

✓ SPRING 2023

# SOYBEAN NEBRASKA

*A Publication of the Nebraska Soybean Association and the Nebraska Soybean Board*

## INVESTING IN INNOVATION

**20-21**

Developments within the soybean breeding program at the University of Nebraska–Lincoln.

**24-25**

Soy-backed turf is taking center stage in Nebraska.

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The Nebraska Soybean Association (NSA) and the Nebraska Soybean Board (NSB) are proud to share the FY23 Spring edition of this publication with you—members of our shared community.

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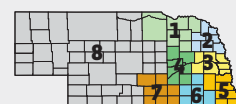


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The Nebraska Soybean Board is a private, nonprofit checkoff board responsible for the research and promotion of soybeans in an effort to increase the profitability of the state's 22,000 soybean producers.

### Nebraska Soybean Board Members

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- District 2**  
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- District 3**  
Ruth Ready, Scribner
- District 4**  
Eugene Goering, Columbus
- District 5**  
Brent Steinhoff (Treasurer), Syracuse
- District 6**  
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- District 7**  
Doug Saathoff (Chairman), Trumbull
- District 8**  
Blake Johnson, Holdrege
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- Andy Chvatal
- Thomas Hoxmeier
- Lois Ronhovde
- Wesley Wach
- Teri Zimmerman

## On The Cover

Dr. George Graff gives a tour of the soybean breeding plots near Mead, NE.

Photo credit: Thomas Hoxmeier



## Note from the EXECUTIVE DIRECTOR



By Andy Chvatal

I am truly humbled to be back and working on behalf of Nebraska's soybean farmers and grateful for the opportunity to continue advocating for the success of agriculture in this great state.

When I was a young boy, someone asked my dad why he chose to be a farmer. His reply was quick and simple—life. Farmers and ranchers get to experience life every single day. Whether it's a soybean cotyledon trying to push through the topsoil, a newborn calf attempting to find its feet for the first time or simply raising our children to relish the special and important moments. Those moments are the reason why my wife, Ashley, and I decided to move back toward the family farm two years ago. We want our three girls to experience the hard work and commitment that is needed and appreciate the lessons learned on the farm, both the good and the bad.

Similar to your own operation, my goal at the Nebraska Soybean Board is to get better, day after day. Every grower meeting, every proposal received and every growing season—how can we make small changes to continually move the needle forward? This publication will have a focus on research. We collaborate with the University of Nebraska–Lincoln on research in multiple facets, some of which are on-farm, on-campus and around the world. We also work with other state, regional and national organizations on separate research initiatives in order to create a better soybean seed, a higher return on investment and a larger customer base for your operation. We value your input and creativity, and we would love to hear any ideas that could help our team push the needle forward for you.

Many blessings from my family to yours during this upcoming planting season!



## View from the Chair

# SOYBEAN RESEARCH

By Doug Saathoff  
NSB Chairman, Trumbull



Another winter is quickly ending, and spring fieldwork and planting are right around the corner. We hope so, anyway. I am sure Nebraska weather will give us one last shot of cold air before spring decides to stick around for good.

Spring is a busy time for the Nebraska Soybean Board (NSB). We all travel a lot, representing Nebraska soybean producers at various events, but the main thing we have going on this spring is our annual production and crop research meeting. The board of directors have spent hours looking through new proposals that were submitted by University of Nebraska–Lincoln researchers for funding and then rating each one on its benefits to Nebraska soybean producers. These projects range from breeding to biotechnology to food use to pest management, both insects and weeds, in addition to many other research-related areas. Along with NSB's board of directors, there is a trusted advisory team that comprises expert members of the soybean industry that evaluates each proposal.

For fiscal year 2024, NSB will review close to \$2.3 million in new and continuing research projects. As I said before, we always ask ourselves how each project will benefit the Nebraska soybean farmer. If that criterion is not met, then there is no reason to fund those projects. Many research projects take time to develop benefits for the farmer. That can be tough because we all want to see results immediately, and being patient is difficult. At least for me it is. One thing I do know is that the researchers will work tirelessly to give us the tools to produce the best soybean crop in the world.

I want to update you on a few exciting things happening with NSB. First, we have welcomed Andy Chvatal as our new executive director. Andy brings a wealth of knowledge about agriculture and also has some previous checkoff experience that will keep NSB moving in the right direction. Secondly, in January, we welcomed Blake Johnson from Holdrege as the new NSB director to represent District 8. We are excited to have both Andy and Blake on board, and if you see them, introduce yourself and welcome them to NSB.

With that, have a safe spring and happy planting.



Soy Action Center:

# SPRING POLICY MEETINGS

By Doug Bartek, NSA President, Wahoo



The spring season, is off to a busy start for Nebraska Soybean Association leaders.

This past month I joined Nebraska soybean directors and attended the American Soybean Association's (ASA) March meeting in Washington D.C. During the course of the meeting, we participated in Capitol Hill visits with members of Nebraska's Congressional delegation. ASA Directors Ken Boswell and Dennis Fujan, along with state director Kent Grotelueschen and myself met with Senators Deb Fischer and Pete Ricketts and Representative's Adrian Smith, Mike Flood and Don Bacon. We highlighted our top policy priorities such as funding for the 2023 Farm Bill programs, infrastructure improvements, EPA regulatory concerns and trade expansion **(Image 1)**.

The 2023 Commodity Classic was held in Orlando, Florida in mid-March was where our state leaders had the opportunity to engage in a multitude of educational break-out sessions and attend a trade show featuring the newest farm technology, equipment and crop products. NSA directors also participated in ASA's voting delegate session where we discussed and voted on soy policy priorities for the upcoming year.

In the Nebraska Legislature's Revenue committee, NSA Director Lucas Miller presented testimony in support of LB 180 introduced by State Senator Tom Brandt of Plymouth. This is a bill to incentivize the retail sale of biodiesel in Nebraska **(Image 2)**. LB 180 is modeled on similar legislation that passed last year for ethanol and is intended to incentivize the retail sale of higher biodiesel blends. Many surrounding states have similar biodiesel incentives. This bill would add value to Nebraska soybean growers and benefit the environment.

The advocacy work by NSA leaders is supported through your voluntary membership dues and strategic partnerships. Think of it as an insurance policy to protect your farming interest when you can't always be there. Contact our office at 402-441-3239 to check on the status of your membership or to join as a member and support our work in 2023.

As planting season approaches, I wish you a safe and productive year.



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nesoybeans.org

## 2023 President

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Lucas Miller, Randolph – District 2

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Ken Boswell, Shickley

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Dave Larson ..... Sales Director



## Meet Blake Johnson, Newest Nebraska Soybean Board District Director

### What does your farming operation look like?

I am Blake Johnson, a fifth generation farmer from Holdrege, Nebraska. I am part of 37 Ag. Inc., a family farming operation with my wife, Holly, and three sons, Grady, a new graduate from the University of Nebraska–Lincoln, Quinn, a freshman at University of Nebraska–Kearney, and Jett, a freshman at Holdrege Public Schools. We grow mainly irrigated corn and soybeans. We also have a few dryland acres where we incorporate winter wheat into the rotation.

### How has your operation adapted over the years, and how is it approaching the upcoming years?

Our operation has changed a lot over the last 35 years. It started with conventional tillage and gravity irrigation, and then transitioned into center pivot irrigation with no-till farming practices. During that transition, we went from using 35 inches of water down to 8-10 inches to water our crops. Mother nature has influenced our rotation over the years as well. We started with continuous corn cropping for several years until the rootworm beetle built up resistance to all modes of action. Then, we moved to a 50/50 corn and soybean rotation until recently, as weed resistance has become a problem. At this current time, we run a 75/25 corn and soybean rotation.

### What is an important benefit that the Nebraska Soybean Board has for farmers/farms across the state?

The Nebraska Soybean Board is a vital part of the soybean industry in Nebraska. We continue to find ways to increase demand by finding new markets and uses for soybeans and by bolstering our supply by partnering with Universities and Extension to help find ways to fight weed resistance and pest pressure.

### As a district director, what is a goal or area of the checkoff that you are excited about getting involved in?

As a district director, I am excited about the biodiesel and renewable fuels industry. We use a lot of diesel on our operation, and we are going to make soy biodiesel a part of it whenever possible.

### In one sentence, why do you enjoy farming?

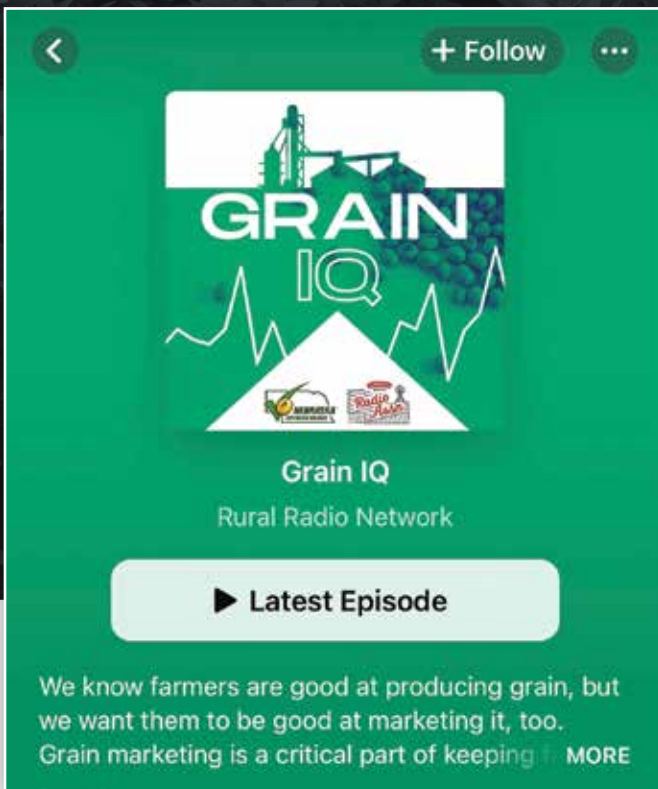
I enjoy farming because every year is different, and you have to adapt to an ever-changing industry and environment.

### What is one thing that amazes you about the power of soy?

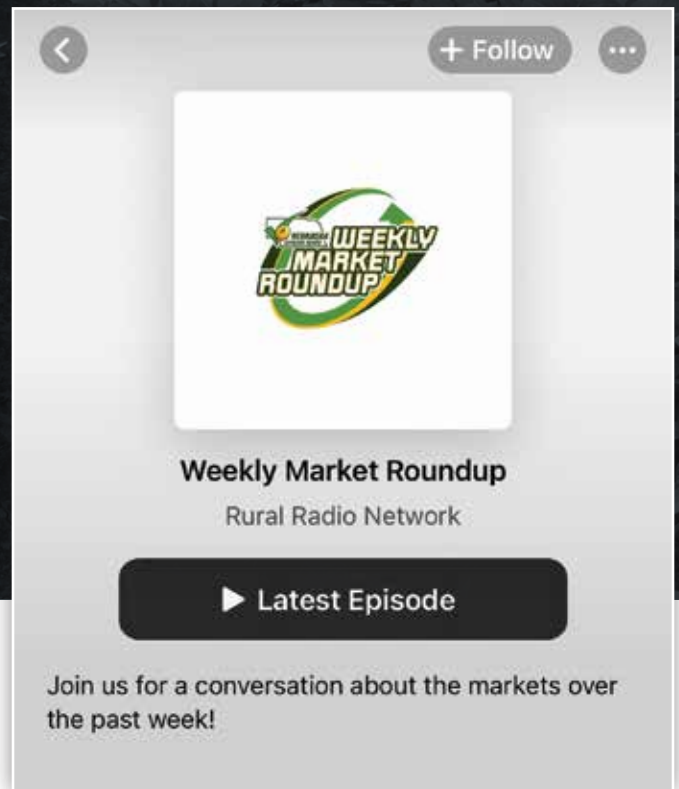
When you look at the demand for biodiesel, renewable diesel and sustainable aviation fuel, it really is going to be an exciting time for soybean growers in Nebraska and across the country.



# LISTEN AND LEARN



**Grain IQ** is your grain marketing podcast. Market trends, analysis, tips and other relevant topics are at the heart of this program. The podcast provides insights and perspectives from industry experts and professionals and covers topics such as weather, logistics and other factors that affect the grain industry.



**The Weekly Market Roundup** on the Rural Radio Network is a weekly radio program, also available in video and podcast formats, that provides farmers and ranchers with the latest market information and analysis. The program features discussions with experienced market analysts and brokers and covers a wide range of topics, including commodity prices, weather forecasts and industry news.



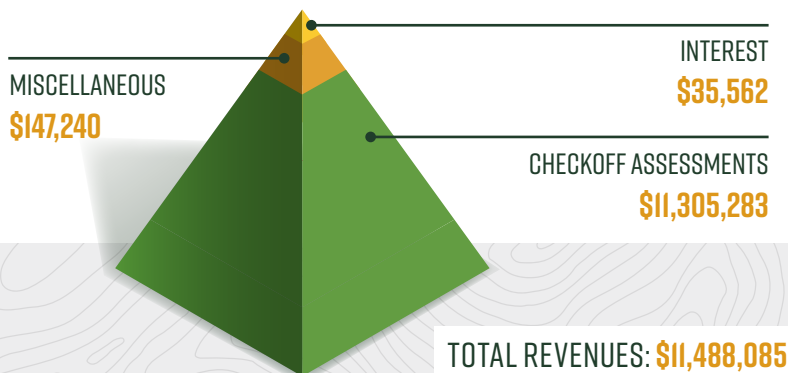
Listen to Grain IQ and the Weekly Market Roundup on Spotify, Apple Podcasts, Google Podcasts, YouTube or [ruralradionetwork.com](http://ruralradionetwork.com).



# NEBRASKA SOYBEAN BOARD FUNDING & EXPENDITURES

for Fiscal Year 2022

## FUNDING REVENUE



## NET ASSETS

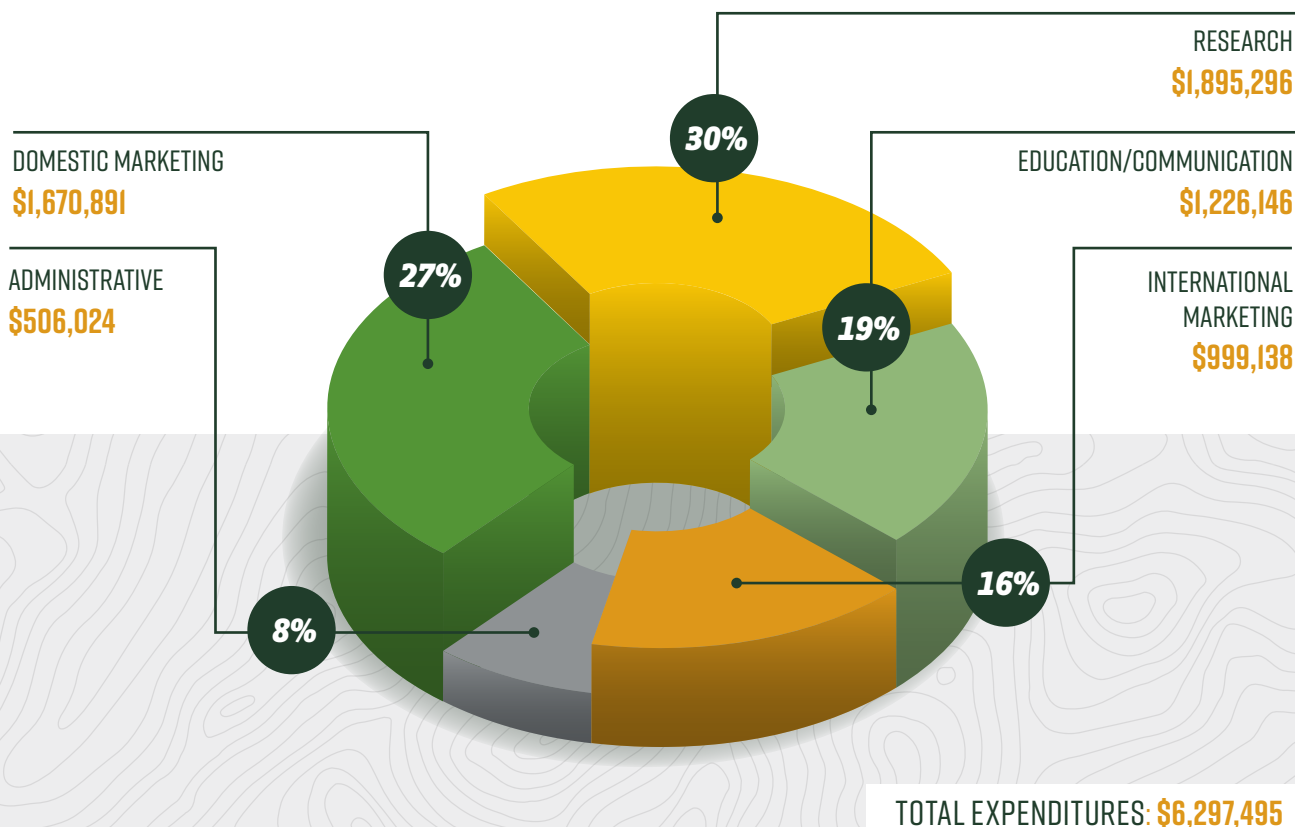
BEGINNING OF YEAR:

**\$8,248,803**

END OF YEAR:

**\$13,439,393**

## EXPENDITURES





## YOUR MEMBERSHIP SUPPORTS YOU HERE.

What do Nebraska soybean farmers consistently rank as a top concern? **State and federal regulations.**

The Nebraska Soybean Association (NSA) provides Nebraska soybean farmers with leadership in promoting effective policies and legislation. The NSA represents its members on a state and federal level while working cooperatively with the American Soybean Association.

Soybean checkoff dollars cannot be used to lobby or for legislative activities, which is why your NSA membership is vital to the profitability and sustainability of the industry in Nebraska.

Visit **[nesoybeans.org](http://nesoybeans.org)** to learn more.



## YOUR CHECKOFF SUPPORTS YOU HERE.

In 1991, the U.S. Congress passed a provision as part of the 1990 farm bill to form the soy checkoff at the request of soybean farmers.

Soybean farmers make individual contributions of 0.5% of the market price per bushel each season. Half of that contribution goes toward the national checkoff—the United Soybean Board—and the other half gets invested in-state, through the Nebraska Soybean Board (NSB).

Led by nine volunteer soybean farmers, NSB invests and leverages soy checkoff dollars through production research, marketing, promotion, new product development and education to maximize profit opportunities for soybean farmers.

Visit **[nebraskasoybeans.org](http://nebraskasoybeans.org)** to learn more.

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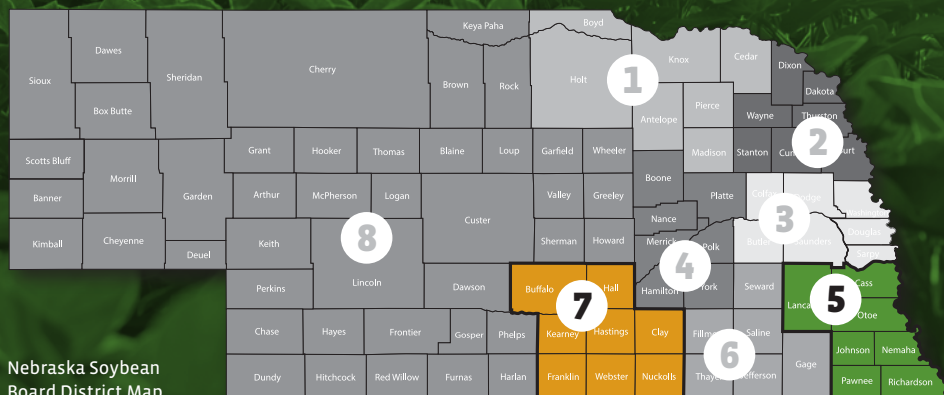
**[www.agp.com](http://www.agp.com)**

# SOYBEAN FARMERS: YOU ARE THE VOICE OF YOUR DISTRICT.

LET IT BE HEARD DURING THE 2023 BOARD MEMBER ELECTIONS.



## Districts 5, 7 & At-Large



Nebraska Soybean  
Board District Map

ELECTION SCHEDULE

2024



Districts 1, 3 & 6

2025



Districts 2, 4 & 8

The election is conducted by mail-in ballot in July for Districts 5, 7 and the At-Large position. Soybean farmers who reside in counties that are up for election in 2023 will receive ballots and candidate information regarding NSB's election process via direct mail.

### Election districts and counties are:

- ✓ District 5: Counties of Cass, Johnson, Lancaster, Nemaha, Otoe, Pawnee and Richardson
- ✓ District 7: Counties of Adams, Buffalo, Clay, Franklin, Hall, Kearney, Nuckolls and Webster
- ✓ At-Large: All counties in Nebraska

### To apply for a candidacy in District 5, 7 or At-Large you must:

- ✓ Obtain an NSB Candidacy Petition by contacting NSB at (402) 441-3240
- ✓ Complete the petition and collect the signatures of at least 50 soybean farmers in their district
- ✓ Return petition to NSB office on or before April 14, 2023

### Nebraska Residents Cast the Deciding Vote

Our shared soybean farmer community determines electoral winners. These voters must be:

- ✓ Nebraska residents
- ✓ District 5 or 7 residents
- ✓ Soybean farmer who owns or shares the ownership and risk of loss for such soybeans, by reason of being a partner in a partnership, or is a shareholder in a corporation or is a member of a limited liability company during the current or immediately preceding calendar year.

## ELECTION CALENDAR:

**DECEMBER 1, 2022**  
Candidacy petition period began

**APRIL 14, 2023**  
Candidacy petitions due to NSB office

**JULY 2023**  
Ballots mailed to eligible voters

**JULY 31, 2023**  
Final day to return ballots for consideration

**OCTOBER 1, 2023**  
Newly elected board members' terms begin

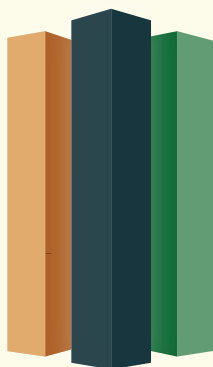




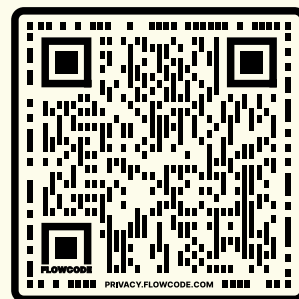
## Make Moves with U.S. Soy

Our founding farmers took action **22 years ago** to launch ASA's World Initiative for Soy in Human Health so WISHH could grow new markets for U.S. Soy. Today, WISHH is working with strategic partners that use soy for food or feed in **28 countries** across Asia and Latin America to sub-Saharan Africa.

Find out how WISHH's three pillars of trade, development and food security cultivate new markets for U.S. Soy protein.



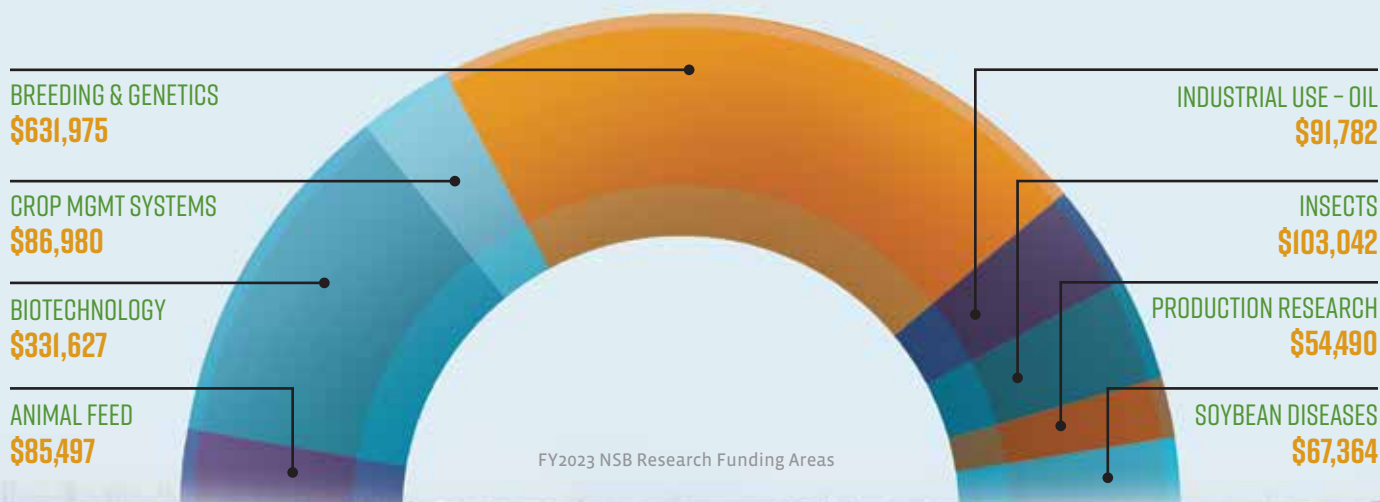
Trade. Development. Food Security.





# INVESTING *in* INNOVATION

Funding critical research and exploring topics that matter to Nebraska farmers is a top priority for the Nebraska Soybean Board.



- 13 | Planting into Dry Conditions**  
Answering questions regarding dry conditions this planting season.
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## PRODUCTION AND CROP RESEARCH COMMITTEE:

Mike Tomes (chair) | Greg Anderson | Eugene Goering | Doug Saathoff



# PLANTING INTO DRY CONDITIONS

Jenny Rees - Extension Educator | Steve Melvin - Extension Educator Irrigated Cropping Systems

Amit Jhala - Extension Weed Management Specialist | Javed Iqbal - Extension Nutrient Management and Water Quality Specialist

**W**ith planting being critical for everything else that happens during the growing season, dry conditions lead to a variety of questions during planting season. This article will work through the considerations and questions we have received. Learn more at [cropwatch.unl.edu](http://cropwatch.unl.edu).

## Soil Conditions

This is perhaps the most critical component to planting because soil conditions set the stage for the decisions we make regarding planter adjustments, which crop is planted and planting depth. When planting into drier conditions, increased down pressure is most likely necessary; however, be careful of causing any sidewall compaction.



## Soil Moisture and Planting Depth

Soybean needs to absorb 50% of its weight in moisture to complete the imbibition process. When adequate soil moisture is available, recent research has shown imbibition can occur anywhere from eight to 24 hours. Once imbibition has occurred, soybean seeds enter an osmotic phase and are quite tolerant of soil temps as low as 35-40°F, although extended low soil temperatures can be expected to lengthen the germination to emergence timeframe. You can view soil temperatures on CropWatch. Also be

aware that soil moisture can help buffer soil temperatures, reducing larger swings.

How does soil moisture impact planting depth? UNL showed best soybean yields were obtained by planting at a 1.75-inch depth. So, the short answer — aiming for close to two inches is a good consideration for both corn and soybean.

## Irrigation Considerations

### Irrigating Prior to Crop Planting:

In general, we would only suggest watering before planting if the planter needs higher soil moisture levels to work well. So, if the soil is too hard, too powdery or cloddy, it may be worth running the pivot. Another situation to consider pre-watering is if greater than 180 lb/ac anhydrous ammonia was applied in a strip with less than 2 inches of moisture received since application to help reduce ammonia burn to the corn. Otherwise, our recommendation is to run the pivot after you plant if needed.

### Irrigating for Herbicide Activation:

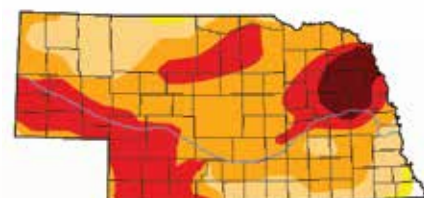
It's important that herbicides are activated with 0.5- to 0.75-inch of rainfall or irrigation, preferentially between five to seven days after herbicide application. If moisture received is less than this amount, some herbicide products have the potential to remain on the soil for up to 14 days without being fully activated.

### Irrigating in Strip-till:

Regardless if anhydrous was applied in the fall or spring, and regardless of amount applied, ammonia can occur in strip till situations affected by dry conditions. Sometimes ammonia burn is seen early with seed germination and emergence. Most often, it is seen when roots get to four to eight inches long

## Nebraska Drought Monitor

as of March 21, 2023



Source(s): NDMC, NOAA, USDA

and hit the ammonia band. Irrigation can help alleviate the impacts of the ammonia injury.

## Herbicide Considerations

PPO inhibitors are an effective chemistry often used for pre-emergence application in soybean. The different PPO-inhibiting active ingredients, products and timing restrictions can be reviewed in this article. Soybean injury can occur in situations where the seed/germinating seed comes in contact with the PPO-inhibiting herbicide and via water splash onto the emerged soybean hypocotyl and cotyledons.

Do not apply a PPO inhibitor herbicide if the seed vee is not closed, if the soil is cracking along the seed trench, or if the soybean is beginning to emerge/emerge. More considerations to reduce injury to soybean can be found at [cropwatch.unl.edu](http://cropwatch.unl.edu).

Each field situation will vary and we hope these considerations will help as you begin or continue this year's planting season!





# Soybean Plant Stands: IS REPLANTING NECESSARY?

Early in the growing season, unfavorable weather and pests often reduce soybean plant stands. A soybean field with poor seedling vigor, slow plant growth and low plant stand often triggers an “I need to fix this” impulse. However, these fields don’t always need to be replanted. This article addresses some commonly asked questions to consider prior to replanting a soybean field.

## At what plant stand do we need to consider action?

Soybean plants have a remarkable ability to compensate for open spaces by developing axillary branches that set additional pods. These axillary branches allow the plant to close open spaces and yield two or three times as much as plants that are crowded from normal planting populations.

**Step 1:** Assess the Stand—Even minor stand loss warrants going across fields to assess the amount and pattern of plant loss. Five to 10 days are needed before recovery can be fully assessed.



Soybean stands as low as 75,000 plants per acre can still produce acceptable yields.

**Step 2:** Stand loss that leaves fewer than 75,000 plants per acre in the most northern growing regions or stand loss patterns that leave areas of more than 6 to 10 square feet in size without any plants should be considered for replanting.



Taking the time to accurately assess the amount and type of damage is the first step.

## How do I decide whether or not to replant?

Factors for evaluating whether to replant are:

1. **The existing plant stand, distribution of the plants and their ability to recover full growth:** More than 75,000 plants per acre with decent distribution should produce a similar yield to a full stand. Stands lower than 75,000 plants per acre with poor distribution can be considered to be replanted or “repair-plant” where only the damaged areas may be replanted. Hail injury can include loss of leaf area, bruising of stems and, in severe cases, cutting off of plants. Yield is not affected on bruised plants that do not break off. It is important to know if the plants have undamaged growing points or axillary buds. When the top of the main stem is cut off, any one of these axillary buds may grow and ultimately replace what the main stem was. A soybean plant will usually regrow when the main stem has been cut off above the cotyledonary node. Plants cut off below the cotyledons will not recover. Temperatures below 32° F early during the season will cause water in soybean plant cells to freeze and resultant ice crystals will kill cells by damaging the cell membrane systems. How the crop reacts to freezing temperatures depends on where the growing points are. Low amounts of chemical drifting onto plants at early growth



Axillary buds



Replanting later in the season comes with a yield-penalty, and seed and insurance availability considerations.

stages can cause visual damage to the new leaves. With enough moisture available, such plants will usually recover.

2. **Calendar date:** Replanting means delayed planting, so the yield benefit of improving stands needs to be balanced against the yield effect of delayed planting.
3. **Weed management situation:** Open canopies can bring more weed pressure due to less shading of the soil. Investing in an effective in-season residual herbicide to control weeds may pay off more than replanting.
4. **Seed and variety availability:** Replanting the wrong variety may require an even longer period to reach maturity and risk premature frost damage.
5. **Cost to replant and insurance availability:** Replanting costs time and money, and it should be done only if the need is clear. The lost time and revenue can only be measured by leaving strips untouched, which would help gain knowledge for the next time.



The stage of the crop and its ability to recover impacts replanting decisions.

6. **Trade-off: suboptimal stand vs. yield penalty to delayed replanting:** The yield loss to delayed planting varies from 0.25 to 0.75 bu/ac per day in Southern and Northern Nebraska, respectively.

### Take Home Messages

1. If possible, repair-plant to improve the final stand instead of completely starting over.
2. Stand loss that leaves fewer than 75,000 plants per acre or stand loss patterns that leave areas of more than 6 to 10 square feet in size without any plants can be considered for replanting or repair-plant.
3. The decision to repair-plant should focus on profitability, not on an emotional response to beat-up stands and seedlings. Consider the plant's ability to recover, distribution and trade-off between replanting and planting late.

This information was adapted from the factsheet *"Soybean Plant Stands: Is Replanting Necessary?"* by Science for Success. Science for Success is a team of Extension soybean specialists that develop and deliver Best Management Practices to farmers and is funded by the United Soybean Board through the soy checkoff program. For more information on the team and our resources go to: [soybeanresearchinfo.com/science-for-success/about-science-for-success](http://soybeanresearchinfo.com/science-for-success/about-science-for-success)

LEARN MORE







# Questions

WITH THOMAS CLEMENTE

We interviewed agriculture biotechnologist Dr. Tom Elmo Clemente, Eugene W. Price Distinguished Professor of Biotechnology at the University of Nebraska–Lincoln/ Dept. of Agronomy & Horticulture.

Hear Dr. Clemente’s insights into the future of soybeans and their important role in society. Learn about cutting-edge research being conducted at UNL to enhance crop genetics targeting traits like nutritional value, water use efficiency and disease resistance, and why Nebraska is at the forefront of agricultural innovation, using soybeans and other crops to create a more sustainable world.

**Nebraska Soybean Board (NSB):** How is the University’s lab and non-lab research working on enhancing the genetics of Nebraska’s crops to target traits like nutritional value, water use efficiency and disease resistance?

**Thomas Clemente (TC):** Our research efforts target the testing of novel genetic variation in soybean that is introduced in the crop through the tools of biotechnology. These novel genetic alleles are designed to address both input (direct benefit to producer) and output (direct benefit to the consumer) traits. In regard to nutritional traits, we are developing soybeans that can serve as a feedstock for the aquaculture industry that can provide for an economic and environmentally sustainable route to displace fishmeal and fish oil in aquafeeds. We are also investigating genetic strategies that translate to changes in seed oil and protein content.

As per water-use efficiency, we are testing genetic strategies designed to reduce stomate numbers on the leaf surface. This project is in collaboration with researchers at the University of Illinois. While our current target for disease control trait is investigating a genetic

allele to assess its ability to combat soybean gall midge infestations.

**NSB:** Talk about the “*Enhancing Soybean Germplasm Through Biotechnology*” ongoing project and its goals.

**TC:** This program is evaluating novel genetic strategies in soybean for both input and output traits that hold potential to complement breeding programs. Producers’ investments in projects like these are critical to allow them to continue to provide a plentiful and safe food supply, in a sustainable fashion, that addresses all three prongs of sustainability, societal, environment and economic. It is important to note that most innovations that are translated to the marketplace by the private sector have their origins in outcomes from public sector research endeavors. Investments in public-sector research will always lead to a solid return, in the long run.

**NSB:** What are some of the biggest opportunities for soybean genetics in the next five years?

**TC:** The opportunities for continuous genetic gains in soybean and other commodities are enormous. The ability to complement plant breeding programs





Dr. Clemente discusses soybean research with Nebraska science teachers.

with the tools of biotechnology are just one spoke in the wheel that will allow the American farmer to help meet the caloric demands of society. The soybean genome was sequenced over 13 years ago, and researchers continue to use this genetic blueprint to gain a better understanding of what genetic alleles control what phenotypic (trait) outcomes. And to communicate this knowledge to plant-breeding programs that in turn translates this information to introduce the best genetics for the specific environment a producer will be sowing the seed.

**NSB:** In terms of soybean genetics, what do you see for the future regarding the pursuit of protein and oil content in Nebraska?

**TC:** We need to get a better understanding of the genetic underpinnings that govern seed protein and oil content. To allow for a soybean that can break the negative correlation between the two seed reserves and does not compromise yield. The demand for soybean oil has skyrocketed due to renewable diesel, which is a wonderful technology. Gaining insight on the genetic alleles that control seed reserve content will help pave the way for

building of novel genetic designs that will lead to a soybean with greater than 30% total oil content, without compromising yield. The bottom line is the future regarding protein and oil content in soybean is expanding the genetic diversity of soybean germplasm that will enable breeders to develop a soybean with seed reserves that will meet the current market demands.

**NSB:** Talk about some of your work within the nutritional value of soy for aquaculture diets and its benefits.

**TC:** Aquafeed is a significant cost for farm-raised fish production. The driver of this cost is fishmeal and oil components of the feed. The world fisheries are doing a great job in managing the wild populations of the species (anchovy/menhaden/sardine) that are used in aquafeed formulations. However, the demand for seafood is on the rise, and terrestrial-based feedstocks to displace these marine-based feed components will lower feed costs and help sustain the wild populations of these species. With its high-quality protein and innovative genetic designs that can lead to the synthesis of an oil that mirrors fish oil, soybean is the ideal feedstock

for aquafeeds. The challenges to bring such a soybean to the market are global regulatory hurdles and infrastructure for identity preservation of the harvest.

**NSB:** What are some of the biggest opportunities for Nebraska soybean farmers in the coming years?

**TC:** Over the next few years soybean-crushing capacity in Nebraska will be significantly increased driven by the demand for oil by the renewable diesel industry. This will likely lead to excess meal on the market. The Nebraska soybean producers can capitalize on this by working with swine and poultry producers to find avenues to expand capacity in the state for pork and chicken production, and as stated above, getting higher soybean rations in aquafeeds.

**NSB:** Over the years, what has been your favorite research project regarding soy and your favorite part about soy in general?

**TC:** One of my mentors, when I arrived at the University of Nebraska in 1996, was a soybean geneticist Jim Specht. Jim introduced me to the soybean producers who have served on the Nebraska Soybean board, and I learned a lot from these producers over the years in regard to the challenges facing agriculture production. I always enjoy visiting with a farmer, especially when they are picking up the food and drink tab.

The first project funded by the board was to develop a high oleic acid soybean. We successfully created such a soybean in 1998 that had over 85% oleic acid in the oil. It is a wonderful product that should be the commodity bean. Unfortunately, in 2023, a high oleic acid soybean is still under the umbrella as a “specialty” soybean.

What I like about soybean is that it is a legume, which positions the crop well to continue to play a key role in agriculture. Importantly, this attribute permits for expansion of soybean production in a sustainable fashion to help feed a growing population.

# Larry Tonniges RESEARCH ACHIEVEMENT AWARD 2023



**D**r. Jim Specht, a University of Nebraska-Lincoln emeriti professor and Scottsbluff native, was recently awarded the first-ever Larry Tonniges Research Achievement award. The award, which was made possible by the family of the late Larry Tonniges, a longtime Nebraska farmer who was dedicated to production research as part of

the Nebraska Soybean Board, honors researchers who have made significant contributions to soybean research.

Dr. Specht, who began at the University of Nebraska-Lincoln in 1976, is internationally recognized for his work in modern plant biology and genetics for soybean improvement. Research by his “walking soybean encyclopedia” includes soybean response to drought and irrigation, planting times, planting depth and tillage. His research has helped with specific growing conditions for the various regions of the state.

In addition to his research, Dr. Specht has also been an active member of the soybean industry in Nebraska. Specht was part of a national research team that developed the first soybean genetic map of 20 linkage groups. He was also a member of a research

team that sequenced the soybean genome. He also discovered the differences in soybean genotypes, delineating them into slow and high water users. Recent accomplishments involved using genomics to search for genes that govern soybean seed protein and oil content and Specht was the principal investigator in developing the national Nested Associated Mapping Populations that will serve as a resource for the soybean genetics and physiology research community for years to come. In addition, Dr. Specht has served as a scientific expert and liaison for Nebraska soybean producers, through his research and generous research advisory work with the Nebraska Soybean Board (NSB) for over 45 years.

Upon receiving the Larry Tonniges Research Achievement award, Dr. Specht expressed his gratitude and emphasized the importance of continued research in the soybean industry.

The Larry Tonniges Research Achievement award, which will run for five years, will be handed out each March at NSB’s traditional production and crop research meeting. Each year, a researcher, staff or individual from the industry who shows the same level of passion Larry brought to NSB, will be chosen to receive the award.

NSB is proud of Dr. Jim Specht’s achievements in soybean genetics and physiology, that have made him a leader in the industry and a deserving recipient of the 2023 Larry Tonniges Research Achievement award.

“

I am both humbled and honored to be selected by NSB to be the first recipient of the Larry Tonniges Research Achievement Award. It has been my great pleasure to provide the Board and their constituent Nebraska soybean producers with scientific research advice and genetic and physiological technical assistance over the course of the last decade. Larry was a friend and colleague with whom I spent time each year reviewing and evaluating research proposals submitted to the North Central Research Program for which Larry was the NSB representative. Larry’s passing was unexpected and he is still sorely missed by all who knew and worked with him.

— DR. JIM SPECHT

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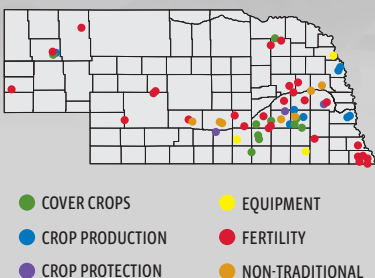
# INNOVATING & IMPROVING

**A**griculture is an ever-changing industry, and new technologies and practices are constantly being introduced to farmers. With all the options available, choosing which practices to implement can be overwhelming, especially when farm profitability is on the line. Farmers are already making decisions for the 2023 growing season, and on-farm research can help. On-farm research can accelerate learning about topics that impact farm productivity, profitability and sustainability. It is research that you do on your field, using your equipment and with your production practices. This means the research is directly applicable to your operation.

During the 2022 growing season, the Nebraska On-Farm Research Network (NOFRN) conducted over 70 studies on farmer fields throughout the state, addressing topics such as crop production, fertility and soil management, non-traditional biological products and additives, cover crops, crop protection and equipment. Research comparisons are identified and designed to answer producers' production questions, and research plans are developed to meet individual farmer needs. Producer involvement is essential to ensure their goals and objectives are met.

Nebraska growers, consultants, advisors and industry employees who attended the 2022 On-Farm Research update

## 2022 STUDY LOCATIONS



meetings valued the information gained at **\$11 million**.

## Things to Know About NOFRN

- ▶ Extension personnel provide technical assistance with project set-up, data collection and analysis, so you can have confidence in your results.
- ▶ Scientifically sound experimental designs are used to account for natural and manmade field variables and are customized for individual farmer needs.
- ▶ Statistical analysis is conducted to determine the significance of the results.
- ▶ Ag technologies such as prescriptions, as-applied data and yield monitor data make conducting on-farm research convenient and provide even more powerful insights for growers.
- ▶ Results are shared with peers at in-person meetings and online.

## 2022 Nebraska On-Farm Research Results:

Apply last year's findings to this year's growing with the 2022 Nebraska On-Farm Research Results report. Read up on:

- Soybean population studies (pages 18-22)
- Soybean population, date and variety (pages 23-25)
- Variable rate seeding for soybeans (pages 26-29)
- Soybean maturity groups (pages 30-31)
- Starter fertilizer on soybean (pages 36-38)
- Nitrogen on soybeans (pages 39)
- Perennial cover crop in soybeans (pages 163)
- Seed treatments for sudden death syndrome (pages 177)

The 2022 Nebraska On-Farm Research Results book, videos about the projects and over 1000 reports from past on-farm research studies, are available at: [on-farm-research.unl.edu](http://on-farm-research.unl.edu) or scan QR code:



“With the GPS technology, this is honestly so easy to do. It does take a little extra time on my part, getting all the prescriptions loaded. But what we learn from it is extensive. It's a very valuable thing.

— DON BATIE, FARMER, LEXINGTON, NE

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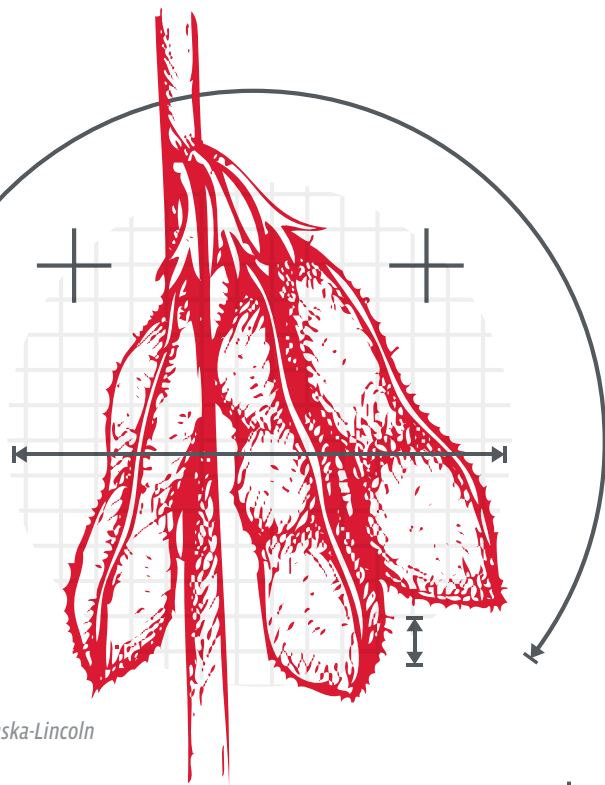


If you are interested in participating in the NOFRN, contact **Laura Thompson, Extension Educator** at 402-245-2224 or [laura.thompson@unl.edu](mailto:laura.thompson@unl.edu), **Taylor Lexow, on-farm research program coordinator** at 402-245-2222 or [tlexow2@unl.edu](mailto:tlexow2@unl.edu) or get in touch with your local Nebraska Extension Educator.



# BUILDING A BETTER

# BEAN



*By Dr. George Graef, Professor, Presidential Chair in Soybean Breeding at the University of Nebraska-Lincoln*

**T**hanks to the Nebraska soybean farmers and the continuing support for our research and development programs through the Nebraska Soybean Board, we have been able to build a quality soybean breeding program. Our program aims to address important constraints to soybean production for farmers in Nebraska.

The program has three main objectives. First, we want to improve yield, particularly in Nebraska production environments. Second, we need to protect that yield from diseases and pests, as well as from abiotic stresses like drought and high-pH soil that are significant issues in Nebraska. Third, quality is essential, so we have been working on improved seed composition traits, along with yield and stress resistance, for the past 30+ years.

Most of our yield and agronomic evaluations are on farmer-cooperator sites in the primary soybean production areas of Nebraska. We are fortunate to have a great group of cooperators who have allowed us to work in their fields for many years. We collect valuable data directly relevant to Nebraska producers, which allows us to make good selections and other decisions that facilitate progress.

The other crucial aspect of our program and the ongoing support provided by the



Collecting leaf tissue at the soybean nursery in Chile for DNA analysis.

board is that students who work with our program gain valuable experience in all aspects of research and development. Students who graduate from here go on to other research programs or positions in the seed industry. It is rewarding to see students making important contributions in breeding programs and other leadership positions with all major seed companies, as well as at other universities.

Some exciting current developments from our program include soybean varieties with top yields and unique, strong resistance to most populations of

soybean cyst nematode that growers will encounter in Nebraska and the north-central U.S. Our elite lines yield on par with the best commercial lines, and the SCN resistance gene combination of *rhg1-a*, *Rhg2*, and *Rhg4* confers strong resistance against multiple HG types. The availability of new effective gene sources for SCN resistance is the result of other long-term research by nematologists, breeders and others at places like the USDA, University of Illinois, University of Missouri and others, largely supported by national and state soybean checkoff programs. The university and USDA



Drip irrigation experiment for soybean response to water. From Ph.D. project of Shawn Jenkins.



Evaluation of thousands of plots for reaction to high-pH soil in Nebraska. Part of Ph.D. project of Cody Oswald.

Finally, with about half of the soybean production area in Nebraska under irrigation and the other half rainfed, an important consideration for all is water productivity. Maximizing yield per unit of water available to the soybean plant during the season is important in either system. There has been a lot of great work done by Dr. Jim Specht here in Nebraska on the plant side to document significant genotype differences in soybean response to water. Working with irrigation specialists, modelers and agronomists, SoyWater has been developed as a tool to help improve irrigation timing and efficiency. However, if we can couple that with specific soybean cultivars that we know are more efficient users of water, irrigation efficiency could be optimized even more. This is important for producers as they consider issues related to ROI, meeting sustainability goals for soybean production and agricultural operations in general, and being good stewards of the amazing resources that Nebraska has available. For rainfed production systems, we need similar water productivity on the plant side but also need enhanced protection from severe or prolonged periods of water shortages. To some extent, that may even be true for producers in areas with limits on irrigation water access. We continue to work on the soybean plant side to develop soybean lines that yield better under both optimum and limited water scenarios.

We have a great group of people who keep the program going, and we all enjoy seeing our work benefit all soybean farmers in Nebraska.




programs in the north-central region exchange germplasm regularly for use in our breeding programs, which helps accelerate progress in all programs and shortens the time to get these important developments to farmers' fields.

From our long-term work with seed composition, we have developed soybeans that have nearly 60% seed protein concentration on a dry matter basis, soybeans with 25% oil and high-yield lines with a balance of protein and

oil that can deliver more than 12 pounds of oil per bushel for the processor while still producing a 48% protein meal. This increases value for end-users and soybean farmers. Varieties like this that are well adapted to Nebraska could offer additional marketing options and opportunities for increased ROI for producers and processors, as new soybean processing facilities are planned to be operational in Nebraska in the next 3-5 years.

## BREEDING PROGRAM TESTING LOCATIONS



-  Yield
-  Quality Traits
-  Diversity

STRESS TOLERANCE:

-  SCN
-  IDC
-  Drought







unitedsoybean.org

# HELPING YOU DELIVER ON DEMAND

*Whether it's improving soybean meal to outperform the competition or promoting the sustainability of U.S. soy, the soy checkoff has been working behind the scenes to help farmers satisfy their customers' needs. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And for U.S. soybean farmers like you, the impact is invaluable.*

*See more ways the soy checkoff is maximizing profit opportunities for farmers at [unitedsoybean.org](http://unitedsoybean.org)*



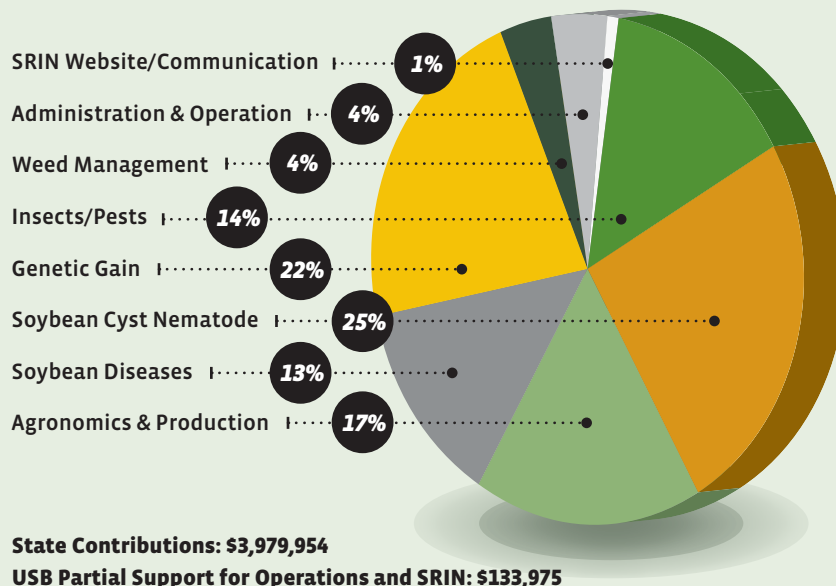
# A CULTURE OF COLLABORATION



**T**he North Central Soybean Research Program (NCSRP) is recognized as a leader in multi-state collaborative research and outreach efforts to support soybean farmers and drive the soybean industry forward. The NCSRP board approved the following new and ongoing research projects for funding the fiscal year 2023. Several projects are being jointly funded by the United Soybean Board and state checkoff boards. The areas emphasized in the coming year are soybean diseases, soybean cyst nematode, soybean entomology, genetic studies toward the improvement of host resistance and yield, and outreach.

The NCSRP board is confident that successful completion of the individual projects will significantly advance the understanding of some of the region's major soybean production problems.

## FY2022 Budget



## NCSRP Research Projects FY22

**98** Principal Investigators and Co-PIs

**18** Universities and Extension Programs

**18** Organizations or Agencies

## MEET YOUR NEBRASKA NCSRP DIRECTOR

**Mike Tomes - Utica, NE**



Mike Tomes grows corn and soybeans on the family farm near Utica with his wife, Dawn, and two sons. Mike and Dawn also have five children not involved

with the farm. Their operation includes irrigated crops on a mix of no-till and strip-tilled acres. They have harvested seed corn for more than 30 years and recently added a poultry operation. Mike is a newly appointed Nebraska Soybean Board director as well as NCSRP representative. In addition to farming, Mike also operates a crop insurance business.

## Projects Funded for FY2023

- ▶ An integrated approach to enhance durability of SCN resistance for long-term, strategic SCN management (Phase III)
- ▶ Using data-driven knowledge for profitable soybean management systems
- ▶ Field phenotyping using machine learning tools integrated with genetic mapping to address heat- and drought-induced flower abortion in soybean
- ▶ Improving flood and drought tolerance for soybeans in North Central region
- ▶ SOYGEN3: Building capacity to increase soybean genetic gain in future environments for seed yield and composition through combining genomics-assisted breeding with environmental characterization
- ▶ Mapping soybean protein and oil quality in farmer fields
- ▶ Multi-dimensional approaches for improved productivity, sustainability and management of major soybean diseases in the North Central U.S.
- ▶ The SCN Coalition: Economics and Advancing Management
- ▶ Site-specific weed management with precision application technology
- ▶ Research and extension on emerging soybean pests in the North Central region
- ▶ SoyRenSeq: a novel approach for disease resistance gene discovery and application for soybean improvement



Henry Doorly  
Children's  
Adventure Park

# Nebraska Soy A MAIN FEATURE IN OMAHA ZOO

## SYNLawn's Play Platinum Turf installed at Henry Doorly Children's Adventure Park.

**W**hen leaders at the world-famous Henry Doorly Zoo decided to replace the worn-out artificial turf at Children's Adventure Park, they knew it was time to call SYNLawn.

At over five acres, the Adventure Park is where imagination and physical activity collide for young zoo-goers, complete with trees, sand, logs, ropes and play structures the Swiss Family Robinson could be proud of.

There's also green space: around 4,000 square feet of kid-friendly (and now kid-proof) artificial grass featuring foam-covered mounds, perfect for romping and rolling.

Until recently, this green space had suffered more than its share of wear and tear. In search of a more durable, sustainable and cost-effective option, the zoo enlisted SYNLawn Nebraska for assistance.

SYNLawn is North America's largest manufacturer of artificial grass. Featuring a soy-made backing called EnviroLoc+™,

its proprietary turf technology is featured in more than 200,000 residential and commercial installations worldwide. SYNLawn has installed 82 million square feet of U.S. soy-backed grass since 2008—a benefit to soybean growers in Nebraska and nationwide.

Installation at the zoo proceeded using SYNLawn's Play Platinum grass, selected for its ability to stand up to rough and rugged play while retaining a look and feel similar to natural grass. Not only is Play Platinum fun and safe, but it also includes Sanitized® technology to stop the spread of germs (which any parent will appreciate).

But it's not all about form and function: choosing soy-based SYNLawn aligns with the zoo's overall mission of conservation and sustainability.

Since soybean oil replaces a large portion of petroleum-based polyol in EnviroLoc+™, the product supports cleaner air. Requiring almost no maintenance eliminates the need for chemicals that might be toxic to animals or unsafe for



drinking water. These and other reasons explain why soy-based artificial grass from SYNLawn—supported by Nebraska soybean producers—is becoming a fixture at zoos and parks worldwide.

"SYNLawn takes great pride in our commitment to sustainability," said Operations Director Chad Schneider. "Our soy-backed artificial turf products are a key part of that effort. By replacing natural grass with Play Platinum, the zoo and other end users are able to conserve water, reduce pesticide use and minimize their environmental footprint. This is thanks not only to the value of our product, but also the value contributed by Nebraska soybean growers."



Gene Leahy Park

## & GENE LEAHY PARK PROJECT



At Omaha's Henry Doorly Zoo and Gene Leahy Park, Nebraska soybeans are taking center stage while providing fun for the whole family.

### Soy-backed turf from SYNLawn makes for a picture-perfect park.

**A**t Omaha's Gene Leahy Park, SYNLawn artificial turf—produced sustainably with Nebraska soybean oil—is a hit with people and pets alike.

SYNLawn's line of Play Platinum and Pet Platinum grasses recently became part of a full-scale park revitalization. The result created 40,000 square feet of new green space while adding several fun and family-friendly features.

Park visitors will now enjoy a state-of-the-art playground, dog park, performance pavilion for live entertainment, sculpture garden, nature trails and more. The park—built in the 1970s to create a green space in the city center—is now home to amenities people will enjoy for decades.

"The installation of SYNLawn's soy-backed turf in Gene Leahy Park is a great example of how cities can make environmentally conscious decisions without sacrificing quality," said Operations Director Chad Schneider. "We are proud to be a part of this project and look forward to working with more communities to create sustainable and beautiful outdoor spaces."

That soft, bouncy feeling under your feet? That must be the 12,700 square feet of Play Platinum that covers the new playground. The soy-backed product features Super Yarn™ technology that's heat-reflective, anti-static, sanitary, non-abrasive and virtually kid-proof. It's the perfect complement to the new rope forest, wooden deck for climbing and shade canopies for parents and guardians.

“

We are proud to be a part of this project and look forward to working with more communities to create sustainable and beautiful outdoor spaces.

— CHAD SCHNEIDER, OPERATIONS DIRECTOR

”

Dog lovers will howl for the new dog park: with over 3,600 square feet of high-drainage turf, areas for big and small dogs, mounds for climbing and agility training—and even doggie-level water fountains—the whole thing is a pooch's

paradise. Aside from requiring very little upkeep (and no watering), the material's heat-resistant properties keep it nice and cool for paws even on hot summer days.

Using SYNLawn artificial turf not only makes parts of Gene Leahy look green all year round, but it also makes it green in a different way. For example, the city will conserve water during the spring and summer. Fewer pollutants will enter the air and water due to mowing, weeding and pest control. And the market for sustainable soy-based products will continue to thrive.

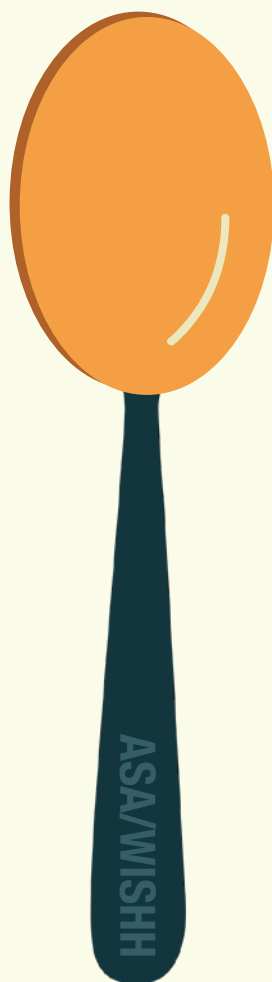
But that's not all. Using soy-based materials on a public project can have a profound effect, encouraging future projects to find a way to be part of the solution.

That's good for the world—and for agriculture.

"The installation of SYNLawn's soy-backed turf in Gene Leahy Park is a great example of how cities can make environmentally conscious decisions without sacrificing quality," said Operations Director Chad Schneider.



# WISHH graduates entrepreneurs from **global training** for high-quality foods and feeds.

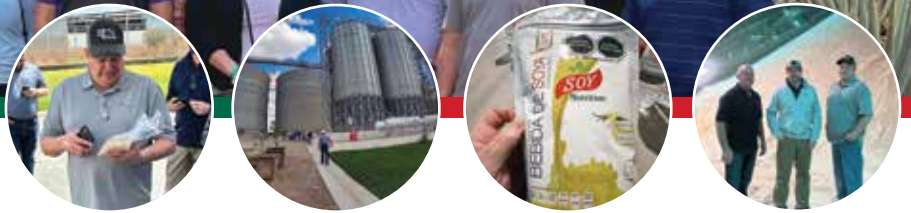


**Connect with WISHH**  
**wishh.org**



*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.*

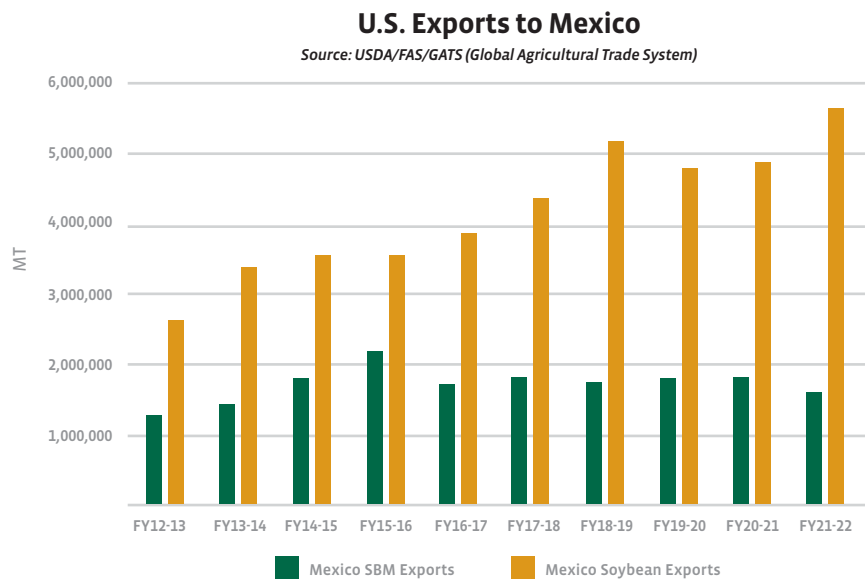
# SOY JOURNEYS SOUTH



**S**oybean farmers in Nebraska and the rest of the United States consistently produce a crop that is held in high regard around the world, with our neighbors to the south being no exception. Mexico is a valuable partner for U.S. agriculture, as they are the number two buyer of soybeans and soybean meal from the U.S. (source: USDA).

Trade missions provide great opportunities to build and maintain relationships in these key markets. A group of seven farmers and two staff members representing their state checkoff boards from Iowa, Kansas, Missouri, Nebraska and South Dakota, visited Mexico, February 20-24, 2022. This trade mission is part of the checkoff-funded project with the Soybean Research Development Council (SRDC) and Ritz Ag Consulting, Inc. (RAC), that promotes and markets U.S. soy products to the Americas from the Midwest.

“The opportunity to visit and meet with our customers is important in marketing,” said Scott Ritzman, president of RAC. “The ability to ask them questions and



discuss market trends and issues they might face is important for soybean farmers to hear and bring back to their respective boards. As the biofuels industry demands more soybean oil, promoting and marketing U.S. soybean meal is going to become very important to soybean farmers, as they look to plant more acres to supply the demand.”

Nebraska soybeans will continue to play a vital role in this market, because production in the state ranks in the top five in the U.S. each year, paired with six potential crush facilities that, at full capacity, could process over 500,000 bushels of soybeans per day. Mexico’s current soybean meal demands are increasing with the growth of domestic consumption of poultry, eggs, pork and aquaculture species. In 2022, the U.S. exported \$3.64 billion in soybeans

and \$864 million in soybean meal to Mexico, holding 85% of the market share. Domestic crush and imports from other origins make U.S. marketing efforts important to keep a competitive edge. There is projected to be a 3% increase in the country’s soybean meal consumption in the next marketing year.

Buyers and partners that were visited on the trip included Grain Company, Viterra (formerly Gaviion), Proan, Empresa Guadalupe and the U.S. Soybean Export Council. This was the first trade mission to Mexico after almost four years since a group of farmers visited these important partners, providing a great opportunity to thank them for their past business and show them how soybean farmers can continue supplying them with reliable, high-quality and sustainable products.

## Attendees from the Nebraska Soybean Board included:

- ▶ **Doug Saathoff**  
(Chairman – Trumbull, NE)
- ▶ **Mike Tomes**  
(Director – Utica, NE)
- ▶ **Blake Johnson**  
(Director – Holdrege, NE)





1. SAA Marine Terminal 18 | 2. Cooke Aquaculture | 3. Westport Marina | 4. AGP - Port of Grays Harbor | 5. Ocean Gold Seafood | 6. Jack & Kristin Cranberry Farm

In an effort to gain a deeper understanding of the soybean supply chain and the agriculture industry as a whole, twelve soybean farmers from Nebraska recently embarked on a journey to the Pacific Northwest for the Nebraska Soybean Board's See For Yourself tour. This unique experience allowed the farmers to learn firsthand about the various aspects of the soybean supply chain and how it impacts the world around us. Farmers departed on February 27 and returned on March 2.

The trip kicked off with presentations at the Port of Grays Harbor on biodiesel, renewable diesel and sustainable aviation fuel. This included an opportunity to view a Star Oilco. fuel tanker running on pure 100% (B100) biodiesel, a renewable, clean-burning replacement for traditional diesel. The truck was operating with vehicle modifications from Optimus Technologies to run the B100 blend. Currently, biodiesel can be used in existing diesel engines in a blend of up to 20% blend (B20) without any modifications. The farmers had the opportunity to learn about the benefits

of biodiesel and how it is being used to reduce emissions on the west coast while creating demand for their Nebraska-grown feedstocks.

After learning about the Port of Grays Harbor, the group departed for the Ag Processing Inc. (AGP) export terminal where the farmers had the opportunity to witness the process of shipping soybeans overseas. They were able to observe the loading of soybean meal onto container vessels, as well as the inspection process that takes place before the ships depart. This experience gave the farmers a new appreciation for the complexity of the supply chain and significant process of exporting Nebraska soybean meal. In 2022, AGP approved a major expansion and upgrade at this Aberdeen, Washington facility, adding upgrades to Terminal 2 and adding a state-of-the-art ship loader at Terminal 4. The Nebraska Soybean Board, along with other Qualified State Soybean Boards and the Soy Transportation Coalition committed \$900,000 to help offset some of the pre-engineering, design and site development costs of this expansion and

redevelopment project. The surge in U.S. soybean crush capacity, prompted by demand for renewable diesel feedstock, is expected to lead to a higher production of soybean meal in the country, surpassing previous domestic consumption growth. This development creates an opportunity for AGP's processing facilities in the western U.S. to provide more protein to the expanding Southeast Asian and Asian markets.

In addition to learning about the soybean supply chain, the farmers also had the chance to learn about the local seafood industry. They visited Westport Marina District, a commercial fishing hub and home to a suite of public waterfront access facilities, restaurants, shops, recreation and tourism. They visited Ocean Gold Seafood, a family owned business that specializes in sustainably caught wild seafood including salmon, halibut, cod, crab and shrimp. The farmers learned about the importance of sustainable fishing practices and the role that the Pacific Northwest seafood industry plays in the world market.



The trip also included a visit to a 12-acre cranberry farm (Jack and Kristin Stein Cranberries) near Grayland, Washington, where the farmers were able to learn how this crop is grown, harvested and sold to Ocean Spray and at local farmer's markets. The visit provided a valuable perspective on the diversity of the agriculture industry, succession planning and meeting consumer demands and preferences. Many farmers did not know that Ocean Spray is a farmer-owned cooperative, with nearly 700 farm families who, on average, have passed down their cranberry farms 2.5 generations.

Another highlight of the trip was a visit to a recirculating aquaculture facility, where the farmers learned about the production of farm-raised fish, and in some cases, fed with soy-based feed. They were able to see the sophisticated systems that are used to maintain water quality and ensure the health of the fish. The farmers gained a new appreciation for the challenges and opportunities of aquaculture and the role that it plays in feeding a growing global population.

Finally, the farmers visited the SSA Marine Terminal 18, where they observed the loading of cargo ships and logistics of running a global enterprise spanning more than 250 locations across five continents handling more than 14 million marine twenty-foot equivalent units (TEUs) a year. They learned about the critical role that transportation plays in the soybean supply chain and global scale supply and demand challenges.

The See For Yourself program provided Nebraska soybean farmers with a unique opportunity to gain a deeper understanding of the soybean supply chain and the many industries that are impacted by this important crop. Through their experiences, they gained new perspectives on the challenges and opportunities of agriculture and the importance of innovation, sustainability and the importance of agriculture working together. The trip was a valuable reminder of the interconnectedness of our world and the role that farmers play in feeding and fueling our society.

## FARMER FEEDBACK

“The See For Yourself program has broadened my vision of what agriculture looks like. It is humbling to see what other producers must invest in infrastructure and overhead compared to Nebraska farmers and ranchers.”

— Myles Ramsey, Farmer - Kenesaw, NE

“Seeing where our soybeans are exported, and understanding the global impact we have right here in Nebraska, allows people like myself to make better, more confident and informed decisions in our operation. Also, learning about the emerging industry of biodiesel and other low-carbon fuels showcase the enormous future soybeans have.”

— Ross Rastede, Farmer - Allen, NE

“I was able to learn and understand more of what the Nebraska Soybean Board has been working on to sustain a future market.”

— Zach Garnick, Farmer - Genoa, NE

“The NSB See For Yourself program was one of the most eye-opening experiences I've ever been a part of. I have a much better understanding of the soybean industry outside of the state and how projects like the AGP expansion at the Port of Grays Harbor are so critical to the state.”

— Alex Mackovicka,  
Farm Broadcaster - Lincoln, NE



Interested in a future See For Yourself opportunity? Contact the NSB office at 402-441-3240 or contact [teri@nebrasasoybeans.org](mailto:teri@nebrasasoybeans.org).



# EMERGING MARKETS FUEL OPPORTUNITIES

FOR NEBRASKA SOYBEAN FARMERS

By Heather Buechter, Director of Communications, Clean Fuels Alliance America

**T**he U.S. rail industry has historically been the most efficient way to move freight over land. One train can transport a ton of freight more than 480 miles on a single gallon of fuel. To do so, 3.1 billion gallons of diesel fuel are used every year, making up 95% of the rail industry's greenhouse gas emissions. Increasing external pressures are now forcing fleets to look at ways to decarbonize and do it in a timely manner to address climate change. Customers and companies are demanding change, and policy often dictates the timeline.

All seven Class I railroads, companies such as Union Pacific and BNSF, now have climate commitments to reach net-zero emissions by 2050. The only way to help achieve these goals today is by using more biodiesel and renewable diesel. These clean fuels are the lowest cost, drop-in solution to carbon reduction efforts. Especially when considering the 50-year lifespan of a train, other alternative fuel technologies are decades away from replacing the 23,000 diesel-electric locomotives in Class I service across North America.

The same can be said at sea. The shipping industry is responsible for three percent of carbon emissions worldwide, burning 300 million tons of fuel every year. Maersk has an ambitious goal of becoming carbon-neutral by 2040 with more shipping companies following suit. Turning to low carbon, liquid biofuels is the obvious choice to make an immediate change. No capital investments are needed in engines nor the fueling infrastructure, and companies don't have to wait for future technologies to come to fruition to be able to reduce emissions today.



**\$28,400** | **PER 500 ACRES**

For a Nebraska soybean farmer with 500 acres, the biodiesel and renewable diesel market supported around \$28,400 for their bottom line in 2022.

Source: "Economic Impact of Biodiesel on the U.S. Economy 2022" - LMC International

Nebraska is no stranger to answering the call to decarbonize. The Nebraska Soybean Board was instrumental in developing the Bioheat® Fuel market in the Northeast and Mid-Atlantic. Providing funds for testing led to the approval of Bioheat® Fuel as a home-heating fuel, tapping into a 4-billion-gallon industry. More than 70% of New York City government buildings now use 10% biodiesel for heating oil, while the city's fire trucks, garbage trucks and other fleets run on B20.

The growing demand for liquid biofuels creates more demand for feedstocks, which creates even more opportunities for our nation's soybean farmers. Nebraska continues to invest in biodiesel and renewable diesel production with two new soybean crush facilities planned for the state, representing investments of \$725 million. Overall, the clean fuels market supported an estimated worth of \$322 million of the overall value of Nebraska's soybeans in 2022. Soybean farmers are helping make net-zero a reality, and the benefits of investing in the industry keep growing.




[unitedsoybean.org](http://unitedsoybean.org)

# KEEPING THE FUTURE OF SOYBEANS BRIGHT

*From researching new uses for soybeans to identifying new markets for U.S. soy, the soy checkoff is working behind the scenes to create new opportunities and increase profits for soybean farmers. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And it's helping make a valuable impact for soybean farmers like you.*

*See more ways the soy checkoff is maximizing profit opportunities for soybean farmers at [unitedsoybean.org](http://unitedsoybean.org)*

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REMEMBER,  
HE  
CREATED  
YOU  
FOR THIS.

Don't be afraid. Just believe. Mark 5:36

