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MICHIGAN Soybean NEWS©

Volume 14 - Issue 3

2022 Funded Research Projects

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MICHIGAN Soybean NEWS
Volume 14 - Issue 3

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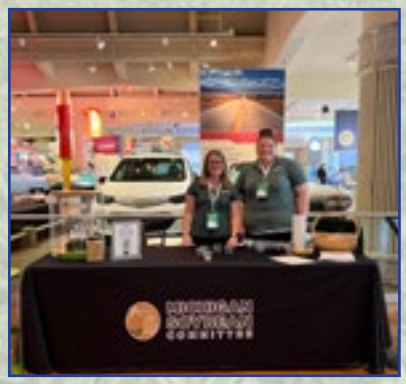

Michigan Soybean Association Mission:
To improve and advocate for the Michigan soybean industry.

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ASA Corteva Young Leader Participants Represent Michigan

The 38th class of American Soybean Association (ASA) Corteva Agriscience Young Leaders completed their training March 8 – 12, 2022 in New Orleans, Louisiana, in conjunction with the annual Commodity Classic convention and trade show. The Michigan Soybean Committee and Michigan Soybean Association each sponsored participants from Michigan. Megan and Joe Bunge as well as Eric and Sara Kreiger participated in training focused on leadership development, industry issue updates and outreach, and had the opportunity to customize their training through sessions at Commodity Classic. The Young Leaders were also recognized at ASA's annual awards banquet.

Joe Bunge, one of Michigan's 2022 participants shared some thoughts on his recent experience with the program. "The most valuable aspect of this program for me was learning about all the different farming operations across the US and Canada. We met so many farmers that have become friends who have the same passion for agriculture that my wife and I do. Learning about different farming operations was very intriguing - we learned about those who grow peanuts, popcorn, cotton, tobacco, etc. It is so interesting learning about different parts of agriculture that you are unfamiliar with. For example, before this experience, I never knew that tobacco had to be started in a greenhouse and mowed every 3-5 days to keep the plants uniform for planting."

"This program has also helped us learn how to better advocate for agriculture. To anyone considering this program I would tell them to not think twice about it. This is an amazing program. Agriculture is always changing and this is the perfect opportunity to learn more about the soybean industry & how to better advocate for agriculture. Not only do you learn more about the industry you love, but you meet so many lifelong friends along the way. This program is one that my wife and I will be thankful for having the opportunity to be part of for the rest of our lives," shared Joe.

If you or a young farmer you know are interested in improving your leadership skills, we will be receiving applications for the next Corteva Agriscience Young Leaders Program this fall. Please call Janna Fritz at the Michigan Soybean office for more information.

Joseph & Megan Bunge (L) and Erik & Sara Krieger (R) accepting plaques from Corteva Agriscience staff Matt Rekeweg, U.S. Industry Affairs Leader; Peter Laudeman, Political Affairs Manager; and Katie Jordan, Federal Government Affairs Associate.

Staff Update

"Kids these days are lazy, disrespectful and don't care about anyone but themselves." This statement has been said of every generation since Aristotle.

I recently had the privilege of attending a Professional Development Dinner, which was hosted by the Michigan Soybean Committee for Michigan State University College of Agriculture & Natural Resources students.

Jasper Cunningham was the featured speaker and the dinner included a presentation on business etiquette. We learned about business dining, proper dress attire, business socializing, understanding the culture of your host, and other tips for interacting in different professional situations. We also had industry representatives who sat with the different groups of students to converse about the ag industry over dinner. Table hosts included Jamie Clover Adams, Michigan Asparagus and Michigan Carrot; Jeff Haarer, Michigan Department of Agriculture and Rural Development, Laurie Isley, President of the Michigan Soybean Committee, Heather Feuerstein, President of the Michigan Soybean Association, and Travis Jones from GreenStone Farm Services.

Kudos to Sonja Lapak, Communication Director and Katlin Fusilier, Outreach Specialist who did a fantastic job organizing the dinner.

The students I sat with were from different countries and had a variety of different majors. Some were in ag and others, mechanical engineering, environmental sustainability and nursing. They were bright and engaged in conversation. They were interested in the opportunities in agriculture and were excited about the projects the soybean industry is involved in. Students had not had exposure to checkoffs and the purpose to advance the ag industries.

What really excited me was half the students at my table were celebrating Ramadan. It is a celebration of the Muslim faith which requires 40 days of fasting during the daylight hours. Even though the students were not able to eat until the sun set, they still came to our dinner and were very participatory.

We need to recognize the next generation of talent in the ag industry may be from different countries, cultures or faiths, and we need to be welcoming to all of them.

Over the years, I have been blessed to cross paths with students of different ages. I can tell you the young people I have met are smart, creative problem solvers, who care about their communities and each other. They are coming out of a pandemic which has turned the world upside down. The lessons they learned are going to make the world a better place. Kids these days.

Choosing joy in chaos,

Kathy Maurer

Kathy Maurer,
Financial Director
kmaurer@michigansoybean.org

WISHH serves as an international soy industry incubator, spurring innovation by connecting local entrepreneurs with industry-specific resources and business knowledge.

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MICHIGAN SOYBEAN ASSOCIATION

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For more information on member benefits, visit www.misoy.org/member-benefits/.
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- Annual $75 seed coupon for renewing members to use with our partnering seed companies
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MSA Hosts Legislative Outreach Farm Tours

This spring the Michigan Soybean Association held two on-farm legislative breakfasts as a way to connect MSA farmer-members with their policy makers and help legislators learn more about the Michigan soybean industry. Legislators and their staff were invited from the home district of each of the host farms, as well as the surrounding areas. MSA members from the districts of the two farms were also invited.

The two farm hosts were Morse Farms in Birch Run and Crawford Farms in Dansville. The board and staff of MSA appreciate their willingness to open their farms and graciously host these events. MSA would also like to express their thanks to the Michigan Soybean Committee for sponsoring breakfast.

The events allowed for great discussion on a wide variety of topics including biodiesel, soy-based products, infrastructure, input prices, water and more. There was great conversation and lots of questions that kept attendees engaged and offered learning opportunities for farmers and legislators alike.

Thank you to the legislators and regulators who were able to attend these events: Congresswoman Rep. Elissa Slotkin, U.S. Department of Agriculture Farm Service Agency State Executive Director Tim Boring, Senator Kevin Daley, Senator Ken Horn, Senator Lana Theis, Senator Tom Barrett, Senator Curtis Hertel, Jr., State Representative Phil Green, State Representative Julie Alexander, State Representative Sarah Anthony, State Representative Julie Brixie, State Representative Kara Hope, State Representative John Cherry, State Representative Angela Witwer, Saginaw County Commissioner Cheryl Ewing and Birch Run Township Supervisor Ray Letterman.

MSA plans to continue to offer additional ways for MSA members to engage with their legislators. If you are not yet an MSA member, please consider joining today. View the membership application on page 7.

Host Pete Crawford with State Rep. Julie Alexander

Host Don Morse with State Sen. Ken Horn

Congresswoman Elissa Slotkin addresses attendees

A Michigan Kickoff for Senate Farm Bill Hearings

All of Michigan agriculture was represented on April 29, 2022, when the first 2023 Farm Bill hearing kicked off the process of writing this critical piece of farm policy. Hosted at Michigan State University, Senators Debbie Stabenow (D-MI), Chair of the Senate Agriculture, Forestry and Nutrition Committee and John Boozman (R-AR), ranking member of the same committee welcomed all participants to the new STEM Teaching and Learning Facility on campus. The hearing was titled "Growing Jobs and Economic Opportunity: 2023 Farm Bill Perspectives from Michigan."

Two panels of agricultural representatives spoke about their needs for the next farm bill. Michigan Soybean Association was represented by Jake Isley of Stewardship Farms in Palmyra, MI. Isley's comments focused on policies that impact the more than 12,000 soybean farmers in Michigan. Topics included the Farm Safety Net, crop insurance, access to credit, trade, conservation programs and the use and further development of biobased products.

"Soybean farmers rely on domestic and global markets, as well as a steady supply of production inputs and a predictable regulatory environment, for success. When those markets fail or when significant economic disruptions occur, we rely on policymakers to ensure that a supportive farm safety net is in place," said Isley in his verbal testimony to the Senators regarding the farm safety net.

As Isley continued to speak about access to credit, he noted, "Soybean farmers have also been concerned about FSA's approach to implementing the beginning farmer definition used for credit programs. Due to FSA's information technology system limitations, the definition is viewed as an inflexible 10-year timeframe and does not allow for

military service or college years to be excluded from that 10-year time frame."

Stewardship Farms and the Isley family have been recognized nationally for their conservation practices. Isley was sure to note that additional conservation practice incentives are needed in the next farm bill. He noted, "As you develop the next farm bill, we encourage you to consider directing funding to programs and practices that address cropland soil quality and health, water quality and quantity, provide regulatory predictability, and save input costs; to develop climate smart provisions that focus on total on-farm carbon capture, not additionality; to emphasize working lands programs over land retirement programs; and to consider incentives that encourage adoption of precision agriculture technologies, the use of which has a wide range of environmental benefits."

Regarding bio-based products, Isley commented, "There are over 1,000 biobased products made with soybeans that can be utilized by federal agencies and private consumers alike, ranging from cleaning supplies to asphalt sealant to running shoes—and all made with ingredients grown right here on Michigan farms. Biobased products made with soy protein and oil are sustainable. Unlike fossil fuel-based feedstocks, soybeans capture carbon dioxide from the atmosphere."

Senator Stabenow further emphasized the need to expand biobased products in manufacturing, especially with the automotive industry in Michigan. She noted the use of soy-based foam by the Ford Motor Company.

Michigan Soybean Association would like to thank Jake Isley for representing soybean farmers at this important phase of the development of the next farm bill. His participation and leadership were exemplary and spoke poignantly to the needs of other Michigan soybean farmers.

MICHIGAN SOYBEAN ASSOCIATION

New & Renewing Members

NEW MEMBERS:

Francis Keys, Montrose
Douglas Long, Clayton
Alex Engelsma, Ada
Luke Metz, Ray
Leo Morehouse, Charlotte
Scott Thomas, Brown City
Emma Woller, Montague

RENEWING MEMBERS:

Brian Bellville, Prescott
Ned Birkey, Ida
Tim Boring, Stockbridge
William Dodds, Onsted
Jeffrey Furness, Yale
Larry Gould, Morenci
Daryl Griner, Jones
Larry Hoffman, Marshall
Donald Jenks, Webberville
James Kleinert, Munger
Richard Kratzer, Allen
Gary Kreps, Temperance
Bill Martin, Pewamo
Randy Poll, Hamilton
Debra Schmucker, Osseo

MSA Scholarship Application Now Available for College Students

The 2022 Michigan Soybean Association scholarship application is now available. This exciting opportunity is offered to college students who are MSA members, as well as children and grandchildren of members ages 17-25. Applicants must be enrolled as a full-time student at a post-secondary educational institution during the fall 2022 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.

Through their strategic plan, the MSA board of directors has placed an emphasis on outreach and support for college students and young professionals in the agriculture industry. Today's college students are not only the next generation of farmers and agriculturalists, but also future policymakers, teachers, healthcare workers, consumers, etc. Supporting students who are connected to agriculture through membership in the Michigan Soybean Association is a rewarding opportunity that allows MSA to connect with students and help develop a relationship with future leaders.

Application information can be found at www.misoy.org/scholarship. Applications will be due to the Michigan Soybean Association office on August 1, 2022.

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2022 Checkoff Funded Research Projects

The Michigan Soybean Committee board of directors has approved 20 competitive research projects for 2022. Our research funding process provides resources 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 of Michigan soybean growers.

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 2022 funded projects:

Soybean Breeding

SOYBEAN BREEDING AND GENETIC IMPROVEMENT FOR MICHIGAN ENVIRONMENTS

Researcher: Dr. Dechun Wang, Michigan State University
Investment: $117,086
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. Changing industry directions will be sought and used to provide future focus of breeding program.

ENHANCE RESEARCH IN SOYBEAN FIELD EVALUATIONS IN MICHIGAN

Researcher: Dr. Dechun Wang, Michigan State University
Investment: $54,489
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.

Soybean Cyst Nematode

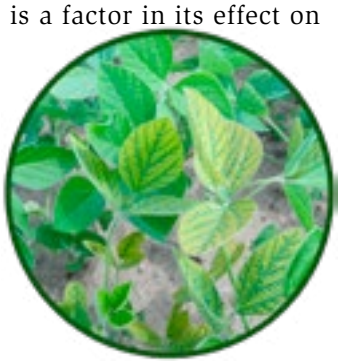
EVALUATION OF DIFFERENT SOURCES OF SOYBEANS AS A "TRAP CROP" FOR SOYBEAN CYST NEMATODE IN GREENHOUSE CONDITIONS

Researcher: Dr. Marisol Quintanilla, Michigan State University
Investment: $6,451
Description: Establish a greenhouse study to evaluate the reproduction of SCN on susceptible, Peking, PI88788 and PI437654 soybean lines to quantify the resulting SCN populations. This concept will be evaluated under field conditions if a candidate soybean line is identified.

SOYBEAN CYST NEMATODE 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: $27,328
Description: Continue 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 the impact on SCN dynamics. Multiple manure sources will be compared to determine if the species of manure source is a factor in its effect on SCN populations.



Nutrient Management

ADJUSTING NUTRIENT MANAGEMENT STRATEGIES TO ENHANCE SOYBEAN PRODUCTION – YEAR 2

Researcher: Dr. Kurt Steinke, Michigan State University
Investment: $47,000
Description: Nutrient management practices will be evaluated in mirror trials in irrigated and dryland soybeans to measure the effect of moisture availability and grain yield. Multiple fertilizer products (including N alone), 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.

Weed Control

OPTIMIZING WEED CONTROL IN NON-GMO SOYBEANS

Researcher: Dr. Christy Sprague, Michigan State University
Investment: $8,241
Description: Evaluate the effectiveness and economics of commercially available non-GMO herbicide programs in conventional and no-till soybeans.

INVESTIGATING WEED MANAGEMENT STRATEGIES FOR ULTRA-EARLY PLANTED SOYBEANS

Researcher: Dr. Christy Sprague, Michigan State University
Investment: $28,090
Description: Determine the adjustments needed when planting very early including weed emergence timing, canopy closure timing, evaluating soybean injury and length of residual weed control.

WATERHEMP MANAGEMENT STRATEGIES USING DIFFERENT SOYBEAN TECHNOLOGIES

Researcher: Dr. Christy Sprague, Michigan State University
Investment: $22,605
Description: Evaluate herbicide effectiveness including the genetic traits of Enlist E3, XtendFlex and LibertyLink on herbicide resistant waterhemp. Further evaluate soil applied herbicides alone and in premixtures.

DEVELOPING AND IMPROVING NEW ASSAYS FOR RAPID HERBICIDE RESISTANCE DIAGNOSTICS

Researcher: Dr. Eric Patterson, Michigan State University
Investment: $26,155
Description: Developing molecular and leaf disk diagnostic assays for the most common herbicide resistant weeds. This system would categorize weeds into tolerant, resistant or susceptible individuals. Diagnostic results could be returned to growers quickly to enable weed control strategy adjustments where needed.

Disease Control

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

Researcher: Dr. Martin Chilvers, Michigan State University
Investment: $35,000
Description: This project includes basic research in understanding the spore release and plant infection timing to help choose optimum chemical application

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timing. Fungicide comparison and other controls such as no-tillage, atrazine, metribuzin and Contans 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: $25,000
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. Fungicide sensitivity will be monitored with a focus on resistance to the active ingredients in Saltro and ILeVO.

SOYBEAN FUNGICIDE APPLICATION TECHNOLOGIES AND FUNGICIDE RESISTANCE

Researcher: Dr. Martin Chilvers, Michigan State University
Investment: $20,000
Description: Investigation of new fungicide application technologies and products including planter applied and in-season soil applied. Frogeye Leafspot and Septoria brown spot will be studied for resistance concerns.

IMPROVING WHITE MOLD MANAGEMENT WITH VARIABLE RATE PLANTING AND POPULATION MANAGEMENT IN SOYBEANS

Researcher: B & M Crop Consulting, Inc.
Investment: $15,900
Description: Evaluation of white mold control with ultra-low variable rate planting compare to normal variable rate, straight rate ultra-low, straight rate normal and normal variable rate with a foliar fungicide.

DEVELOPMENT OF AN EARLY DISEASE DETECTION SENSITIVITY INDEX IN SOYBEANS USING A GEOSPATIAL SYSTEMS APPROACH

Researcher: Dr. Bruno Basso, Michigan State University
Investment: $28,801
Description: Building upon first year research, using remote sensing to detect areas of concern within soybean fields which may indicate disease outbreaks before they are visible to the human eye.

Agronomic Management

OPTIMIZING PLANTING DECISIONS FOR IMPROVED YIELD AND PROFITABILITY IN MICHIGAN SOYBEANS

Researcher: Dr. Maninderpal Singh, Michigan State University
Investment: $56,942
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, seed priming and biological seed treatments. The project will also study N fixation and impacts of soil health parameters.

2022 MSU EXTENSION ON-FARM RESEARCH, EDUCATION AND COMMUNICATION PROJECTS

Researcher: Mike Staton, Michigan State University Extension
Investment: $17,236
Description: The collaboration of MSU Extension educators and staff will conduct practical on-farm research and demonstrations including a harvest equipment field day, early maturing soybean variety comparison, northern lower and western upper peninsula variety performance trials and vole management in soybeans.

CENTER FOR EXCELLENCE RELOADED AGAIN

Researcher: Tom VanWagner, Lenawee Conservation District
Investment: $10,500
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 a P filter and the use of biosolids as a nutrient source. Educational events and printed materials will be developed to share the results of this work.

SOYBEAN ULTRA-EARLY PLANTING DATE EVALUATION

Researcher: B & M Crop Consulting, Inc.
Investment: $10,900
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.

COMPARISON OF FIVE TILLAGE PROGRAMS ON GROWTH FACTORS, YIELD AND ECONOMICS OF SOYBEANS IN A CORN-SOYBEAN ROTATION

Researcher: AgroLiquid North Central Research Station
Investment: $15,650
Description: Tillage practices for soybean production have changed over time with limited data to help growers choose practices that best fit their system. This project will continue a study to 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.

Miscellaneous

UTILIZATION OF SENSOR TECHNOLOGY TO IMPROVE WATER AND DISEASE MANAGEMENT IN IRRIGATED SOYBEAN FIELDS

Researcher: Dr. Younsuk Dong, Michigan State University
Investment: $29,973
Description: Building upon the first year project success, this project will evaluate the use of 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. ■

Michigan Soybean Launches Partnership with The Henry Ford Museum

The Michigan Soybean Committee is excited to share details about our new partnership with The Henry Ford Museum of American Innovation. Announced on March 22 (National Ag Day), this multi-faceted partnership offers MSC the opportunity to engage with museum goers, share accurate information about soybeans and agriculture and engage with target audiences such as students and educators through a variety of different projects and programs.


Katlin Fusilier, Liam Spencer, Max Tiani, Sonja Lapak

One project includes the opportunity to work with museum staff to add more soybean-specific information to the museum floor. Additionally, we are working with the curator of agriculture and the environment to capture farmer videos in today's day and age, which will be utilized in future applications at the museum and also help to build out the archives with a clear snapshot of what farming is like in 2022.

Another project MSC is sponsoring is Invention Convention Michigan. The state finals were held at The Henry Ford Museum at the end of April. MSC is the current sponsor of the Food & Agriculture Award Category. The winning invention in that category this year was a project by Maxwell Tiani and Liam Spencer called the No Drip Chip. This invention was designed in both edible and reusable versions and is a disc-shaped device used to stop drips from getting on your hands when eating an ice cream cone. The inventors are fourth grade students from Saline, MI who wanted a solution to messy, sticky hands and set out to find a solution. Their edible prototypes are made out of cookies, and the reusable versions have been 3D printed.

During Invention Convention, staff also had a booth with information about soybeans and parts of a seed and attendees were able to plant a soybean seed to take home and grow.

In addition to our work with the curator and our sponsorship of Invention Convention, MSC is also sponsoring a series of summer camps for students at Greenfield Village focused on growing plants and learning more about farming and healthy food.

Lastly, we have partnered to contribute scientific information about soybeans to articles and blog posts and have partnered on digital content which will be shared across their vast social and digital platforms. This allows us to amplify soybean information through their channels and increase our exposure with key audiences.

Stay tuned for more updates on this exciting partnership as we work through more of the projects!

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

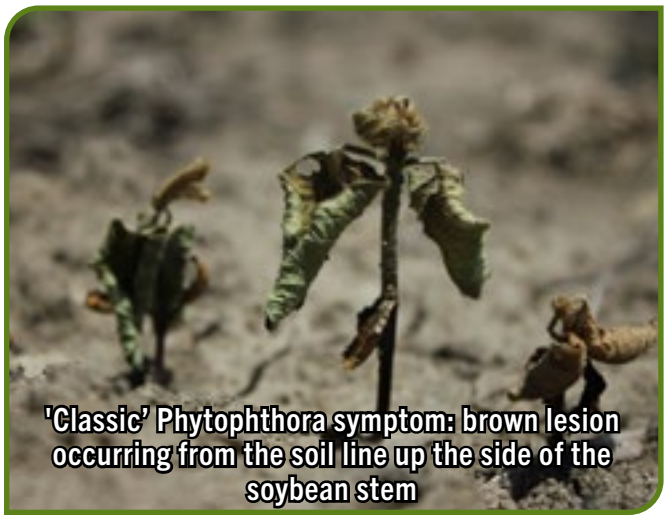
Scouting for Phytophthora and Root Rot Diseases

Dr. Martin Chilvers and Dr. Austin McCoy, Field Crops Pathology, Department of Plant, Soil and Microbial Sciences, Michigan State University

Cool and wet conditions slow seed germination and tend to favor seedling diseases. Flooding events also exacerbate root rots. There are two main groups of root rot disease organisms, the oomycetes (water molds) which includes Phytophthora and Pythium, and the true fungi such as Fusarium and Rhizoctonia, including the Fusarium species that causes soybean sudden death syndrome. The oomycetes produce zoospores that can swim in free water towards roots. But even fungi can take advantage of conditions of plant stress and slow development. Although seed treatments can help reduce disease, they are not silver bullets. Variety resistance or tolerance is also a critical piece of disease management.

After emergence, plant stand loss may become apparent and by June additional symptoms may be showing such as root rot and plant wilting. Unfortunately, it can be difficult to differentiate the causes of seedling and root rot diseases, and if there are concerns a sample should be submitted to a diagnostic clinic such as MSU's Plant and Pest Diagnostics lab (www.canr.msu.edu/pestid/). Rhizoctonia tends to cause a dry red-brown lesion on the roots, often at the soil line, while Fusarium may cause brown lesions on the roots. Phytophthora and Pythium tend to cause water-soaked soft lesions in seedlings.

Mid to late June is a good time to scout for 'classic' Phytophthora symptoms, which consist of a brown lesion running from the soil line often up the side of a stem. Phytophthora should be managed by using a combination of seed treatments, single-gene resistance (Rps genes) and field tolerance. While seed treatments typically only protect seeds and seedlings for 2-3 weeks, variety resistance can offer season-long reductions in disease. A recent survey conducted by our lab and supported by the Michigan Soybean Committee identified that the most common Rps genes for Phytophthora management, Rps 1c and 1k, are no longer effective in Michigan. We found the Rps genes Rps 3a, 3c and 4 to be effective, however, only Rps 3a is available in Michigan.



'Classic' Phytophthora symptom: brown lesion occurring from the soil line up the side of the soybean stem

As we move into July, symptoms of sudden death syndrome may begin to develop. SDS symptoms show as yellowing and death of leaf tissue between the veins. It's important to note that SDS has both a root rot and foliar disease component. Planting into cool, wet soils followed by heavy rainfall events during the season, especially in August tend to promote SDS development. Be sure to split stems to rule out brown stem rot and if in doubt submit a sample to a diagnostic clinic.

It's important to know what disease issues are present in your fields, and to keep good notes on which issues have occurred where. If you have or are experiencing disease issues, it is important to have a conversation with your seed dealer about the potential for variety resistance. As these seedling and root rot diseases can persist in the field for many years, it is also important to make field notes, so that the right variety is used in the right field. More information on soybean diseases can be found at the Crop Protection Network (www.cropprotectionnetwork.org).

SDS interveinal leaf tissue yellowing and death

Soybean Night at the Ballpark

Michigan soybean farmers are invited to join us for a Soybean Night at the Ballpark this August. MSC will be at two minor league baseball games this summer. The events will serve as a way to connect with farmers, but also as a way to promote soybeans and agriculture to the general public. MSC will have a booth and promotional materials at both games, along with opportunities for consumers to engage with MSC and learn more about MSC and the 12,000+ soybean farmers we work on behalf of.

Farmers will have reserved seating blocks at both games and will also receive food vouchers upon arrival.

You are invited to join us at one of the games this summer!

August 11, 2022
Great Lakes Loons, Midland
7:05 p.m. - Michigander Night
RSVP by July 14

August 24, 2022
West Michigan Whitecaps, Comstock Park
6:35 p.m. - Made in Michigan Night
RSVP by July 27

Registrant must be an active soybean farmer. Attendees may only attend one game. Limit 4 tickets per household.

Request your tickets and learn more about the events by visiting michigansoybean.org/soybean-night-at-the-ballpark or scanning the QR code above.

2022 Michigan Soybean Association Yield Contest

The Michigan Soybean Association (MSA) is excited to announce their 2022 yield contest. In its second year, the contest saw great participation from around the state and many examples of exceptional yields.

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 www.misoy.org/yield-contest. 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 2021 contest!

Have an article suggestion?

Email comments, suggestions or article ideas for the *Michigan Soybean News* magazine to soyinfo@michigansoybean.org.

No longer wish to receive the *Michigan Soybean News*?

Email your name and mailing address to slapak@michigansoybean.org.

OUR SOY CHECKOFF™

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**

Can Foliar Fertilization be Profitable in Soybeans?

Mike Staton, MSU Extension Soybean Educator

Foliar fertilization of soybeans has been evaluated in hundreds of unbiased, replicated research trials conducted by universities across the U.S. over the past 46 years. The trials have produced mixed results, but the vast majority of the trials have shown that foliar fertilizer applications were not profitable. This is consistent with the results from 141 on-farm foliar fertilizer trials conducted in Michigan since 2009. We found that the foliar fertilizer applications were profitable in 14 (10 percent) of the trials. Due to the low probability of realizing a positive economic return, applying foliar fertilizers to soybeans is not recommended by Michigan State University unless visible manganese deficiency symptoms are present. However, some soybean producers still see foliar fertilization as a tool for improving profitability. This article will focus on management practices for increasing the efficacy of foliar fertilizer applications.

Characteristics of the fertilizer:

The foliar fertilizer should provide the nutrients at the quantity required by the crop. To accomplish this, some fertilizer companies develop field-specific prescription foliar fertilizer recommendations based on soil samples or in-season plant tissue samples. The fertilizers should also be highly soluble and able to be absorbed through the waxy leaf cuticle and through the stomata.

Give the foliar fertilizer a free ride:

Some foliar applications such as post-emergence herbicide applications are essential to achieving high yields and tank-mixing the foliar fertilizer and the herbicide is a way to give the fertilizer a free ride, avoiding extra application costs. This only works if the application timing of the products is comparable, the products are physically and chemically compatible and the tank-mix partner product is essential to achieving high yields.

Sprayer characteristics:

Apply foliar fertilizers when they are required by the plants. Leaf coverage is important, so apply enough water to achieve this but avoid applying too much water. Ten gallons per acre is the sweet spot but the water volume can be increased to 15 gallons per acre if required by the tank-mix partner. Equip and operate the sprayer to produce droplets at the fine end of the medium range (Volume Median Diameters of 200 to 350 µ) at nozzle pressures around 40 psi with a ground speed of 10 mph or less to optimize canopy penetration and leaf coverage. Most of the stomata are located on the underside of the leaves, so try to cover all leaf surfaces.

Time of day and environmental conditions:

Apply fertilizers that are absorbed primarily through the stomata, in the morning or the evening and avoid the middle of the day. Making the application when air temperatures are between 70 and 80 degrees and when relative humidity is above 70 percent is ideal as the stomata will be open and the fertilizer will have more time to enter the leaf before the droplets evaporate. A 48-hour rain-free period after application is recommended.

Maximizing Postemergence Herbicide Activity During Product Shortages

Dr. Christy Sprague, Professor and Weed Extension Specialist, Michigan State University

Increased prices and unprecedented herbicide shortages will make postemergence (POST) weed control more of a challenge this year for soybean growers. As we move into the postemergence spraying season, this article offers tips to maximize weed control.

TIMING IS EVERYTHING

As a general rule, it is best to make POST herbicide applications when weeds are 2- to 4-inches tall. This is particularly important when using more traditional soybean herbicides that may replace Liberty and/or glyphosate with this year's product shortages. Most herbicides are less effective as weeds increase in size. By applying herbicides when weeds are small it also allows us to use the lower recommended herbicide rates listed on the label.

OPTIMUM GLYPHOSATE AND GLUFOSINATE (LIBERTY) RATES

The standard use rates of glyphosate and glufosinate have slowly increased over the past five to ten years. This year's shortages and increased costs have us reexamining what rates of these products we should use. For Liberty, it is our recommendation not to use less than 32 fl oz/A and to target weeds that are 3-inches or less in size. With glyphosate, the standard use rate has steadily increased from 0.75 lb ae/A (22 fl oz/A of Roundup PowerMax) to 1.13 lb ae/A (Roundup PowerMax 32 fl oz/A). This higher use rate provided more consistent control of larger weeds and was an easy solution when glyphosate was less expensive. However, with increased costs and the short supply of glyphosate, we recommend reevaluating the correct glyphosate rate to use for different sized weeds. Weeds that are susceptible to glyphosate will be controlled with the following rates:

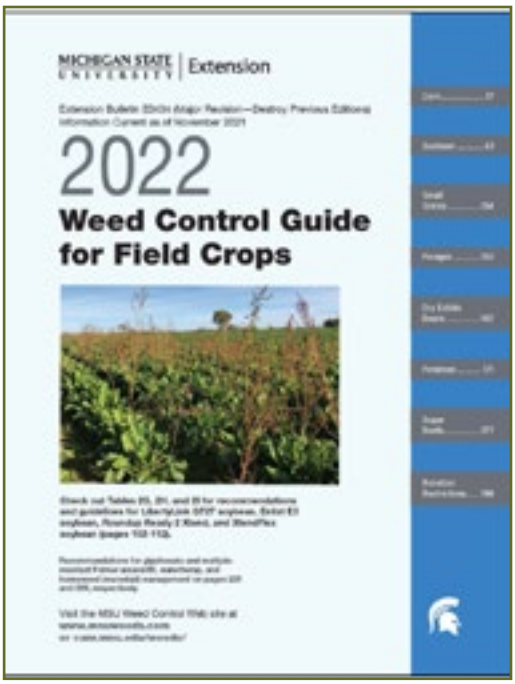
- Weeds < 6-inches tall: 0.75 lb ae/A glyphosate (i.e., Roundup PowerMax 3 = 20 fl oz/A)
- Weeds 6 to 12-inches tall: 1.13 lb ae/A glyphosate (i.e., Roundup PowerMax 3 = 30 fl oz/A)
- Weeds > 12-inches tall: 1.5 lb ae/A glyphosate (i.e., Roundup PowerMax 3 = 40 fl oz/A)

The correct product rate will depend on the glyphosate formulation that you use. In Table 10 of the 2022 MSU Weed Control Guide for Field Crops (E0434) we have listed several different glyphosate formulations and their corresponding product rates equivalent to 0.75-, 1.13-, and 1.5 lb ae/A. Additionally, lower rates (0.56 lb ae/A) may be used to control susceptible grass species. To maximize both glyphosate and glufosinate activity, we recommend the addition of ammonium sulfate to these applications.

ADDITION OF RESIDUAL HERBICIDES

Applying a residual herbicide POST can help eliminate the need to make an additional POST herbicide application. The Group 15 herbicides

(Dual Magnum, Outlook, Warrant and Zidua) can be included in several POST herbicide programs to control late-emerging grasses and pigweed species, such as herbicide-resistant waterhemp and Palmer amaranth. Remember these herbicides will not control emerged weeds, so they need to be tank-mixed with an effect POST herbicide.



OPTIMIZED ADJUVANT SELECTION AND APPLICATION PARAMETERS

Appropriate adjuvant selection is one of the best ways to maximize POST herbicide activity. Different types of adjuvants help with herbicide retention and absorption into the target weed species and the adjuvant type is dependent on the individual herbicide product and/or product tank-mixtures. Additionally, optimizing sprayer parameters are important. Application volume, nozzle selection, sprayer pressure and speed are important factors to maximizing herbicide activity. These parameters need to be adjusted for the POST herbicide and/or herbicides being applied. For example, when applying a contact herbicide (i.e., Liberty, Flexstar, etc.) higher volumes (15 gallons per acre or more) with smaller droplet sizes will maximize coverage and ultimately weed control. However, when spraying systemic herbicides and ones that may drift, larger droplet sizes are important.

For more information on maximizing POST herbicide activity, view the 2022 MSU Weed Control Guide for Field Crops (E0434) at www.canr.msu.edu/weeds/.

Soybean Shoptalk Video Series

Have you purchased any new equipment in the past year? What issues or challenges came along with that? What's new in the farm equipment business? These questions and many more will be covered in this year's Soybean Shoptalk series.

Spring is officially here and the 2022 growing season is underway. To freshen up our online video series, this year we are focusing segments specifically on iron and equipment. Our first segment debuted May 12 and featured Jon Peters of Peters Brothers Farm in Memphis, MI. Jon spoke with us about Horsch equipment including tillage tools and his planters.

Keep an eye out for future episodes featuring Precision Planting, autonomous tractors, aerial application equipment and the newest harvesting equipment offerings. If you are curious about anything new in the equipment industry, call our office and we will work to get it featured on a segment.

If you or a neighboring farmer has some new iron or a great piece of equipment, give our office a call. We would love to feature it in a future Soybean Shoptalk episode.

If you missed any of the episodes from last year, which focused heavily on innovation and forward thinking, check out our YouTube channel at bit.ly/mscyoutube.

Michigan Soybean Office Welcomes New Summer Intern

The Michigan Soybean office would like to welcome our summer Soybean Industry Intern for 2022, Avery Claybaugh. Avery is a student at Saginaw Valley State University majoring in General Business with a minor in Agricultural Studies. She is a graduate of Chippewa Hills High School. Last summer, Avery had the opportunity to intern at Mibelloon Dairy where she learned many valuable lessons that she hopes to carry with her in her agricultural career.

Her dream is to work in agriculture. She hopes this soybean internship and her college coursework will help make that dream a reality. Avery describes herself as a focused and driven individual who never lets an experience go to waste. She aspires to learn more about the limitless opportunities that agriculture has in store for her.

In her spare time, Avery enjoys spending time outdoors hunting and fishing. She shows 4-H animals at the Isabella County Fair annually and is geared up for another great dairy show this summer.

As the summer Soybean Industry Intern, Avery will work on projects with both the Michigan Soybean Committee and the Michigan Soybean Association. She will learn about production, market development and outreach activities and will also work with membership and advocacy efforts. The goal of this internship is to offer a well-rounded experience in the Michigan soybean industry. Please join us in welcoming Avery to the Michigan Soybean team!

A Bit of History - Soybeans in Southeast Michigan

In our Winter 2021 issue of the *Michigan Soybean News* magazine we shared a note we had received in the mail from a reader who included an old letter from a relative about the history of soybeans being grown in America. In that article, I asked readers to share stories they might have about soybeans and farming from days gone by.

Not long after that issue went to print, I received a letter from Mr. Rollin Webb, a farmer from Newport, Michigan. In his letter, seen on the next page, he talks about the history of soybeans and how they came to be grown in southeast Michigan.

I was excited to receive his letter, and thrilled to see there was a connection to Henry Ford. As you might have seen on page 18, we have recently partnered with The Henry Ford Museum of American Innovation to share information about soybeans and agriculture with museum goers and program participants through a variety of different projects.

There are a lot of connections between Henry Ford and soybeans, and it's neat to be able to share historical connections like the ones in Rollin's letter, while also sharing ways soybeans are still integrated with The Henry Ford Museum as well as Ford Motor Company.

I hope you enjoyed reading about another bit of soybean history. As I said in the last article, if you have a historical soybean story to share, feel free to email me at slapak@michigansoybean.org.

Oliver 70 Tractor
Credit: FarmCollector.com

Man Driving an Allis-Chalmers Tractor, Threshing Soybeans at Michigan and Southfield Roads, Dearborn, Michigan, October 1936
Credit: From the Collections of The Henry Ford. Gift of Ford Motor Company.

Sonja,

After reading the Soya story (published in the Winter 2021 *Michigan Soybean News*) I thought there might be some interest in the history of growing soybeans in southeastern Michigan. The big influence and driving force for the promotion of soybean production in this area was Henry Ford. My father and grandfather owned and operated 185 acres. They started growing soybeans in 1938. I am 87 years and these are my memories.

They grew their first soybeans on what was new ground, about six to eight acres just newly broken up from woods. This would be very rich ground and free of a lot of weeds.

Everyone got their seed from Henry Ford. It was known to be from China and the variety was called Manchu (Mān-chĕw).

They planted them with a grain drill, as did everyone at the time. A very progressive neighbor who owned an Oliver 70 tractor and Allis-Chalmers All Crop Combine harvested them. He also harvested most of the soybeans in two townships as there were very few combines in the area.

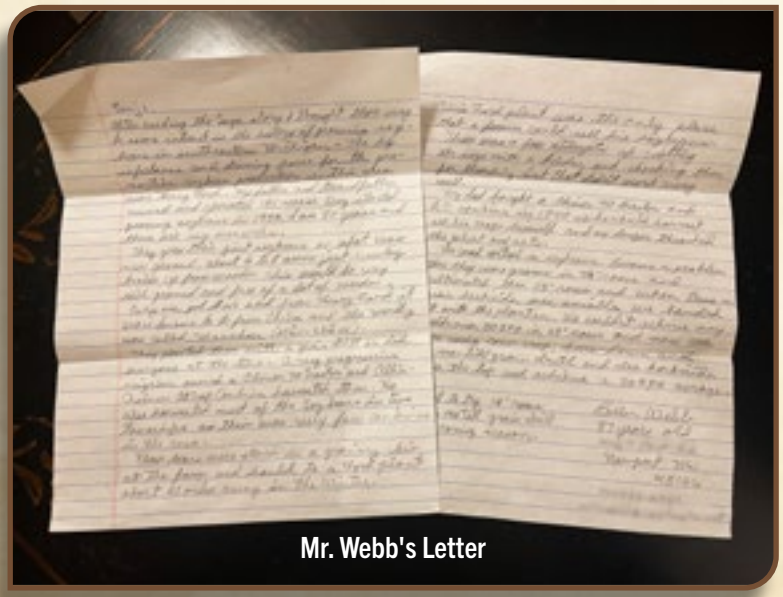
These beans were stored in a granary bin at the farm and hauled to a Ford plant about 40 miles away in the winter. This Ford plant was the only place that a farmer could sell his soybeans.

There were a few attempts of cutting the soys with a binder and shocking them for thrashing, but that didn't work very well.

My dad bought an Oliver 70 tractor and A.C. combine in 1940 so he could harvest all his crops himself and no longer thrashed the wheat and oats.

As weed control in soybeans became a problem, soybeans were then grown in in 38" rows and cultivated, then 28" rows and when Basa - a grain herbicide - was available we banded it with the planter. We couldn't achieve any yields over 30 BPA in 28" rows and no we are using cover crops, burn-down and a no till grain drill and also a herbicide over the top and now achieve a 50 BPA average. (I also want to try 15" rows with a no till grain drill this coming season.)

-Rollin Webb
87 years old
Newport, MI



Mr. Webb's Letter