

Summer 2021

# MICHIGAN Soybean NEWS<sup>®</sup>

Volume 13 - Issue 3



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A publication of the Michigan Soybean Association



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# MICHIGAN Soybean NEWS

Volume 13 - Issue 3

### Soybean Staff

Janna Fritz  
Chief Executive Officer  
jfritz@michigansoybean.org

Kathy Maurer  
Financial and International  
Marketing Director  
kmaurer@michigansoybean.org

Mark Seamon  
Research Director  
mseamon@michigansoybean.org

Sonja Lapak  
Communication Director  
slapak@michigansoybean.org

Ty Bodeis  
Soybean Production Specialist  
tbodeis@michigansoybean.org

Katlin Fusilier  
Outreach Specialist  
kfusilier@michigansoybean.org

Michigan Soybean Association  
3055 W M-21  
St. Johns, MI 48879  
Phone: 989.652.3294  
soyinfo@michigansoybean.org

### Sales

Janna Fritz  
jfritz@michigansoybean.org

J.L. Farmakis Inc. - National  
Phone: 203.834.8832  
bill@jlfarmakis.com

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### Michigan Soybean Association Mission: To improve and advocate for the Michigan soybean industry.

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# President's Letter



Spring has officially sprung in Michigan! That means things are probably picking up and getting crazy around everyone's farms. On our farm, we have planted our soybeans and are getting ready to put corn in the ground! Our kiddos are enjoying being able to play outside in this beautiful weather after a long winter, and they are still young enough that they think it's fun when I ask them to dig up bulbs from the garden!

On the MSA front, things have been going well despite the many cancelations and modifications we've had to make. In early March, a few MSA board members were able to meet virtually with several members of Congress, in coordination with the American Soybean Association and soybean farmers from many other states. During these "virtual Hill visits", we took the opportunity to talk about many of MSA's policy priorities and address some key talking points we've been focusing on with the new Administration.

One of the hot topics we discussed was biodiesel and the role it can play in moving towards a greener infrastructure. MSA sees biodiesel as a key opportunity for soybean farmers that should be able to generate bipartisan support. We also discussed infrastructure and what we see as some of the needs of rural Americans.

I hope this planting season is safe and blessed for all of you! As always if you have any questions or want to get involved in the Michigan Soybean Association, please reach out to us.

Heather Feuerstein, MSA President

# Staff Update



A new bride asks her mother, “Why do we cut the ends off of the ham when we cook it?” The mother’s response, “Because my mother did it, as did my grandmother.” The bride then asks her great-grandmother why the ends of the ham are cut off. The great-grandmother’s response, “I cut them off so the ham would fit in my pan, I don’t know why everyone else does it.”

Sometimes we get caught up in doing things a certain way, because it is the way they’ve been done before. What we have learned over the last year and will continue to learn is many things will not be the same ever again. 2020 will be talked about to our children’s children’s children. Many of the anecdotes from 2020 will replace the age-old stories of walking to school in the snow, uphill both ways.

Over the past year, for every inconvenience we encountered like trying to find toilet paper, hand sanitizer or flour, there were also discoveries of more time with our families, connecting with friends via video chat, playing euchre online with family in other states and other creative ways to connect.

2020 also put a magnifying glass on the weak links of our ag supply chain. When restaurants shut down, the processors of bulk foods lost their distribution channels and were not equipped to shift to a consumer market. Food rotted and on the flip side, people went hungry.

We are in a unique time to reset the ag supply chain. We will need to ponder things that may have not been considered before. How can we ensure we have multiple opportunities to move our goods along the supply chain? Who are unlikely partners we have not thought of before outside of ag? What services could be added to our operations to expand our sustainability?

Many companies have worked through questions like these and have shifted their business models in ways that will likely permanently change their operations. Many day-to-day activities, like a focus on on-line shopping versus brick-and-mortar stores, getting take-out and groceries delivered to your house or permanently working from home are all here to stay in a big way.

One thing is for sure, regardless of the changes going on around us, we will always need farmers. Farmers are resilient problem solvers. The ag supply chain will be shored up and more opportunities for creative solutions will be created. It will be for the betterment of everyone - farmers and consumers alike.

Change is never easy; sometimes we may need to cut off the end of the ham, and sometimes we might just need to buy a bigger pan and bake the whole thing.

Choosing joy in chaos,

Kathy Maurer,  
Financial & International Marketing Director  
[kmaurer@michigansoybean.org](mailto:kmaurer@michigansoybean.org)





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If you've been a member for 15 consecutive years, you may be a Lifetime Loyalty member. Contact the Michigan Soybean office to confirm your status.

**For a list of all membership benefits, visit [www.misoy.org/member-benefits/](http://www.misoy.org/member-benefits/).**

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# 2021 Michigan Soybean Association Yield Contest

The Michigan Soybean Association (MSA) is excited to announce their yield contest for 2021. Last year MSA assumed coordination of the contest, which was previously coordinated by the Michigan Soybean Committee. Last year's contest was a success with great participation from around the state. In 2020, there were there were 58 entries from soybean farmers in 14 different counties in Michigan.

This year's contest will again offer six categories:

- Late maturity (2.7 and above) non-irrigated
- Late maturity (2.7 and above) irrigated
- Mid-maturity (2.0-2.6) non-irrigated
- Mid-maturity (2.0-2.6) irrigated
- Early maturity (1.9 and below)
- Non-GMO

Farmers interested in entering this year's contest can learn more about the rules, categories, eligibility and entry information by visiting [https://misoy.org/?page\\_id=669](https://misoy.org/?page_id=669). More information about the contest will be added to the site this summer and entries will be due in August.

THANK YOU TO THE SPONSORS OF OUR 2020 YIELD CONTEST!



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suggestion?**

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# New Challenges and New Opportunities

Michael Frederick, The Frederick Group

Governor Whitmer has embarked on several new policy initiatives in the past year that will have an impact on our industry. Some of these present perils and others present opportunities.

Last year, the Governor announced significant changes to the rules and regulations that affect Concentrated Animal Feeding Operations, or CAFOs. That effort received immediate pushback from a coalition of dairy, poultry, pork and many other livestock producers. The coalition contends that the new regulatory scheme will be costly, burdensome, is unnecessary and is not scientifically justifiable.

That fight is now in the courts as the coalition has filed suit challenging the rules and regulations. MSA supports the coalition. Unleash the horde of lawyers!

We will be monitoring this matter carefully because if these new rules and regulations are implemented, they will have significant impacts on the industry. Livestock are our number one customer – it is critical that livestock farms in Michigan are able to operate. This also presents an opportunity to forge new alliances and educate policymakers on how our industry positively contributes to Michigan's broader agricultural economy.

The Governor has also created the Council on Climate Solutions, which is housed in the Office of Climate and Energy. Stacked with nearly every cabinet level director, numerous environmental groups, academia and a very small selection of individual businesses, the charge is to develop, issue and oversee the implementation of the MI Healthy Climate Plan, which will serve as the action plan for Michigan to reduce greenhouse gas emissions and transition toward economywide carbon neutrality. This cadre will focus their efforts on creating a regulatory environment to encourage and coerce industries and people to move to a carbon neutral environment. Expect a major fight over this effort.

MSA is attending Council meetings and offering our input to share that soy can be part of the solution in carbon capture as well as carbon reduction by using biofuels.

In addition, the Michigan Agriculture Environmental Assurance Program (MAEAP) will sunset at the end of the year and Governor Whitmer



Michael Frederick

wants to extend the program.

MAEAP is an innovative, proactive program that helps farms of all sizes and all commodities voluntarily prevent or minimize agricultural pollution risks. More specifically, MAEAP helps farmers adopt cost-effective practices that reduce erosion and runoff into ponds, streams and rivers.

Environmental groups and others are pushing to raise the fees to allow for the expansion of the program and change the purpose of the program from voluntary to environmental compliance and enforcement. Your MSA team is engaged in this effort to ensure the program remains voluntary, affordable and farmer-focused. We have an opportunity to showcase the positive efforts that soy producers have on agriculture and how we are good stewards of the environment.

These are just a few of the issues your team in Lansing is monitoring on behalf of the soy industry. Your input is valuable and always welcome as we meet with policymakers to advocate and educate on the importance of our members and our industry.

As always, The Frederick Group is here to represent you and advocate for your issues in Lansing. If you have any questions or if we can be of service, feel free to contact the office at 517.853.0413.



# Starting the Climate Conversation

Blair Shipp, ASA Policy Communications Coordinator

As the dialogue about climate, carbon and conservation continues in Washington, D.C., those in the agriculture sector are considering how to best contribute to the sustainability discussion. The American Soybean Association's farmer-leaders are working diligently with Congress and the Biden administration to ensure that they have a seat at the table when it comes to climate change policy—especially given that American soybean producers already have a positive story to share about sustainability.

As good stewards of their land for multiple generations, soybean producers have long practiced effective conservation methods. However, sharing the soy sustainability story in Washington, D.C. can at times seem daunting when misinformation about agriculture's climate footprint is pervasive in some media and other sources (e.g.: While farming accounts for only 10 percent of overall U.S. greenhouse gas (GHG) emissions, industry opponents often mislead by using the much higher global percentage—24 percent—when trying to influence U.S. farm policy.)

Growers can start the conversation with lawmakers about climate-smart agriculture by advocating for voluntary and incentive-based policies that reward early adopters of conservation practices and incentivize future adoption. Further, growers should share information about the geographic and operational diversity of their farms—

reminding lawmakers that there is no one-size-fits-all solution and that a suite of voluntary federal resources provides every farmer with programs that may work for them. The Conservation Stewardship Program (CSP) and Environmental Quality Incentives Program (EQIP) are good examples of federal programs that work well for soy growers.

One area of climate-smart agriculture that has recently garnered a lot of attention at USDA and on Capitol Hill is carbon sequestration. While each industry has the opportunity to decrease its carbon footprint, agriculture has the unique ability to remove carbon dioxide (CO<sub>2</sub>) from the atmosphere.

Soybean growers can remove carbon dioxide, a GHG, from the atmosphere through photosynthesis,





when soy plants take up CO<sub>2</sub> from the atmosphere and store it as carbon in the stems, leaves, beans, roots and soil in a process known as sequestration. Simply maintaining the health of your soy plants and soils helps them to serve as agricultural carbon sinks - reservoirs that accumulate and store carbon.

In addition to crop plant photosynthesis (productivity), agricultural carbon sequestration can be improved by using crop residues, animal manure incorporation, conservation tillage, cover crops and other climate-smart practices. Because of soil's carbon cycling properties, mounting scientific evidence indicates the agriculture industry has the potential to offset its own GHG emissions through better practices and become a net carbon sink, meaning the possibility exists for agriculture to sequester more carbon than it emits each year through

tillage, fossil fuel use and over-application of farm chemicals.

By practicing climate-smart agriculture, soy growers are optimizing production, all while storing carbon in their soils. That's worth bragging about when having conservation conversations! In the meantime, here at ASA, our policy team is hard at work for you assuring that while soy growers are "at the table," we are guiding palatable climate decisions for our industry here in D.C. ■



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# Watch for Soybean Gall Midge in 2021

Dr. Chris DiFonzo, Michigan State University Field Crop Entomologist

- Soybean gall midge is a new pest that is not yet in Michigan, but it is heading this way
- Michigan State University is part of a multistate project surveying for SGM
- If you see larvae or injury symptoms, please report it this summer

In 2018, entomologists in Nebraska reported a new economic pest of soybean, the soybean gall midge (SGM). There are a lot of questions about the origin of SGM. Did it evolve from a biotype that shifted from another host plant or crop? Has it been around for years at a low level? What changed in 2018 to increase its numbers or shift its feeding to healthy soybeans? Entomologists are working on these questions, but regardless, taxonomists now recognize it as a new unique species - *Resseliella maxima*.

The detailed biology of SGM is still being teased out. The adults are small, delicate flies, related to wheat midge and Hessian fly, which are both pests in wheat. The adults are weak flyers, and probably spread short distances on wind currents. Eggs are laid on soybean stems.

The larvae are tiny white maggots, which turn bright orange as they mature. They feed in stem tissue, usually at the base of the plant. Multiple larvae are usually present in a single stem, and the area where they are feeding turns black or swells. Stems become brittle and crack, and plants wilt, stunt, lodge or die. The larvae drop to the soil to pupate and, depending on the time of the year, a second generation of flies emerges, or the pupae overwinter.



Figure 2: soybean gall midge maggots on soybean stem



Figure 1: soybean gall midge infestation in field edge

SGM infestations start on field edges adjacent to previous year's soybean fields; damage progresses into the field from that margin. Under high infestations in Nebraska, losses on field edges can be 100 percent as plants lodge or die. To date, no insecticides or agronomic practices have been found to control SGM and SGM is spreading. By the end of 2020, it was found in eastern Nebraska, South Dakota, Missouri, western Iowa and Minnesota. Research on its life cycle, injury and control is limited to this area, but states on the margins of the range are actively surveying for it.

In Michigan, there is no need to panic. The closest infested location is Boone County, Iowa, which by my calculation is 400 miles west of Berrien County. That said, please remember SGM this summer as you scout or drive by fields. Since infestations usually start on field edges, this is one time where drive by 'window scouting' seems like a reasonable approach. If you notice outer rows that are wilted, lodged or dead (Figure 1), stop and split stems to check for black tissue and bright orange maggots at the base of plants (Figure 2). Report potential sightings to your local field crops extension educator or to myself (Chris DiFonzo - [difonzo@msu.edu](mailto:difonzo@msu.edu)); note the location, take pictures, and (even better) a plant sample. A gall midge identification card will be mailed this summer to Michigan soybean growers. Keep this card in the truck as a handy reference. ■



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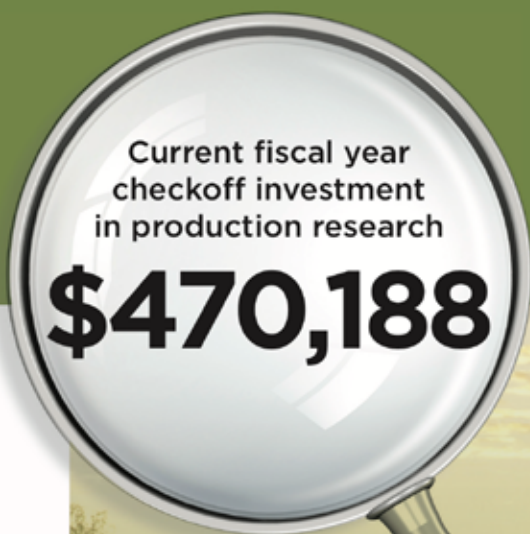
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# Michigan Soybean Committee



Current fiscal year checkoff investment in production research  
**\$470,188**



## TOP RESEARCH FUNDING AREAS

- Soybean Breeding and Genetic Improvement for Michigan Environments
- Developing Management Strategies to Improve Soybean Productivity and Profitability
- Improving Management for Weeds and Soybean Diseases



## RECENT INNOVATIVE RESEARCH PROJECTS

- Development and Commercialization of Germplasm For High Oleic Soy Oil
- Interaction of Soybean Management Practices Including Planting Date, Soybean Maturity, Seed Treatment and Seeding Rates



## TOP THINGS FOR FARMERS TO KNOW ABOUT CHECKOFF DOLLARS INVESTED IN RESEARCH

Researchers are exploring planting dates, maturity groups, nutrient uptake and other factors that impact crop's productivity suitable for the Michigan's unique environmental conditions.



## TOP AREAS OF RESEARCH CRITICAL TO THE FUTURE OF MICHIGAN'S SOYBEAN PRODUCTION

- Most common *Phytophthora* resistance genes are losing effectiveness in Michigan soybean fields, which makes variety selection more critical.
- Management of Soybean Cyst Nematode (SCN) resistance source requires careful rotation.
- The Michigan Soybean Committee coordinates a robust on-farm research program, hosting 70 trials throughout the state.



## ONE OF THE BIGGEST SUCCESS STORIES IN MICHIGAN AS A RESULT OF RESEARCH

Several specialty soybean varieties have been licensed to Michigan seed companies, giving Michigan farmers access to value-added varieties. The Michigan State University soybean breeding program, with support from the Michigan Soybean Committee, has developed high yielding specialty soybean varieties for use in tofu, natto and high oleic soybean products. This success is a result of collaboration with leading soybean processors and seed companies in the state.



**MICHIGAN SOYBEAN COMMITTEE**



**SOYBEAN RESEARCH & INFORMATION NETWORK**

[SOYBEANRESEARCHINFO.COM](http://SOYBEANRESEARCHINFO.COM)

*Funded by the soybean checkoff*

# 2021 Biodiesel Reimbursement Program



The Michigan Soybean Committee (MSC) is one again offering a biodiesel reimbursement program to users of the alternative fuel. The program is based on the biodiesel blend and gallons purchased: B99/B100 is reimbursed at \$1.00/gallon, B50 at \$0.50/gallon, B20 at \$0.20/gallon, B10 at \$0.10/gallon and B5 at \$0.05/gallon (B5 is the minimum bio blend allowed). Participants can use whatever blend or combination of blends to reach the required minimum 500 gallons of biodiesel purchased.

Every time you start an engine on your farm, you make an environmental impact. As customers continue to demand sustainable production, you can reduce your carbon footprint and support U.S.-grown soybeans with one simple decision: filling up with biodiesel blends. Biodiesel consumption in 2017 utilized 6.2 billion pounds of soybean oil or the oil from 532 million bushels of soybeans. U.S. consumers used nearly 2 billion gallons of biodiesel in 2017. For soybean farmers, that means an additional \$0.63 per bushel in value.

MSC is signing people up today for this reimbursement program! The first 20 biodiesel users to call in will be enrolled in the program - email [soyinfo@michigansoybean.org](mailto:soyinfo@michigansoybean.org) call 989.652.3294.

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# 2021 Checkoff Funded Research Projects

The MSC board of directors has approved 23 competitive research projects for 2021. Our research funding process provides funding to experts who are skilled at conducting meaningful research in Michigan soybean production. Funding decisions follow a strategic plan to allocate funds to the most critical agronomic needs.

Many projects build upon previous funding and contribute to multi-year projects, while some are single year projects. Funded projects are based on four key research categories, each representing specific areas of soybean production and profitability. All research projects fall within at least one of the following categories:

- **Resource Limitations:** Factors that impact attaining maximum genetic potential
- **Plant Health:** Issues that compromise and detract from plant health
- **Genetics:** Inherent genetic potential of soybean plants
- **External Factors:** Factors that impact soybean profitability, external to plant production

Research projects are intended to work across focus areas and develop integrated solutions to production issues. Research projects addressing these priorities receive preference, though proposals for research projects addressing issues outside of these priorities are considered.

The following are the 2021 funded projects:

## Soybean Breeding



### SOYBEAN BREEDING AND GENETIC IMPROVEMENT FOR MICHIGAN ENVIRONMENTS

**Researcher:** Dr. Dechun Wang, Michigan State University

**Investment:** \$102,354

**Description:** The MSU soybean breeding program will continue to develop varieties with high yield and resistance to critical disease and insect pests. Specialty lines will also be developed with high

protein, large and small seed size and high value oil traits. Industry input will be used to provide future direction of market demand.

### ENHANCE RESEARCH IN SOYBEAN FIELD EVALUATIONS IN MICHIGAN

**Researcher:** Dr. Dechun Wang, Michigan State University

**Investment:** \$47,612

**Description:** The management of the multiple locations of the Michigan Soybean Performance Trials and the MSU soybean breeding field operations require the support of two research technicians. This project helps to fund a portion of one the technicians.



## Disease Control

### WHITE MOLD MANAGEMENT: EPIDEMIOLOGY, SPORECASTER, FUNGICIDE TIMING AND PLANT RESISTANCE

**Researcher:** Dr. Martin Chilvers, Michigan State University

**Investment:** \$22,500

**Description:** This project includes basic research in understanding the spore release and plant infection timing to help choose optimum chemical application timing. Fungicide comparison will also be included. Collaboration with soybean breeders in developing lines with white mold resistance will be the third part of this project.

### SOYBEAN SDS AND SCN MANAGEMENT: RISK PREDICTION, SEED TREATMENTS AND VARIETY SCREENING

**Researcher:** Dr. Martin Chilvers, Michigan State University

**Investment:** \$31,500

**Description:** Validation of diagnostic assay of soil to predict risk of SDS. Seed treatments will be evaluated for their control of SDS and its symptoms. Genetic resistance to SDS will be evaluated in many soybean lines in development.



### PHYTOPHTHORA STEM AND ROOT ROT MANAGEMENT: VARIETIES AND SEED TREATMENTS

**Researcher:** Dr. Martin Chilvers, Michigan State University

**Investment:** \$27,000

**Description:** Phytophthora continues to threaten plant health in Michigan. The diversity of this pathogen and the genetic resistance offer complexities that require more understanding. This project will help to learn more about a newer species; Phytophthora sansomeana.

### A SYSTEMS APPROACH TO MANAGING ILEVO SOYBEAN SEED TREATMENT AND FOLIAR FUNGICIDE

**Researcher:** B & M Crop Consulting, Inc.

**Investment:** \$10,710

**Description:** ILeVO seed treatment has shown the protection of yield in previous trials, possibly influenced by a stay green effect. Soybean yield and economics will be compared between ILeVO seed treatment and a foliar fungicide.

### DEVELOPMENT OF DISEASE RISK SENSITIVITY INDEX FOR MICHIGAN SOYBEAN PRODUCTION

**Researcher:** Dr. Bruno Basso, Michigan State University

**Investment:** \$26,484

**Description:** Aerial imagery may be able to sense symptoms of some soybean diseases in a more efficient and earlier stage than traditional scouting practices. This project will create a field-specific, grower friendly disease risk sensitivity index to measure potential disease risk based on a set of remotely sensed geospatial layers.



## Weed Control

### WEED MANAGEMENT STRATEGIES IN NON-GMO SOYBEAN

**Researcher:** Dr. Christy Sprague, Michigan State University

**Investment:** \$7,335

**Description:** Evaluate the effectiveness and economics of commercially available non-GMO herbicide programs in conventional and no-till soybeans.

### INNOVATIVE STRATEGIES TO MANAGE GLYPHOSATE-RESISTANT HORSEWEED IN SOYBEAN - YEAR 2

**Researcher:** Dr. Christy Sprague, Michigan State University

**Investment:** \$24,026

**Description:** Determine the effect of cover crop termination timing and narrow row widths with and without post herbicides on marestail control.

### CONTINUING TO EXAMINE STRATEGIES TO MANAGE WATERHEMP IN MICHIGAN SOYBEAN

**Researcher:** Dr. Christy Sprague, Michigan State University

**Investment:** \$24,143

**Description:** Evaluate herbicide effectiveness including genetic traits of LibertyLink GT27, Enlist E3, Xtendimax, XtendFlex and LibertyLink on herbicide resistant waterhemp.

### EXPANDING MOLECULAR HERBICIDE RESISTANCE TESTING CAPACITY FOR MICHIGAN SOYBEAN GROWERS

**Researcher:** Dr. Eric Patterson, Michigan State University

**Investment:** \$26,757

**Description:** Developing molecular diagnostic assays for the most common herbicide resistant weeds in Michigan soybean fields to speed the response time of suspect samples submitted to MSU.

## Nutrient Management



### ADJUSTING NUTRIENT MANAGEMENT STRATEGIES TO ENHANCE SOYBEAN PRODUCTION

**Researcher:** Dr. Kurt Steinke, Michigan State University

**Investment:** \$40,259

**Description:** Nutrient uptake can be affected by soil moisture, soil temperature and seeding rates. Mirror trials will be conducted in irrigated and dryland soybeans to evaluate the effect of moisture availability and grain yield. Multiple fertilizer products, application methods (soil applied, foliar applied, liquid, granular, broadcast, in-row, Y-drop, etc.) and timing will be used to determine differences in nutrient response and grain yield.

...continued on next page.

### **EVALUATING SULFUR PRODUCTS AND TIMING IN SOYBEANS BY MANAGEMENT ZONES**

**Researcher:** B & M Crop Consulting, Inc.

**Investment:** \$18,900

**Description:** Sulfur content in soil and in the atmosphere are both decreasing over time. This project, in its third year, will evaluate soybean response to three sources of sulfur (dry ammonium sulfate, dry Kmag, liquid ammonium thiosulfate) across management zones. Both plant tissue analysis and yields will be compared to measure effectiveness of sulfur fertilizers and if the response is affected by management zones.

## **Agronomic Management**



### **SOYBEAN ULTRA-EARLY PLANTING DATE EVALUATION**

**Researcher:** B & M Crop Consulting, Inc.

**Investment:** \$9,000

**Description:** Soybean growers and industry professionals have reported maintained or increased yields from very early planting dates. This project will compare planting dates and quantify crop response in emergence timing, stand establishment, node, pod and seed counts and yield.

### **OPTIMIZING PLANTING DECISIONS FOR IMPROVED YIELD AND PROFITABILITY IN MICHIGAN SOYBEANS**

**Researcher:** Dr. Maninderpal Singh, Michigan State University

**Investment:** \$52,000

**Description:** Develop management strategies that can lead to increased yield and decreased input costs while minimizing production risks. Several management factors will be evaluated including optimal planting timing and maturity selection, row spacing, seeding rate and fertility, rhizobium and Azospirillum inoculation. The project will also study N fixation and impacts of soil health parameters.

### **2021 MSU EXTENSION ON-FARM RESEARCH, EDUCATION AND COMMUNICATION PROJECTS**

**Researcher:** Mike Staton, Michigan State University Extension

**Investment:** \$19,995

**Description:** The collaboration of nine MSU Extension educators and staff will conduct practical on-farm research and demonstrations including a harvest equipment field day, early maturing soybean variety comparison, western upper peninsula variety performance trials, inoculation timing and planting date effects on water use and irrigation.

### **CENTER FOR EXCELLENCE RELOADED - YEAR 3**

**Researcher:** Tom VanWagner, Lenawee Conservation District

**Investment:** \$10,000

**Description:** The continued coordination of on-farm research and demonstrations of critical conservation practices such as tillage types and nutrient management. Additional efforts will be placed on nutrient loss reduction tools such as saturated buffers. Educational events and printed materials will be developed to share the results of this work.

### **COMPARISON OF FIVE TILLAGE PROGRAMS ON GROWTH FACTORS, YIELD AND ECONOMICS OF SOYBEANS AND CORN IN MICHIGAN**

**Researcher:** AgroLiquid North Central Research Station

**Investment:** \$12,020

**Description:** Tillage practices for soybean production have changed over time with little non-biased data to help growers choose a practice that best fits their system. This project will compare five tillage systems in a soybean and corn rotation. Tillage treatments will include no till, rotational tillage, vertical till, strip till and conventional tillage.

## Soybean Cyst Nematode



### STATEWIDE SURVEY TO ASSESS SCN POPULATIONS, DISTRIBUTION, HG TYPE AND FACTORS THAT INFLUENCE THEIR PRESENCE

**Researcher:** Dr. Marisol Quintanilla, Michigan State University

**Investment:** \$15,710

**Description:** Establish a statewide survey to quantify the geographic distribution and prevalence of SCN. Testing for HG types (resistance of SCN to genetic control) and relation to production practices will be included. The possibility of a soybean and sugar beet hybrid cyst nematode will be examined.

### SCN MANAGEMENT USING SELECTED COVER CROPS AND COVER CROP BLEND WITH PI437654 (SCN WILD TYPE SOYBEAN) ALONG WITH COMPOST AND MANURES

**Researcher:** Dr. Marisol Quintanilla, Michigan State University

**Investment:** \$18,821

**Description:** Initiate a cover crop evaluation project for SCN management with 10 species or blends of species including a potential trap crop. Continue a manure and compost application project and measure their impact on SCN dynamics. Multiple manure sources will be compared to determine if species of manure source is a factor in its effect on SCN populations.

## Miscellaneous



### IMPROVING IRRIGATION WATER USE EFFICIENCY AND DISEASE MANAGEMENT USING LOW-COST SENSOR MONITORING UNIT

**Researcher:** Dr. Younsuk Dong, Michigan State University

**Investment:** \$26,796

**Description:** Soybean management under irrigation is complex and site specific. The goal of this project is to use a low-cost remote sensor monitoring system to reduce water and energy use, nutrient leaching and disease prevalence while increasing crop yield, grain quality and profitability.

### EFFECTS OF COVER CROPPING SYSTEMS ON SOIL MICROBIAL POPULATIONS

**Researcher:** Robert Schafer, Mid-Michigan Agronomy LLC

**Investment:** \$5,171

**Description:** The management of soil health is important to crop production. This project will evaluate the effect of practices that may influence soil health including cover crops and biological soil amendments in a soybean and corn rotation. ■



**MICHIGAN  
SOYBEAN  
ASSOCIATION**

# New & Renewing Members

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## Congratulations to Jim Isley: Regional Conservation Legacy Award Winner

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The American Soybean Association's Conservation Legacy Award is a national program designed to recognize the outstanding environmental and conservation achievements of soybean farmers, which help produce more sustainable U.S. soybeans.

A national selection committee, composed of soybean farmers, conservationists, agronomists and natural resource professionals, evaluated nominations based on each farmer's environmental and economic program. The program is sponsored by ASA, BASF, Bayer, the United Soybean Board/Our Soy Checkoff and Valent.

# Residual Effects of Swine Manure on Soybean Yield and SCN

Mike Staton, Erica Rogers, Jerry May, MSU Extension



Photo credit: Pork Checkoff

## Purpose:

Swine manure is commonly applied in the late summer or fall prior to planting corn in a corn-soybean rotation with the goal of supplying most or all the nitrogen required by the corn crop. This field experiment was designed to determine the residual effects of swine manure on yield and soybean cyst nematode development when soybeans are planted after corn fertilized with swine manure.

## Procedure:

In this field demonstration, manure was applied in August and October of 2018 with the goal of meeting the farmer's desired 215 lbs. of N per acre within each treatment. The August and October applications were both applied with and without the nitrification inhibitor Instinct®. Treatment strips were laid out and application rates were set using the custom applicator's auto steer technology and application rate monitor. Representative manure samples were collected during the August and October applications and then used to determine the manure application rate to supply the desired amount of actual N.

The trial consisted of the following six treatments, designed with three randomized replications of each treatment.

- No manure, no fertilizer
- August manure with Instinct
- August manure without Instinct
- October manure with Instinct
- October manure without Instinct
- Spring 2019 manure without Instinct

Swine manure applications were the only source of crop nutrients across all treatments.

Corn was planted in 2019 and soybeans were planted in 2020 in the trial area. The locations for all six treatments were marked using GPS coordinates to ensure that the treatment strips could be identified and sampled in 2020. Soybean cyst nematode (SCN) soil samples were collected in 2018 and again in the late summer of 2020 from all treatments except the no manure, no fertilizer strips and submitted to the MSU Plant Diagnostic Clinic for testing. Soybean yield data was collected using a calibrated yield monitor in the fall of 2020. The soybean yield data is provided in Table 1.

Table 1. Residual effects of swine manure applied in 2018 and 2019 on soybean yields in 2020.

Treatment	Yield (bu/ac)
No manure, no fertilizer	65.4 c
Spring 2019 manure without Instinct	66.6 bc
August manure with Instinct	71.5 a
August manure without Instinct	71.1 a
October manure with Instinct	68.7 abc
October manure without Instinct	69.2 ab
LSD 0.10	3.5

## Results:

Application of swine manure in the late summer and fall of 2018 significantly increased soybean yield. Both August manure application treatments and the October manure without Instinct treatment increased soybean yield over the no manure, no fertilizer treatment. Yield increases ranged from 3.8

to 6.1 bushels per acre. The August manure treatments also increased soybean yields by 4.4 to 4.8 bushels per acre over the spring 2019 manure treatment.

Emilie Cole, lab manager and technician in the MSU applied nematology lab performed the statistical analysis on the SCN test results from 2018 and 2020. She found that the number of cysts, juveniles and eggs per cyst increased significantly from 2018 to 2020. In the 2020 sampling, there was a significant treatment effect in the number of eggs per cyst. The August 2018 manure with Instinct treatment had the least eggs per cyst and the Spring 2019 manure treatment had the most (Table 2).

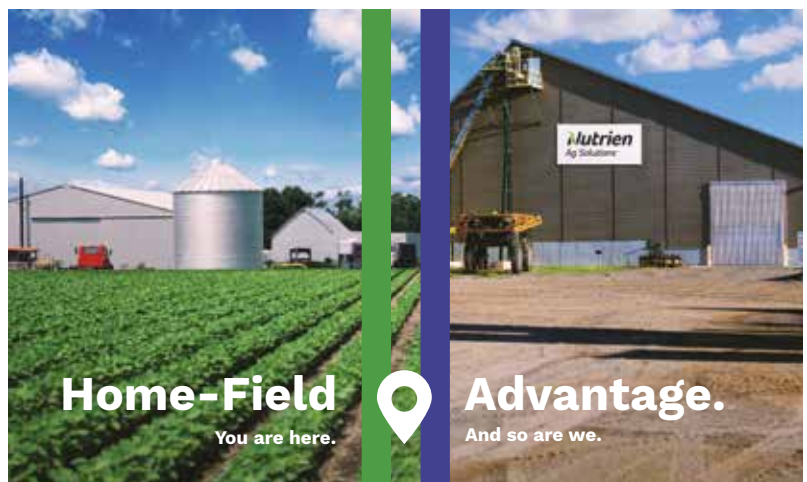
**Summary:**

Swine manure applied in the late summer and fall of 2018 provided multiple residual benefits to soybeans grown in 2020. Three out of the four manure application treatments increased soybean yields and two of the treatments reduced the number of SCN eggs per cyst. The results are from a single trial and further research across multiple sites and years is required to substantiate them.

While soil microorganisms, soil fertility and soil chemistry are very complex, it is possible that the hog manure provided an improvement to overall soil health which improved crop health and yield and helped to reduce plant parasitic pests such as SCN. ■

Table 2. Residual effects of swine manure applied in 2018 and 2019 on SCN eggs per cyst.

Treatment	SCN eggs per cyst
Spring 2019 manure without Instinct	98.3 c
August manure with Instinct	33.3 a
August manure without Instinct	90.5 c
October manure with Instinct	47.3 bc
October manure without Instinct	45.8 ab
HSD 0.05	3.977



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# Great Lakes - St. Lawrence Seaway System Offers Opportunities for Soybeans

From Duluth, Minnesota to the Atlantic Ocean, the Great Lakes - St. Lawrence Seaway is a valuable transportation option for the soybean supply chain. The seaway connects nine states including Michigan, Minnesota, Wisconsin, Illinois, Indiana, Ohio, Pennsylvania, New York and Vermont, as well as two Canadian Provinces - Quebec and Ontario.

In 2017, the region accounted for 30 percent of the combined Canadian and U.S. economic activity, totaling six trillion dollars. The regional exports, if combined, would be the 3rd largest in the world behind the entire U.S. and China.

“One of the well-established principals in managing supply chains is to avoid putting all your eggs in one basket,” shared Mike Steenhoek, executive director of the Soy Transportation Coalition. “It is always healthy to explore additional opportunities to connect farmers with their ultimate customers. The Great Lakes - St. Lawrence Seaway has the potential to provide enhanced access to international markets for soybean farmers. We look forward to partnering with the St. Lawrence Seaway Management Corporation in promoting this logistics option for the soybean industry.”

There are 110 ports along the Seaway, 40 of which are in Michigan. Along the 2,299 miles of the Great Lakes - St. Lawrence Seaway, there are 13 Canadian and three U.S. lock systems to accommodate the 600-foot water height difference between the Atlantic Ocean and Lake Superior.

“Despite challenges presented last year, agricultural exports shipped through the Seaway increased by 28 percent over 2019 volumes,” said Craig H. Middlebrook, Deputy Administrator of the Great Lakes St. Lawrence Seaway Development Corporation. “With last fall’s strong harvest in the region, including soybeans, we anticipate 2021 to be another good year for U.S. agricultural exports moving through the Great Lakes - St. Lawrence Seaway System.”

Over 200 million tons of cargo travel on the seaway annually. Not only are goods shipped out to international customers, but agricultural inputs are shipped in as well.

Table 1. Cargo shipped via the St. Lawrence Seaway

<b>Agricultural Products</b>	<b>40%</b>	<b>Soybeans, Corn, Wheat, Barley, Oats and Flaxseed</b>
<b>Mined Products</b>	<b>40%</b>	<b>Iron Ore, Coal, Coke, Salt and Stone</b>
<b>Other</b>	<b>20%</b>	<b>Fuel Oil, Petroleum Products, Chemicals, Timber and Animal Products</b>

Moving cargo by water is the most energy efficient mode of transportation and has the lowest carbon footprint.







The Great Lakes - St. Lawrence Seaway system is a prime example of neighboring countries working together for mutually beneficial opportunities. The U.S. Army Corps of Engineers along with the St. Lawrence Seaway Management Corporation have an excellent working relationship, which supports a vital trade route connecting the Great Lakes to over 50 countries across the world. This system has the potential to be used more significantly in the future for our soybean export markets. ■

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# MSA Scholarship for College Students

The Michigan Soybean Association is excited to announce a new scholarship opportunity for college students. MSA members and their children ages 17-25 are eligible to apply. Applicants must be enrolled as a full-time student at a post-secondary educational institution during the fall 2021 semester to be eligible. Students are only eligible to win an MSA scholarship one time. Scholarships in the amount of \$2,000 each will be awarded.

Application information can be found at [https://misoy.org/?page\\_id=814](https://misoy.org/?page_id=814). Applications will be due to the Michigan Soybean Association office on August 1, 2021.

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# ZFS Ithaca: One Year Later

GARY BROWER, ZFS ITHACA



Photo courtesy of ZFS Ithaca, Kirby Kerschner

**B**randon Ester will not soon forget Oct. 10, 2020. It was an unseasonably warm autumn day in the middle of the harvest season, with the sun dipping in and out of the clouds and the temperature in the low 70s.

When the Quality Assurance Technician at ZFS

Ithaca, LLC arrived at work around dawn that day, there were already several trucks lined up in the huge gravel parking lot, waiting to off load at Michigan's newest and largest soybean processing plant.

Ester put in a 15-hour day, as did many other ZFS Ithaca employees, and when he drove out of the parking lot to head home, it was dark. However, there were still trucks waiting to dump beans.

"It was an endless line-up of trucks. We had four lines of trucks all day that day, and by 3 o'clock we were wondering if the lines were ever going to go down," Ester said. "It was fun until 5 or 6 p.m., but by then we were pretty tired. It was just one truck after another. I think the last truck went through at about 11."

It was a record-setting day for ZFS Ithaca during its first year of operation, as about 360 trucks passed over the scales and dumped more than 420,000 bushel of soybeans. It marked the beginning



Former USDA Secretary Sonny Perdue visited ZFS Ithaca in October 2020  
Photo courtesy of ZFS Ithaca, Brandon Ester



of a remarkable two-week stretch during which ZFS Ithaca took in, on average, more than 300,000 bushels of beans a day.

Primarily from Michigan producers.

“As a whole, I think it’s going really, really well. My harvest expectations were greatly exceeded,” said ZFS Ithaca Grain Merchandiser Nate Greeley. “I have been impressed with how well the farmers have given us a chance to earn their business and have tried something totally new. That has been the really cool thing - from the growers’ side, how well they have received us.”

Built on a former Brownfield Redevelopment Site in Gratiot County, ZFS Ithaca sits on 435 acres adjacent to U.S. 127 in the City of Ithaca. The massive soy processor is an affiliate of Zeeland Farm Services, Inc., which opened Michigan’s first soy processing plant in 1996.

ZFS Ithaca purchased the land, which was the site of a failed ethanol production project, in 2014. Original plans called for the plant to begin taking soybeans in the fall of 2018, with operations to start early in 2019. Weather-related construction delays pushed things back by a full year, and the plant began taking beans in the fall of 2019, in preparation for a winter 2020 start up.

They finally flipped the switch on Feb. 10, 2020, and

a new era of agriculture in Michigan was born.

“We marked the first year of operation in February. A lot of work was done fine tuning the process and the operational aspects of the facility,” said Eric Meeuwsen, General Manager of ZFS Ithaca and a member of the ownership family of both ZFS Ithaca and Zeeland Farm Services. “The plant continues to perform as expected, with minor tweaks along the way. We are really working hard on efficiencies this second year to dial things in.”

Nathan Donahey came on as plant manager in June, after about 10 years in production management at ZFS Ithaca affiliate Nebraska Corn Processing, LLC, an ethanol plant in southwest Nebraska. He came to Ithaca in February of 2020 to provide expertise at the startup, and was asked to return full-time in the summer. Donahey said it has been a pretty steep learning curve for ZFS Ithaca employees, many of whom have production experience, but no background in agriculture.

“I think we stand in a good spot (after one year). I’ve been through a couple different plant startups, and we’ve had our nuisances, but we have worked through some things,” he said. “The employees have been great and really stayed on task. We are making progress and are running at full rate.”

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Ithaca Great Lakes Central Railroad rail car  
Photo courtesy of ZFS Ithaca, Gary Brower

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Full rate means the plant is capable of processing 3,800 tons of soybeans daily, producing about 235,000 pounds of soybean meal, 20,000 pounds of soy hulls and nearly 60,000 pounds of soy oil each hour. The plant runs 24 hours per day, seven days a week, except during two planned shutdown periods each year, during which the equipment gets necessary upgrades and deep cleaning.

ZFS Ithaca Grain Merchandiser Carl Holzhauser said the plant has been a welcomed addition in Michigan, for

both growers of soybeans and end users of the plant's co-products.

"There has been a lot of excitement, from the locals and from afar. We are covering the entire state, basically, between (ZFS Ithaca and Zeeland Farm Services) marketing teams," he said. "It's a whole other market available to every farmer in the state. And I really feel that the excitement we show of being here and working for the end user is being passed on into the fields."

According to Ester, who grew up in Ithaca, the soy plant has been a boost for the local community as well.

"It was a wait-and-see kind of thing at first, but as we've gotten up and running, the people I talk to love it," he said. "This has been an empty lot my entire life. They are happy there is something here."

"They love that it brings good paying jobs to the community and with a company that treats its employees well," Ester added. "For the most part, it's been an overwhelming positive." ■



ZFS Ithaca at sunrise

Photo courtesy of ZFS Ithaca, Kirby Kerschner



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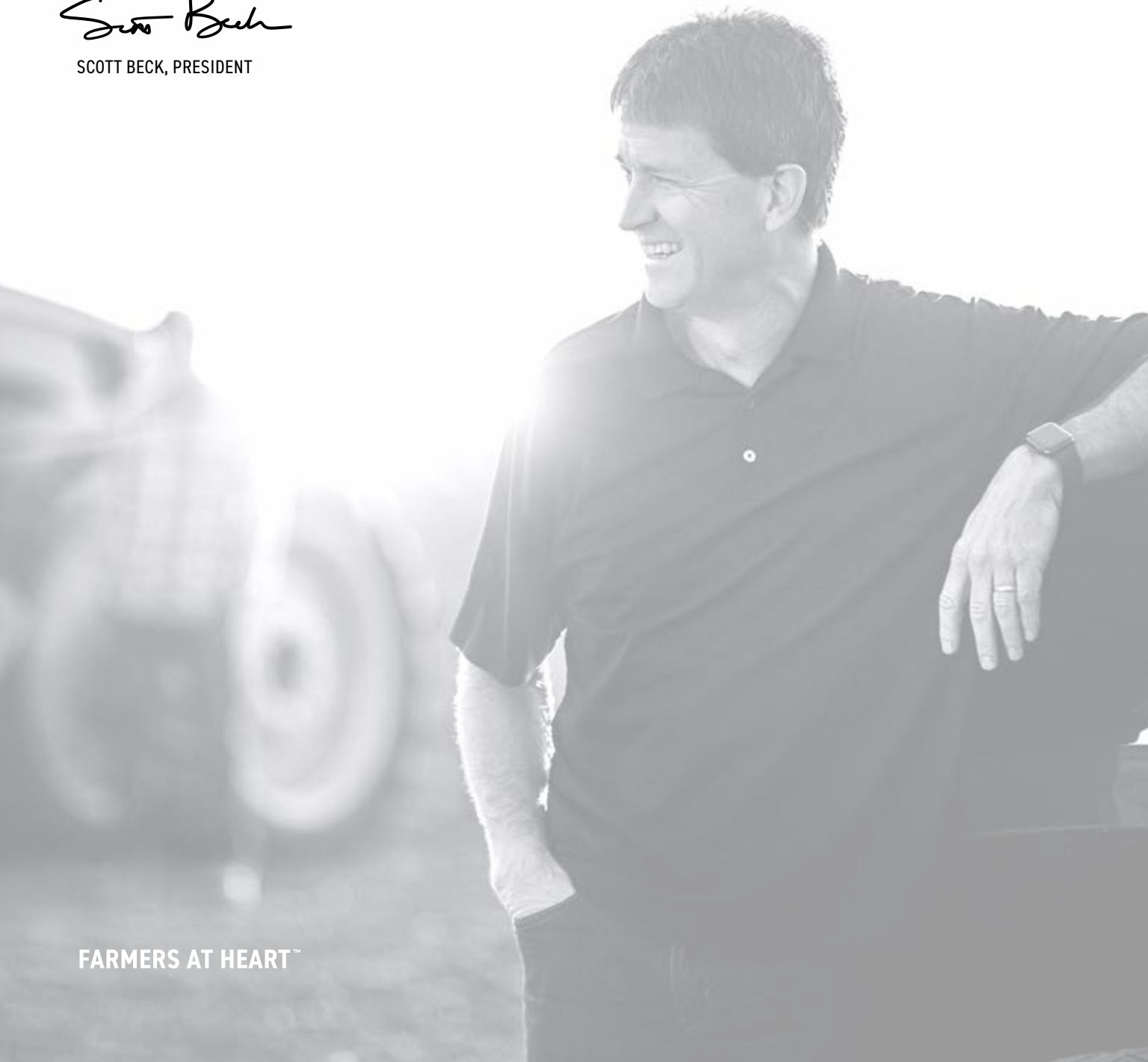


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