soy protein per day in the context of a healthy diet, there may be a reduced risk of coronary heart disease. Coronary heart disease is the number one killer for both men and women across the U.S. Funk says that the health claim is what really started all the interest for soy protein. Since then, there has been positive research about breast-can-



The Northern Crops Institute provided demonstrations and discussion of tofu and soymilk processing.



Linda Funk visited the North Dakota Today morning show in Fargo to share about the benefits of preparing meals with soy. Linda showcased easy-to-make beef chili with texturing soy protein (TSP) and pumpkin parfaits.



Workshop participants included dietitians, nutritionists, social-media influencers and culinary students.

cer prevention, prostate-cancer prevention and bone health.

“If young girls between the ages of 8 and 18 consume one or two servings per day, it may prevent the risk of breast cancer later in life, up to 50%,” Funk adds.

Combo Platter

“Soy and meat work so well,” Funk asserts. “You can put edamame on a plate with a steak. You can do a chili that has hamburger and soy crumbles in it. There’s really just a myriad of different ways of adding soy to the diet.”

The opportunity to learn more about ways to bring some plant-based protein flexibility into diets is what intrigued Leah Roethel about the North Dakota Soy Nutrition Workshop and Farm Tour. Roethel is a clinical dietitian with the U.S. Department of Veterans Affairs in Fargo. Learning more about soy in nutrition was valuable, but she says that experiencing the soybean production and the soybean harvest was valuable as well.

“This has been an amazing experience just because I love seeing from farm to table,” Roethel explains. “I am not a farm girl. I know nothing of farming, so all of this has been really interesting for me. The involvement in the soil and the crop, and the timeline of it all, and what it all entails has been amazing. Then, I think the really cool thing is hearing where soy reaches from North Dakota all the way to China.”

Student Instruction

Following the Soy Nutrition Workshop and Farm Tour, the NDSC sponsored a culinary seminar for first-year and second-year students in the culinary program at North Dakota State College of Science (NDSCS) in Wahpeton. Students learned new recipes that used soy ingredients. Students were also tasked with preparing each dish as teams.

These students will soon graduate and work in restaurants across the country. Alemadi says that, by working with Linda Funk and Certified Executive Chef Amber Pankonin, the students were able to gain new knowledge about the heart-healthy ways in which soy ingredients can be incorporated into dishes. The students also gained new skills by working with the soy ingredients.

“Certainly, when those students graduate and begin working in restaurants, there’s probably going to be an area where there are

some plant-protein menu options created and listed,” Funk states. “So, it’s important for students to understand the soy-protein part of it. If people choose plant protein, soy should be the preferred plant protein because of the fact that it’s a complete protein with all of the nutritious attributes and benefits of that soybean. It’s important for those culinary students to really understand what soy is and how to use it.”

—Story by Daniel Lemke,
photos by staff



Certified Executive Chef Amber Pankonin, Linda Funk and NDSCS culinary student Alex Hilbrands prepares sirloin with a miso marinade.



NDSC Director Jim Thompson of Page provided a firsthand look at soybean production in North Dakota and invited participants to ride in his combine during soybean harvest.



NDSU's Soybean Iron-Chlorosis Ratings Available

Farmers should consider the soybeans' iron-chlorosis ratings when selecting soybean varieties for the 2023 growing season.

North Dakota State University's (NDSU) soybean breeding program conducts research every growing season to test the tolerance of soybean varieties to iron deficiency chlorosis (IDC).

"If farmers had IDC in their fields this year, they should consider using the NDSU tolerance ratings generated in 2022 and previous years, to select soybean varieties for 2023, to minimize

the chlorosis in their fields," says Dr. Hans Kandel, NDSU Extension agronomist.

During the summer of 2022, NDSU's soybean breeding program tested 225 Enlist, GT27, Roundup Ready and Xtend soybean varieties, as well as 32 conventional varieties, for IDC tolerance.

The test results were based on a replicated trial conducted at a location with a history of IDC. Visual ratings were given three

times during the growing season, at two-week intervals, and the ratings were averaged. The ratings were based on a 1 to 5 scale, with 1 indicating no chlorosis and 5 being the most-severe chlorosis.

"Soybean varieties differ genetically in how tolerant they are to IDC symptoms," states Dr. Carrie Miranda, NDSU soybean breeder. "The chlorosis expression differs from field to field, and this year, our trial location had severe IDC."

"The data generated is intended to compare varieties against each other for the specific conditions this year. The most-tolerant varieties will have the lowest IDC rating," Dr. Miranda continues.

This summer's tests showed significant differences among the soybean varieties. For example, the average ratings for the conventional group of varieties tested had a range from 2.3 (most tolerant) to 4.4 (the least-tolerant variety). The

test results are available at bit.ly/NDSUSoyVarietyResults

The IDC symptoms appear as yellowing leaf tissue between the veins while the veins may remain green. In a severely affected plant, the tissue will become brown, and tissue may die. Plants with chlorosis are often stunted, and growth and development are slow compared to healthy plants. Soybean plants may grow out of the chlorosis and become green again; however, yields are usually reduced due to the IDC.

Although IDC tolerance is important for soybean varieties, it is also critical to consider other variety traits and yield. Varieties with a similar IDC tolerance can vary greatly in terms of their yield potential.

—Story and photo courtesy of NDSU



Most of the research extension centers in North Dakota conduct soybean-variety trials. The results are reported on the NDSU variety-trial website at bit.ly/NDSURECVarietyResults



Find the soybean-variety selection tool at vt.ag.ndsu.edu

An iron-chlorosis rating scale is used to evaluate the IDC's tolerance.

Moisture Content is Important for OPTIMUM QUALITY When Storing Soybeans

Checkoff
Investment



Many times, necessity dictates a change in action. When the soybean trade embargos were instituted a few years ago, farmers had to store soybeans longer than usual. This situation led to the question of how long and under what conditions soybeans could be stored to retain optimal quality.

North Dakota State University (NDSU) Professor Dr. Kenneth Hellevang began looking into this question and found more issues that needed to be addressed.

“There are tables created for allowable storage of corn and soybeans that show parameters for length of time, moisture levels and temperature,” Dr. Hellevang explains. “But when I compared the tables, the similarities between corn and soybean were glaringly obvious. The soybean table seemed to be created by subtracting two percentage points from the corn

parameters. Of course, that gives us an estimate, but this is not based on solid research.”

The agricultural and biosystems engineering professor conducted a research project that looks at soybean storage. He and his team stored soybeans for 12 months under four moisture levels to measure mold growth, germination and seed quality. This work was supported by the North Dakota Soybean Council. Dr. Hellevang’s goal was to adjust or to confirm the data in the soybean storage table so that farmers can have the most-accurate information when it comes to keeping their beans at the highest quality.

Dr. Hellevang and his team conducted the research project on the NDSU campus and utilized chambers that can replicate North Dakota’s seasonal temperatures across 12 months. The researchers stored two common varieties of soybeans at moisture levels of

11, 13, 15 and 17%. Some of the soybeans were held at a constant temperature, and some soybeans experienced a sequence of temperatures from 72 to 40 to 5°F, mimicking a typical North Dakota meteorological year.

“The market standard for storing soybeans is at 13% moisture,” says Dr. Hellevang. “That works well for essentially 6 months of storage, where we’re harvesting and storing soybeans during the relatively cool months, but we have found this didn’t work as well for longer-term storage.”

Dr. Hellevang examined the soybean equilibrium moisture content. When a seed is put into a particular environment, such as 70°F and 60% humidity, the seed will come to a certain moisture content that is in equilibrium with the condition of the air. He selected a humidity level of 60% for this experiment to limit mold growth. He found that the equilibrium moisture content for soybeans in these conditions was just below 11%, rather than the market-standard 13%.

Dr. Hellevang also tested the option of storing soybeans at 15 and 17% moisture because, in many years, soybeans are harvested under wet conditions, and this amount of moisture in the crop is a possibility.

As expected, Dr. Hellevang and his team found that soybeans with 17% moisture content do not store well. The researchers saw significant mold development within one week at room temperature (72°F). The crop spoiled even quicker than they thought, according to Dr. Hellevang. They also saw significant mold growth with 15% moisture in the warmer temperatures.

Dr. Hellevang paid particular

attention to the soybeans with 13% moisture because of the market standard. The investigators found that the soybeans stored very well at this moisture percentage for up to six months, but going into summer temperatures, the amount of mold increased.

The researchers also measured the soybeans’ germination rates, which may be a factor for growers in areas that use soybeans for feed. At 15 and 17% moisture with a temperature of 72°F, the germination rate decreased after eight weeks of storage. The stored seeds showed signs of secondary infection, and mold spores were present on the germinated seedlings as early as the fourth week of storage.

“If soybeans are harvested and it’s 40 or 50° out, farmers can get by storing them in those cooler temperatures,” Dr. Hellevang states. “But anything stored in warmer temperatures and with 15 to 17% moisture content just doesn’t work. This emphasizes my recommendation that soybeans need to be closer to 11% moisture if the beans will be stored through the summer.”

The investigators have finished collecting the data for the 12 months of storage, and now, Dr. Hellevang and his Ph.D. student are analyzing the information. Dr. Hellevang hopes that the research will be wrapped up by this fall and that he will be able to make more accurate recommendations to farmers regarding optimum soybean storage.

—Story courtesy of the Soybean Research Information Network, photo by Wanbaugh Studios

For more research and information from Dr. Hellevang, visit bit.ly/NDSUHellevang



Proper soybean storage is vital to maintaining quality and maximizing profit potential.

Tracking **Supply Chain** Issues

Checkoff
Investment



For many areas of North Dakota, the soybean harvest occurred at a rapid pace, pushing millions of bushels of soybeans into the market in a matter of weeks. The sudden influx of soybeans is something that grain elevators, processors and shippers deal with every year. Ongoing supply chain issues surrounding transportation via both rail and barge threaten to make the annual exodus of soybeans from North Dakota more challenging than normal.

The vast majority of U.S. soybean exports occur between October and February. North Dakota's grain elevators move most soybeans in October and November in order to make room for corn.

"Guys are moving grain as fast as they can," says Stu Letcher, executive vice president of the North Dakota Grain Dealers Association. "I'm hearing that rail service is okay, not spectacular."

Like many industries, railroads are short of labor, which is further taxing the supply chain. The specter of a possible railroad strike is causing additional jitters throughout agriculture.

Strike Threat Returns

Labor negotiations hit a snag in mid-October when the Brotherhood of Maintenance of Way Employees Division (BMWED), a division of the International Brotherhood of Teamsters and the third-largest union representing rail workers, rejected a tentative labor agreement that had been reached in September, just days before a possible railroad-worker strike. The agreement was reached by the National Carriers' Conference Committee (NCCC), which represents the Class I railroads and 12 rail-worker labor unions.

After reaching the tentative labor agreement, each union was required to have its membership ratify the deal. The ratification

timeline for each union was different, with votes occurring from late September to mid-November.

The tentative agreement eased tensions in the ag industry for a while, but the rejection by the BMWED is renewing concerns about future grain movement and potential longer-lasting consequences.

"Any disruption would have a detrimental effect because railroads are short of labor as it is," Letcher states. "We were very concerned about the potential strike before harvest. A strike would cause a ripple that would last a lot longer than the stoppage itself. Effects of a shutdown could be felt for months or even years."

Despite the BMWED's rejection, railroad companies and the unions will maintain the status quo for now, meaning that BMWED workers will neither strike nor will the railroads lock them out before a period of continued negotiation.

If even one union does not reach a labor agreement, it is possible that all 12 unions will strike in solidarity. If a deal is not ratified by all 12 unions, per the tentative agreement reached in September, Congress will have a window to act and to prevent a potential stoppage.

Mike Steenhoek, executive director of the Soy Transportation Coalition, describes how, under normal circumstances, any rail disruptions would be very detrimental to agriculture. Compounding the rail issue is low water levels on many of the nation's inland waterways, particularly the Mississippi River.

"Right now, there's a lot of ag shippers who are looking to rail as the release valve because some of the facilities are not able to load barges," Steenhoek asserts. "If you are able to load, you can't load as heavy, and you can't put as many barges together. The economics of barge transportation with each passing day are diminishing. It's

at an exceptionally inopportune time with harvest, so this is the time where we need rail service to maintain itself and even, hopefully, improve. We do not need any kind of slowdown. We certainly don't need any kind of stoppage. That would really be punitive to our industry."

Neither the trucking nor the barge industry has the capacity to backfill the demand level that would be needed if a rail stoppage occurs. According to the American Soybean Association, the rail-stoppage threat in September led to barge-freight rates for grain reaching seasonal highs compared to previous years. The ongoing drought has resulted in barges coming to a halt on the lower Mississippi River. The barge and towing industry continues to institute barge size reductions. Since September 1, 40% fewer barges have been unloaded in New Orleans.

"Rail service is still not as predictable and reliable as it normally should be," Steenhoek explains. "The railroads are really trying to improve and get the necessary number of workers to service the industry. But I do envision more and more stress being imposed on our freight rail system just because I'm already hearing comments about farmers who can't deliver to their river terminals, so they're

having to resort to a more distant delivery where there's rail access. I'm hearing about export terminals that normally bring products in by barge, and they're going to try to have to bring it in by rail. It's going to contribute to some additional pressure on the rail sector."

Steenhoek says that the reduced barge capacity will mean increased competition for rail assets of all types, including locomotives, covered hopper cars, tankers and workers. He describes how areas of the country which are not served by inland waterways may still feel the pinch.

"There is going to be areas of the country that are quite far removed from the inland waterway system that, all of a sudden, will see challenges in being able to access their rail-freight needs, or they might have to pay more for it," Steenhoek contends. "That's because there's so much interconnectivity to our supply chain, so we're going to see some challenges with that moving forward."

Letcher states that he's unaware of increased rail competition in North Dakota due to barge issues, but he won't rule it out.

"We haven't seen any effects yet," Letcher asserts, "not to say that we won't."

—Story and photo by Daniel Lemke



Getting soybeans to market is no small feat as barge issues and the threat of a rail strike are compounding supply chain issues.



Soybean Farmers Provide \$1.3 million to Help Expand Soybean Meal Exports

To provide efficient access and to bolster international trade markets for U.S. soybean meal, the United Soybean Board, qualified state soybean boards (including the North Dakota Soybean Council) and the Soy Transportation Coalition will invest \$1.3 million in the research, analysis and design costs for the Port of Grays Harbor's Terminal 4 Expansion and Redevelopment Project. The terminal, located in Aberdeen, Washington, plays an important role with international exports.

"With future soybean processing in North Dakota and more across the country, farmers are very interested in opportunities to assist with the increased need for soybean meal export capacity," says Chris Brossart, North Dakota Soybean Council chairman and a Soy Transportation Coalition board member. "The more we can export a higher value product, like soybean meal, farmers will benefit. I'm proud of the soybean check-off's commitment to enhance and maintain U.S. infrastructure. Doing so helps sustain our competitive advantage over global competitors."

The farmers' total research investment of \$1.3 million is provided by the United Soybean Board, the Soy Transportation Coalition, the North Dakota Soybean Council, the Iowa Soybean Association, the Kansas Soybean Commission, the Nebraska Soybean Board, and the South Dakota Soybean Research and Promotion Council.

On October 28, 2022, the United States Department of

Transportation Maritime Administration (MARAD) awarded the Port of Grays Harbor a \$25.5 million Port Infrastructure Development Program (PIDP) grant for the Terminal 4 Expansion and Redevelopment Project.

Earlier this year, AG Processing, Inc. (AGP), an Omaha-based cooperative that owns and operates 10 soybean processing facilities in the Midwest, announced that it would expand its export terminal at the Port of Grays Harbor.

Scheduled to be operational in 2025, the upgrades will allow the AGP terminal to increase soybean-meal exports from 3- to 6-million metric tons. To accommodate the growth, the Port of Grays Harbor will expand the

rail infrastructure, allowing the terminal to handle the volume and to mitigate traffic congestion in the community.

"It is well established how investments in the Pacific Northwest will result in greater farmer profitability in the Midwest," states Mike Steenhoek, executive director of the Soy Transportation Coalition. "In turn, profitable farmers in the Midwest result in increased investments in the Pacific Northwest. AGP's expansion project at the Port of Grays Harbor is, arguably, the most immediate opportunity for soybean farmers to assist with the need for increased soybean-meal export capacity. The Soy Transportation Coalition and other farmer orga-

nizations are pleased to partner in this important project."

Established in 2007, the Soy Transportation Coalition is comprised of 13 state soybean boards, including the North Dakota Soybean Council; 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. For more information about the Soy Transportation Coalition, visit soytransportation.org.

—Story courtesy of the United Soybean Board, photo courtesy of Port of Grays Harbor



Soybean industry leaders, including the North Dakota Soybean Council, are investing in efforts to enhance soybean meal export capacity.



Getting It Right in Soybean Production December 20, 2022

and marketing.

Attendees will also receive a list of several pertinent Extension soybean production resources as reference materials that are supplemental to the presentations. Certified crop adviser continuing education credits will be available for meeting participants.

The conference will be conducted by NDSU Extension and is supported by the North Dakota Soybean Council.

—Story courtesy of
NDSU Extension, photo
by Wanbaugh Studios

The December 20th webinar is free to attend, but pre-registration is required at bit.ly/NDSUGettingItRightSoy22. Everyone who preregisters will receive emailed instructions about how to participate.



Soybean producers and crop advisers who are interested in soybean-production management updates should plan to attend the Getting it Right in Soybean Production conference on Tuesday, December 20, 2022, starting at 8:30 AM CST and ending at noon. This online-only conference will be hosted on Zoom.

“Every year, soybean crop

production depends on many timely decisions producers need to make,” says Hans Kandel, North Dakota State University (NDSU) Extension agronomist for broadleaf crops. “As new research-based production information is generated annually, it is important for producers to gain as much practical and new knowledge as possible.”

“This soybean educational event will provide tips and suggestions

that can help producers with soybean-production decisions for the 2023 growing season,” states Greg Endres, Extension cropping systems specialist and co-organizer of the event.

Topics that will be covered are variety selection, planting date and late-maturing varieties, seeding rate row spacing, cover crops, nutrient management, weed control, soybean insect and disease updates,

Pigweed Awareness Video Campaign

Increasing Awareness and Risk of Palmer Amaranth and Waterhemp in North Dakota

Featuring Dr. Joe Ikley,
NDSU Extension Weed Specialist

NDSU Extension Weed Specialist
Dr. Joe Ikley provides updated
Palmer Amaranth information
and management practices for
North Dakota famers
in his new video series.

To watch, visit:
bit.ly/NDSUIkleyPigweedVideos



North Dakota
Soybean Council
Our World Is Growing.

SAVE THE DATE!



Plan to attend. Plan to grow.

February 14, 2023 | Fargodome, Fargo, ND | 7:30 a.m. - 4:45 p.m.

Tentative Agenda Topics Include:

- Fertilizer Outlook
- Global Market Outlook
- Animal Agriculture Panel
- Farm Bill Update
- Weather Outlook
- Biofuel Panel
- Pigweed Management
- And More!

Producer registration for the Northern Corn and Soybean Expo will open on January 4, 2023 at NorthernCornSoyExpo.com

Proposed Bylaws Revisions

The North Dakota Soybean Growers Association's Board of Directors has recommended the following revisions. The changes will be discussed during the association's annual meeting on February 14, 2023, at the Fargodome.

The association is redistricting due to the movement of soybean acres across the state. The appointment and term information for the ASA board members was added because that role was not previously addressed in the bylaws. The association has added a

third ASA director, effective Oct. 1, 2022. If adopted, elections held on February 14, 2023, will be for these districts. These district changes take effect July 1, 2023.

ARTICLE III

Section 1. The affairs of the Association shall be managed by its board of directors. At least ~~fourteen~~^{fifteen} (145) members of the board shall be, at the time of election or appointment an actual producer of soybeans, either as a farm operator, owner or manager.

Section 2. Eight (8) directors shall be elected from the districts described in Section 3 of this Article. Up to three (3) directors-at-large and the current year Corteva Young Leader (1) shall be appointed by the board of directors. The ~~two~~^{three} (3-2) ASA National Directors are full members of the NDSGA Board of Directors and have full voting rights.

Section 3. The districts to be represented by the eight (8) directors shall comprise the following areas:

- District 1.
Dickey, Ransom, Richland, Sargent Counties One Director
- District 2.
Dickey, Adams, Bowman, Emmons, Grant, Hettinger, LaMoure, Logan, McIntosh, Sioux, Slope Counties One Director
- District 3.
Cass, Griggs, Traill Counties One Director
- District 4.
Barnes, Kidder, Stutsman, Foster, Eddy, Benson Counties One Director
- District 5.
Benson, Eddy, Foster, Nelson, Wells Griggs, Steele, Barnes Counties One Director

- District 6.
Cavalier, Grand Forks, Nelson, Pembina, Towner, Ramsey, Walsh Counties One Director
- District 7.
Bottineau, McHenry, Pierce, Rolette, Renville Towner, Mountrail, Burke, Divide, Ward, Williams Counties One Director
- District 8.
Wells, Kidder, Hettinger, Adams, Bowman, Slope, Sioux, Emmons, Burke, Billings, Burleigh, Divide, Dunn, Sheridan, Golden Valley, Grant, McKenzie, McLean, Mercer, Morton, Mountrail, Oliver, Stark, Williams Counties One Director

At the annual meeting of the Association where these bylaws are adopted, two (2) directors shall be elected for a one-year term; three (3) directors for two-year terms and three (3) directors for three-year terms. No director shall serve more than two consecutive terms.

ASA Directors shall be appointed to a three-year term, with the number of terms not to exceed the term limit stated in the ASA bylaws.

A director elected or appointed for less than one-half year of a full term to fill a vacancy or a new directorship by an increase in the number of directors shall be eligible to serve two subsequent consecutive three-year terms.

At subsequent annual meetings of the Association, all directors shall be elected for a three-year term.

Current District Map



Proposed District Map



FULL-CIRCLE RETURN

HERE'S HOW THE SOY CHECKOFF WORKS. The national soy checkoff was created as part of the 1990 Farm Bill. The Act & Order that created the soy checkoff requires that all soybean farmers pay into the soy checkoff at the first point of purchase. These funds are then used for promotion, research and education at both the state and national level.



Half goes to the state checkoff for investment in areas that are a priority for that state.

Half goes to the national checkoff for investment in USB's* long-range strategic plan.

* Led by 73 volunteer soybean farmers, the United Soybean Board (USB) invests and leverages soy checkoff dollars to MAXIMIZE PROFIT OPPORTUNITIES for all U.S. soybean farmers.



Evan Montgomery
Grand Forks, North Dakota

Tell us about your farm.

I grew up on my family's Montgomery 5th generational farm near Manvel, where I helped my dad and grandfather farm. I went to college at North Dakota State University for a music degree and then came back home and joined a community choir where I met my wife, who happens to be from a farm family also. I started my own farm around 2011, and I have been operating my own small, personal farm since then in addition to helping my father on the Montgomery Farm. Additionally, my wife and I are managing partners in her family's farm, located southwest of Grand Forks.

What do you like best about farming?

Farming is such a complex industry that it's never, ever boring. There are always aspects to learn from and do things differently next year. It is probably the most exciting career I can think of.

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

After I got my music degree, I was in the process of auditioning for grad schools, professional choirs and young artist programs. A professional singer I met told me that having a child was one of the hardest things she had done in her performing career. That made me re-evaluate a career in music full time. During college, I had always returned to the farm when I could and helped. I realized farming was a constant in my life and chose farming as my career.

What's the most exciting thing about finishing up harvest season?

We make a lot of different management decisions throughout the growing season and are always experimenting. I really like reviewing field maps and seeing what worked and what didn't work over the season. After the flurry of harvest is over, I really like to sit down and review the lessons to be learned with each crop year. I try to apply those

lessons the next year. When I learn things the hard way, it usually sticks.

How and why did you get involved with the North Dakota Soybean Council (NDSC)?

I have a deep drive to learn. I have only been to two NDSC meetings, and I have learned a ton in the very short time I have been on the board. There are fellow directors to learn from on the board who have a tremendous wealth of knowledge. The staff is fantastic, and I continue to be very impressed. When you surround yourself with smart people, maybe you'll get to be smarter. Also, my family and I have grown soybeans in this region on a variety of different ground, and we've experienced a variety of different agronomic and marketing challenges. I wanted to bring my experiences to the board to try and help these challenges.

Why are soybeans part of your crop mix?

Soybeans are a very good rotational crop. With all the new chemical systems now, soybeans give us an opportunity to get a different chemical system into the rotation, which has been helpful for weed control. Soybeans also help us reduce our nitrogen fertilizer use. It's also exciting to see the advances in the new varieties. We've been seeing yields we never thought would be possible in my area over the last few years.

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

During the time period of China's tariff on U.S. soybeans, the situation really highlighted the steady rise of soybean and corn production, and shone a light on how few market options we have for soybeans, relative to our growing production.

I'd like to see a continued growth in end-user opportunities, similar to other areas of the country that have a longer history of growing soybeans.

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

Since I was a kid, today's auto-steer, highspeed tillage and planting technology has been exciting. The advancement on sprayer technology today is also incredible. With every step we climb on the technology ladder, I am cautiously excited about what the future holds. I hope tractors will always have at least the option for steering wheels.

What changes do you expect to see on your farm in the next 5 to 10 years?

Everything is getting bigger and faster. When I was a kid, we had an 8-row corn head, and then, we had a 12-row header, and now, we just got an 18-row header. We're able to do more with less . . . less people and fewer, but bigger, equipment.

What do you like to do outside farming?

I enjoy hanging out with my kids. I am still a "practicing musician" when I find time. I am a singer and a board member with the Grand Forks Master Chorale.

If you could go anywhere, where would it be?

My family has a lot of Scottish ancestry, so I'd love to go to Scotland. I'd also love to go to Japan and try some fresh sushi.

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

I would say self-propelled sprayer along with autosteer.

—Story and photo by staff

Evan is a North Dakota Soybean Council director. To learn more about serving on the North Dakota Soybean Council as a county representative or board member, visit bit.ly/NDSCselections23

Getting to Know the Expert



Naeem Kalwar
Soil Health Specialist, North Dakota State University (NDSU)
Langdon Research Extension Center (REC)

Where did you grow up?

I grew up in Pakistan in a small city called Tandojam, which was and still is very unique as it is an agricultural hub and is home to an agricultural university. I immigrated to Canada in 2006.

Tell us about your education.

I completed my bachelor's and master's (degrees) in soil science

from the Tandojam Agricultural University. After working for Engro Chemical Pakistan Limited from 1995 to 2006, I immigrated to Vancouver, British Columbia, in 2006 and completed another master's degree in land resource science from the University of Guelph, in Guelph, Ontario.

What interested you in that field?

I was interested in playing

professional cricket for Pakistan and picked agriculture because the agricultural university was close to my home. However, once I started studying agriculture, I realized that I really liked it. Agriculture was also in my blood as my father's family farmed and had livestock. I reluctantly took soil science as my major because I wanted to be an agronomist like my father, but I developed a love for soils, which I still possess.

What brought you to NDSU?

I wanted to find a job in Canada with a focus on soils, however, I could not find one. I saw an opening for NDSU Extension soil health positions in Langdon and Minot. I was pleasantly surprised when I was offered the job in 2012. I accepted it and am very grateful for the opportunity.

What is your focus at the REC?

My main focus is to help producers, landowners, Extension agents and others with soil health-related issues. Most of my time is spent on Extension outreach efforts. I also have soil health related research and demonstration projects for which, currently, we do not have very good answers. Examples include a

long-term tiling project on saline and sodic land to assess negative impacts of sodicity on tiling, assessing salt and sodicity tolerance of trees and shrubs and annual crops at different levels, comparing no-till versus conventional-till and comparing perennial grains such as Kernza. I do this research to find local answers for our stakeholders to see if something will work in North Dakota or not.

What do you like best about your work?

I love working with producers and other stakeholders to remediate and prevent soil health issues. Soils are the foundation of everything. We can live without other stuff but not without essentials such as food.

What do you like to do away from work?

I like to spend time with my wife and four children, including taking them to places that are on our bucket list, which is long. I also like cars, guns, and hunting; and watching western movies and old TV shows, such as Little House on the Prairie. I also like to exercise when there is an opportunity.

—Story by Daniel Lemke, photo courtesy of Message in Motion

Bean Briefs

Supreme Court Case Could Affect WOTUS

The U.S. Supreme Court kicked off a new session in October with oral arguments in *Sackett v. EPA*, a case where the court will consider the proper test for determining whether wetlands are “waters of the United States” (WOTUS) under the Clean Water Act. The case traces back to a long-running dispute between two Idaho landowners and

the U.S. Environmental Protection Agency (EPA) about an area of their property that was deemed wetlands by the agency. According to the landowners' lawyer, the property lacks a surface-water connection to any stream, creek, lake or other water body, and the owners believe that the land shouldn't be subject to federal regulation and permitting. The landowners were victorious in 2012 when the high court ruled

that they could challenge the EPA's compliance order requiring the restoration of the purported wetlands. Although the EPA withdrew the compliance order, in August 2021, the Ninth Circuit issued a decision affirming the EPA's wetland determination, which is now in question.

This case comes at a pivotal time for WOTUS because the EPA and the U.S. Army Corps are in the first of a two-step WOTUS rulemaking,

despite numerous requests from Congress and the industry to pause the effort. Ag groups argue that the federal rulemaking to define “waters of the U.S.” should not coincide with the conservative-majority court's case, which is widely expected to contradict the Biden administration's WOTUS rulemaking and require yet

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another regulatory rewrite. The final Step 1 rule is expected later this year, whereas the court is expected to issue its Sackett ruling in early 2023.

The American Soybean Association and other groups submitted a joint amicus brief to the U.S. Supreme Court regarding *Sackett v. EPA*, outlining the plight of ag producers who are faced with overly broad and vague WOTUS standards. The brief argues that the court cannot trust the agencies to implement the court's holding unless that holding is precise and clear and calls for a stern warning from the court to the agencies to stop evading the court's rulings.

Legislation Seeks Ag Exemption for SEC Reporting

Oklahoma Congressman Frank Lucas has introduced the Protect Farmers from the SEC Act legislation which would exclude agriculture from the U.S. Securities and Exchange Commission's (SEC) climate-disclosure rulemaking.

Specifically, the Protect Farmers from the SEC Act prohibits the SEC from requiring an issuer of securities to disclose greenhouse-gas emissions from upstream and downstream activities in the issuer's value chain that arise from a farm; defines the production/manufacturing/harvesting of an agricultural product through the Agricultural Marketing Act of 1946, outlines upstream and downstream activities, and defines greenhouse gases; and removes the SEC's exemptive authority in relation to this act.

The bill has support from more than 81 original co-sponsors as well as agriculture groups and industry stakeholders across the country. American Soybean Association (ASA) Director Pam Snelson from Oklahoma shared the organization's support for the bill: "As its name implies, this legislation would

protect our soy farmers and others from SEC rulemaking that would place cumbersome, costly regulatory and reporting requirements on our farmers without real benefit to what the commission aims to accomplish."

The proposed rule has been widely criticized by agriculture groups. On June 17, a coalition of 10 national agricultural organizations, including the ASA, submitted comments to the SEC regarding the rule. The organizations argued that the SEC should exempt agriculture from the proposed rule because the requirement would be "wildly burdensome and expensive" for farmers, especially small and mid-size growers who couldn't afford the overhead required to comply. The rule would require corporations to disclose information about their direct greenhouse gas (GHG) emissions, indirect emissions from purchased electricity or other forms of energy, and supply chain emissions. While the proposed rule is aimed at public companies, mandating the disclosure of supply chain emissions would place a burden on growers who supply commodities to public entities.

Kenya Lifts Ban on Genetically Modified Crops

In October, Kenyan President William Ruto announced that his country's government is lifting its ban on genetically modified crops by authorizing open cultivation and importation of white, genetically modified (GM) maize. In a statement from his office, President Ruto said that the government's decision to lift the 2012 ban is in response to the drought that has exposed millions of Kenyans to famine.

The American Soybean Association (ASA) is extremely supportive of the Kenyan government lifting the ban on GM crops and filed joint comments with the U.S. Soy Export Council (USSEC) to the U.S. trade representative regarding the key objectives for a U.S.-Kenya

partnership. Citing a 2019 report from the ASA and the World Initiative for Soy in Human Health about the U.S. soy opportunities in Kenya, the comments outlined the report's findings that soybean meal is the preferred protein source of Kenyan animal feed manufacturing. Still, local production is very limited; the demand is expected to rise through 2030 while the population and economy are expected to grow. The USSEC has been following the potential future market in Kenya since 2017 and, in the comments, joined the ASA to reiterate that the main obstacle to exporting U.S. soy was Kenya's 2012 regulatory ban on the import of GM crops.

Administration Addresses Fertilizer Prices

In an effort to increase American-made fertilizer production, the White House announced that it will make \$500 million available to promote competition and to combat price hikes on U.S. farmers resulting from the war in Ukraine. The new grant program will be administered by the U.S. Department of Agriculture (USDA)—the Fertilizer Production Expansion Program—and will use Commodity Credit Corporation funding. According to the USDA's press release, "Grants will be used to support independent, innovative and sustainable American fertilizer production to supply American farmers. Funds also will expand the manufacturing and processing of fertilizer and nutrient alternatives in the U.S. and its territories."

The American Soybean Association has been a strong proponent of measures to mitigate the recent extreme price increases for the fertilizer that is needed by America's farmers to produce crops.

Soy Growers Work to Protect Organophosphates

The American Soybean Association (ASA) urged the Environmental Protection Agency (EPA) to deny a

petition seeking to cancel uses and to revoke tolerances of 15 different organophosphate pesticides (OP). Through both ASA-specific comments and stakeholder-coalition comments, the ASA's message to the EPA is clear: Maintain the availability of crop-protection tools such as organophosphate pesticides to help farmers continue safe, affordable and sustainable food production.

In the coalition's comments, the groups address the broader economic harm that would result should the EPA grant this petition as well as providing an analysis about why this petition is not scientifically justifiable. If the agency moves forward and grants the petition, the groups fear that it would cause immediate, significant and irreparable harm to U.S. agricultural producers. The coalition's concerns include increasing pest-resistance challenges that will harm the growers' ability to protect their crops in the future; undercutting public-health efforts intended to protect people from insect pests, such as mosquitoes; and disrupting trade and undermining domestic and global food security.

The ASA also submitted soybean-specific comments outlining the harm that growers will face should the petition be granted. U.S. soybean farmers currently use several of the 15 pesticides listed in the petition, specifically acephate, dimethoate and phorate, to protect against damaging insect pests. The ASA described the millions of dollars in yield losses which the domestic soybean industry loses to insect pests yearly and reminded the agency that, if OPs were revoked, the losses from insect pests could increase significantly. The comments provided the example that, if left unchecked, "soybean aphids and stink bugs—both insects for which acephate is registered for use in soybeans and can help control—can inflict yield losses up to 40%."

—Story by staff

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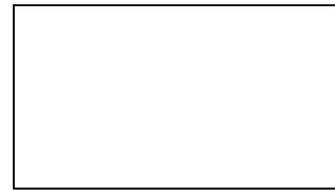
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