

Fall 2019

MICHIGAN SOYBEAN NEWS[®]

Volume 11 - Issue 4

LIVESTOCK: STEADY DEMAND FOR US SOY

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A publication of the Michigan Soybean Association



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From promoting the profitability of using high-quality soybean meal in India to training animal producers on nutrition in Colombia, the soy checkoff is working behind the scenes to develop more market opportunities for U.S. soy. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And it's helping make a valuable impact for soybean farmers like you.

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Michigan Soybean News

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Visit the Michigan Soybean Association website at www.misoy.org

See what MSA is doing for its members.



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Comments and suggestions can be submitted to:

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Michigan Soybean Association's Mission Statement

To improve and advocate for the Michigan soybean industry.

From Your MSA President...



A newspaper headline caught my eye the other day and made me think about the implications. It read "Farmers respond to the new normal". What is the new normal? Are we referring to the wettest spring on record, where many Michigan farmers sat on the sidelines after weeks of rain prevented them from planting till June or perhaps not at all? Is the new normal relying on handouts from the government in the form of another market facilitation program? What about the difficulty of finding employees to work on the farm that buy into the hardworking farm mentality of long, inconsistent hours? Why choose a line of work that is dirty and exhausting when plenty of



good jobs are available Monday thru Friday from 8-5? Does that sound like agriculture? The last item of the new normal scares me the most: the turning tide of public opinions on agriculture.

The Washington Post published an article highlighting the plight of several farmers and farm families on weather, tariff and market woes and how it affects their bottom line in the battle to stay financially solvent. These farmers seemed like a snapshot of the American farmer with strong family and community ties. The 5,000 or so comments that accompanied the story exposed how the public's perception of farming and ranching has changed over the years. The comments were withering, and ranged from "I hope they lose the farm" to "Who cares, not my problem. These farmers get more handouts than any group of Americans." Most of the comments were based on the fact that people believe farmers have become giant fat-cat entities with AGIs more than two to three times higher than the average American family. The unfortunate thing is that statistics back up some of their thoughts. Not only do we have to fight mother nature and the markets, but we must also engage in this battle over public opinion.

As a board member for the Michigan Soybean Association, I will say that many do understand the significance of the rough couple years we have had in ag. Many are helping soybean growers get through this downturn. Prevent plant is not taken lightly. Every farmer has it in his soul to get every acre planted. I can see the pain in the eyes of a friend who was forced to take prevent plant two years in a row on his heavy clay. Many farmers have a weakness - they seem to care too much. I think we can all understand and recognize the good and bad that can come from this attribute.

May god bless the remainder of 2019 with well-timed rain and a successful harvest to end this shortened growing season. Thank you for allowing me to represent your industry.

Sincerely,

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Whether shipping by river, road or rail, the soy checkoff is committed to ensuring America's infrastructure is a significant advantage for U.S. soybean farmers. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And it's helping make a valuable impact for soybean farmers like you.

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MEMBER BENEFITS

People making decisions in Lansing and Washington, D.C. are getting further and further away from the farm. In the past, families had someone who was a farmer they could visit, but now generations are far removed and don't have a direct connection. "I've met several legislators that have never set foot on a farm. We as farmers need to be visiting with legislators and representing our land," stated Jay Ferguson, MSA director. "There is a lot of education that needs to occur to our politicians and the public."

Paying the soybean checkoff does not make you a Michigan Soybean Association member. Checkoff dollars cannot be used for lobbying.

NEW LIFETIME LOYALTY MEMBER PROGRAM

As of October 1, 2016, if you have been an MSA member for 15 consecutive years, you will no longer need to pay dues - you have become a LIFETIME LOYALTY MSA MEMBER!

Call the soybean office at 989.652.3294 to check on your membership.



Are you receiving the MSA eNews?
Email soyinfo@michigansoybean.org to sign up for this informative membership e-newsletter.

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Dues are not tax deductible as a charitable contribution for federal tax purposes, but may be deductible as a business expense. 18% of member dues are allocated to lobbying activities and are not deductible.

For a list of all membership benefits, visit www.misoy.org/member-benefits/

*3-year and Lifetime memberships can choose between receiving either (check one):

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Date of Birth: _____

Number of Soybean Acres: _____

Total Farm Acres: _____

Occupation (check one):
 Farmer Retired Other

What issues interest you most?
 (Check all that apply)

- Biodiesel/Biobased Products
- Farm Bill
- Transportation Infrastructure
- Trade Agreements
- Conservation
- Consumer Education
- Biotechnology
- Freedom to Operate
- International Marketing
- Soy and Nutrition
- Other: _____



MSA DIRECTOR OPPORTUNITIES

The Michigan Soybean Association (MSA) is seeking nominations for board seats in the following districts:

DISTRICT 1 – Berrien, Branch, Cass, Kalamazoo, St. Joseph and Van Buren

DISTRICT 4 – Huron, Macomb, Oakland, St. Clair and Sanilac

DISTRICT 7 – Alcona, Alger, Allegan, Alpena, Antrim, Baraga, Barry, Benzie, Charlevoix, Cheboygan, Chippewa, Clare, Crawford, Delta, Dickinson, Emmet, Gladwin, Gogebic, Grand Traverse, Gratiot, Houghton, Iosco, Iron, Isabella, Kalkaska, Kent, Keweenaw, Lake, Leelanau, Luce, Mackinac, Manistee, Marquette, Mason, Mecosta, Menominee, Midland, Missaukee, Montcalm, Montmorency, Muskegon, Newaygo, Oceana, Ogemaw, Ontonagon, Osceola, Oscoda, Otsego, Ottawa, Presque Isle, Roscommon, Schoolcraft and Wexford

To appear on the ballot, nominations must be received by October 24, 2019. All elected directors will hold the office for a term of three years. To be eligible for a seat on the board, one must be a soybean farmer residing in the district that he/she is seeking election and be a member of MSA in good standing.

According to the current bylaws, elections will be held via U.S. Mail. Ballots will be mailed to all members in districts 1, 4 and 7 on November 7, 2019 and must be returned to the Michigan Soybean Association office by December 7, 2019.

Election results will be announced at MSA’s Annual Meeting, which will take place during the Great Lakes Crop Summit on January 29, 2020.

The MSA board typically holds quarterly meetings plus other events such as Legislative Outreach Farm

Tours, a legislative luncheon at the Capitol, a Lansing Ag Club Breakfast and a variety of legislator and industry outreach events.

MSA works on important issues such as trade expansion, transportation and infrastructure, environmental regulations and implementation of the Farm Bill. Your service on the board will help Michigan soybean farmers’ voices be heard and have a greater impact in Lansing and Washington, D.C.

If you would like to nominate someone for one of the above districts or be placed on the ballot yourself, please contact the MSA office at soyinfo@michigansoybean.org or 877.769.6424.

Thank you for your dedication to the Michigan soybean industry.



A NEW ERA OF COMPROMISE

By: Justin Clement, The Frederick Group

Earlier this year we wrote about the incoming Administration and new Legislature and discussed how they would begin to tackle high profile issues. Recall last year's election, which provided Democrats with sweeping victories in the Governor, Attorney General and even the Secretary of State races. Democrats have not had this much control of state government since the late 1980s. With split power in state government, compromise is the new pursuit.

AUTO NO-FAULT: On May 30, Governor Whitmer signed Senate Bill 1, sponsored by Senator Nesbitt (R-Lawton), which brought sweeping reforms to Michigan's Auto No-Fault law. Senate Majority Leader Mike Shirkey (R-Clarklake) in his opening session speech on the Senate floor in January said, "We have the opportunity, frankly, I believe we have the obligation, to reform auto insurance." Other than infrastructure, this was the number one 2018 election issue. Michigan is the most expensive state in the union to purchase auto insurance and the Governor, as well as the Legislature, sought to make Michigan more competitive.

Beginning in July of 2020, drivers will for the first time have Personal Injury Protection coverage options associated with guaranteed rate reductions for 8 years. Additionally, insurers will no longer be able to set rates using certain "non-driving" factors such as an insured's credit score. This deal incorporates certain priorities from both Democrat Governor Whitmer and the Republican-controlled Legislature – a compromise. If you have any further questions about how this new law will impact you and your auto policy, we encourage you to reach out to your insurance agent.

THE BUDGET: Former Republican Governor Rick Snyder took pride in the fact that he was able to strike a budget deal before July every year during his tenure. July has passed and we still do not have a budget deal. Governor Whitmer's mantra has been "Fix the Damn Roads" which has turned into a proposed 45 cent gas tax increase for her Fiscal Year 2020 Budget, which she presented to the Legislature back in February. For now, her road funding proposal is DOA with legislative Republicans who don't support

such a massive tax increase. Much of this summer has been spent negotiating how to come up with a proposed \$2.5 billion in new revenues for our roads. A compromise will likely be struck with a combination of cuts from existing spending and some new revenue. MSA will be keeping a close eye on the final solution so that it does not unfairly burden businesses with higher diesel fuel taxes or general business taxes.

JOBS: Governor Whitmer also wants to focus on improving our education system. The agriculture industry, like many others, faces a skilled labor shortage. The Governor wants to provide improved career and technical education programs. These efforts could help our industry obtain qualified skilled labor. She recently issued an Executive Order to reorganize the Department of Talent and Economic Development to what is now called the Department of Labor and Economic Opportunity. Her goal in doing so is to place a focus on data and collaboration with the private sector to connect them with the talent they need. This move aims to streamline the workforce and economic development functions by placing everything in one department.

The Legislature has returned after a brief "in-district work period" for the month of July and some of August. During that time, Republican legislative leaders were negotiating with Democrat Governor Gretchen Whitmer on the budget, which ultimately came down to how to fund infrastructure improvements.

MSA continues to educate policymakers on the importance of our industry and be available as a resource for credible soybean and agriculture information. Our voice is amplified because of members like you! If you are interested in hosting a legislator on your farm, please reach out to the soybean staff and they can connect you with us to discuss the opportunity.

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.

Parr Farms Hosts MI Officials

By: Kathy Maurer, Financial and International Marketing Director

This summer MSA board member Gary Parr hosted a legislative farm tour and took a break from planting soybeans to share a bit about his farm and the difficult planting season farmers faced. Those in attendance included Josh Neyhart, a policy advisor for Governor Whitmer, Ken McFarlane, the Deputy Director of the Michigan Department of Agriculture and Rural Development and State Representative Angela Whitwer.

"Everything has been more extreme over the last three to four years," Gary shared. "All the rain this year has made it difficult to get the fields planted. I have until June 31 to finish up."

Gary shared how the delayed cycle of planting will affect the harvest in the fall and explained that not being able to get the seed corn and seed soybeans planted will cause a seed shortage for next year. He also discussed the extra weed pressure that will be seen on unplanted fields.

Gary emphasized that this spring will take years to bounce back from. The farm tour's goal was to help government officials and policymakers understand the challenges farmers face as they work to set policy and make decisions which affect farmers.

The tour also offered an opportunity to share how the trade issues and tariffs, in addition to weather challenges, have driven down the prices of commodities and affected farmers' ability to market their crops. These factors have a direct consequence on the cash flow of Michigan farms and their ability to pay the bills.

Having a safety net for farmers is important during difficult times. Gary pointed out to the officials, "No one has made a living farming for insurance."



*Ken McFarlane,
Josh Neyhart,
Representative Angela
Whitwer and Gary Parr*

*Josh Neyhart making
a planting round
with Gary Parr*



Legislative Lunch at the Capitol

By: Sonja Lapak, Communication Director

The Michigan Soybean Association (MSA) hosted their third-annual Legislative Lunch on the Capitol Lawn earlier this year. Board members and staff served lunch to over 250 legislators and staff members and had a variety of conversations on issues Michigan soybean growers are facing. Hot topics of discussion included the delayed planting season, crop insurance options, tariffs, trade and Michigan's infrastructure issues.

This year the board served pulled pork and shared facts about the role soybeans play in livestock production. Pork is the second largest consumer of soybean meal globally, behind the poultry industry. The board shared that soybean meal is a sustainable, complete protein source for livestock and explained that 97 percent of soybean meal is consumed by livestock.

The menu also included potato chips fried in high oleic soybean oil. Grown exclusively in the U.S., high oleic soybean oil extends products' shelf life, offers among the longest fry life of any edible oil, features an improved fat profile and provides a neutral flavor, allowing the food to be the star of the show. MSA directors were able to share these benefits with attendees and explain that high oleic soybean oil is just one of the many ways soybean growers are innovating and diversifying to continue to build demand for a variety of soy products.

This event is a great opportunity for MSA to share their policy priorities with legislators each year and have discussions about the things happening on their farms. Thank you to the Michigan Soybean Promotion Committee for being a sponsor of the event and thank you to all those who attended.



Janna Fritz Named Executive Director of the MSPC

The farmer-leaders of the Michigan Soybean Promotion Committee (MSPC) are pleased to announce their strategic and experienced new leader, Janna Fritz. Janna accepted the position of Executive Director for MSPC and started in her new role in July.

In her new position, Janna will lead MSPC in its efforts to ensure a healthy and robust soybean industry in Michigan through strategic direction of market development, research priorities, talent development and elevated management of industry programs. She will also work with the Michigan Soybean Association to build grower programs, membership and legislative advocacy.

Fritz's over 15 years of leadership experience within the Michigan and national agricultural industries were critical factors in MSPC's decision to select her as the organization's next executive director.

Janna joins MSPC after leaving Farm Bureau Insurance, where she served as Manager of Crop Insurance since April of 2018. As Crop Insurance Manager and previously as a regional representative for Michigan Farm Bureau, Fritz led significant operational and structural improvements which led to successful growth. She also developed and has maintained working relationships with legislative and regulatory officials.

Janna also worked as a District Sales Manager in the Thumb for Monsanto (now Bayer). During this time, she focused on developing and enhancing Monsanto's brand recognition as well as building long-term trusting relationships with customers and stakeholders. Her relationships in the industry will be valuable as she tackles her new role.

Fritz has a bachelor's degree in Agriculture and Natural Resources Communications from Michigan State University, where she graduated with honors. She has also been involved with many agricultural organizations such as the U.S. Grains Council, Michigan Corn Growers Association and Michigan Agri-Business Association.

MSPC President Laurie Isley said, "The board was impressed with Ms. Fritz's experience in the agricultural industry, her people management skills and her passion for promoting agriculture and supporting Michigan soybean farmers."

Fritz, before starting in her new role, shared, "I am overjoyed and humbled to have been selected to serve the soybean growers of Michigan. MSPC has already built a strong reputation for research and promotion of Michigan soybeans. I am happy to continue in those traditions and to build on them in the future."

Fritz resides in Bad Axe with her husband Joel and their two sons Wesley (13) and Zachary (10). They operate a 1,500-acre farm raising soybeans, corn, wheat and dry edible beans.



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Development of a Soybean SDS Risk Prediction Tool

By: Martin Chilvers, MSU Associate Professor,
Department of Plant, Soil and Microbial Sciences

The Chilvers lab studies diseases of soybeans and other field crops to help improve disease management and reduce crop losses. With support from MSPC, we developed a specific DNA based test for the *Fusarium virguliforme* fungus that causes soybean sudden death syndrome (SDS). The test uses a technique known as quantitative real-time PCR (qPCR), which allows us to take root tissue or soil samples and determine the quantity of *F. virguliforme* DNA that is present. The assay is currently in use by the MSU diagnostic lab, which improves the speed in diagnosing soybean and dry bean roots infected by the SDS fungus.

The qPCR tool has enabled several research projects aimed at understanding and improving the management of SDS. First we used the qPCR tool to examine the root infection process across different soybean varieties. Over the course of a season we were able to track the gradual increase of *F. virguliforme* in the soybean root system, which peaked after harvest. It was surprising to note that even in a variety with strong resistance and no foliar SDS symptoms, the fungus was colonizing the roots to similar levels as a soybean variety that had heavy SDS foliar symptoms. These results indicate that even when using an SDS “resistant” variety it is possible for the roots to be infected by *F. virguliforme*, and for potential yield loss to occur. It also demonstrates that the SDS fungus is

capable of surviving in a field, even when using an SDS resistant variety. Exploring root infection further, we worked with the MSU soybean breeding team where we were able to demonstrate that some soybean lines do have better resistance to root infection than others. This opens the possibility of breeding for SDS root infection resistance.

Turning our attention to the use of the *F. virguliforme* qPCR assay in soil, we assessed the assay as a potential SDS risk prediction tool. To test the tool we took gridded soil samples from a portion of a field. We examined both the quantity of *F. virguliforme* DNA and the number of nematodes in the soil samples. The results of the study demonstrate that we were able to predict where the SDS hot spots were going to develop based on the at-planting SDS qPCR soil sample test results. Soybean cyst nematode numbers were also found to be risk factors in predicting where the SDS hot spots and yield loss were going to occur.

Our next step with the SDS risk prediction tool is to validate the qPCR assay across different soil types and locations, with the hope to offer a test analogous to the SCN assay in which SCN numbers are quantified in soil samples for the prediction of SCN risk. Ideally soil samples could be interrogated for numerous pests and pathogens to develop a management script, which would include the use of crop rotation, resistant varieties and seed treatments or in-furrow treatments.



SDS variety response difference



SDS advanced foliar symptom

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on almost all soybean acres. In fact, more than 95 percent of commercially available soybean varieties have resistance to SCN. And most of those varieties have resistance from one source: PI88788. An encouraging fact is that a growing number of varieties are being released that contain another source of resistance: Peking. Soybean growers should strongly consider rotating sources of resistance (PI88788 and Peking) in fields with SCN.

The long-term use of one source of resistance has created a problem. You may have guessed it - the nematodes have overcome the resistance and can now feed on and reproduce on the resistant soybeans. Now SCN populations are increasing in those fields.

A simple SCN soil sample will let you know if your SCN populations are increasing. This may be the case where you have repeatedly used PI88788 soybean varieties. If you question whether your SCN populations can reproduce on specific sources of resistance, MSU has developed a type test. This test uses your nematodes in a greenhouse study where they are placed in a container with soybeans of a known source of resistance, allowed to feed and reproduce, then nematodes are removed from that soil, counted and compared to a susceptible variety. MSPC also funds this sample analysis. Call MSPC to get soil sample kits, or go to the MSU Diagnostic Services website: pestid.msu.edu.

In the five years of MSU providing this type test, the results have changed. Initially, most sample

results showed that the nematodes were reproducing on PI88788 varieties (known as type 2). In the past two years, an equal number of samples are showing reproduction on both PI88788 and Peking, as compared to PI88788 alone (known as type 1.2). This fact demonstrates the need to be carefully managing SCN and rotating sources of resistance.

While this scenario sounds bleak, there is much more to learn about SCN and hope for the future. There are more tools being researched and developed including seed treatments, additional sources of resistance, soil amendments and advanced genetic improvements. Until one or more of those become available, we need to carefully use the limited tools that we have. One interesting fact is that of the nearly 24,000 samples analyzed by MSU, almost half of them have not had detectable levels of SCN. This does not guarantee that the field has no SCN, but the sample had no SCN. While there are no obvious reasons why some fields have SCN while others that seem similar do not, we are working to learn why and how.

Although the battle continues, you can feel confident that your soybean checkoff investment is being used wisely to work towards defeating this pest. Your dollars are being used to support MSU Diagnostic Services nematologists Fred Warner and Angie Tenny, MSU applied nematologist Marisol Qunitanilla, Emeritus MSU nematologist George Bird and North Central Soybean Research Program projects.

NEW SCN MANAGEMENT recommendations.

Work with your advisors and develop a plan to manage SCN:

- Test your fields to know your numbers.
- Rotate resistant varieties.*
- Rotate to non-host crops.
- Consider using a nematode-protectant seed treatment.



* SCN populations can adapt to individual resistant varieties as well as to sources of resistance such as PI 88788 and Peking. So, rotating to a different resistant variety – even if it's still PI 88788 – may help slow the buildup of SCN populations.

Visit TheSCNcoalition.com for more information.

Drying and Storing Wet Soybeans

By: Mike Staton, MSU Extension Soybean Educator

The late planting dates we experienced this spring and summer will delay soybean maturity in the fall, increasing the number of acres harvested in November when poor field-drying conditions typically occur. Fields harvested in November will most likely need to be dried either on the farm or at the elevator. Some elevators will accept soybeans up to 20 percent moisture, while others will reject loads that are above 16 percent. It's important to contact your elevator prior to delivery. Commodity soybeans used for domestic crush or export can be dried using supplemental heat. However, food grade and seed beans should not be dried with heated air. Proper management is essential to minimizing damage when using supplemental heat. Keep the drying temperature below 130 degrees Fahrenheit (°F).

Medium temperature drying as discussed above will damage the seed coats and increase the amount of split beans. Elevators will begin discounting for split beans when they exceed 20 percent. This level of damage may be exceeded when using supplemental heat (Table 1). However, natural air and low temperature drying are not good options in November. The amount of damage will vary between soybean varieties and grain drying equipment. Producers should check for cracked seed coats and split beans often and adjust the drying temperature to achieve the level of cracking and splitting that is tolerable to them.

According to Dr. Ken Hellevang, Ag Engineer at North Dakota State University, fires are a major concern when drying soybeans. Dr. Hellevang recommends cleaning at least daily and monitoring the dryer to assure there is no trash accumulation and all the beans in the dryer are flowing. Trash accumulation quickly becomes combustible.

Table 1. Drying temperature effects on soybean quality

Drying Temperature (°F)	Seed Coats Cracked (%)	Split Beans (%)
100	10-60	5-20
130	50-90	20-70
160	80-100	30-80

Source: Dr. Ken Hellevang, North Dakota State University Extension Service

Checked or cracked seed coats are not discounted by elevators. However, once the seed coat is damaged, the seed is much more prone to splitting when handled or transported. Again, loads containing more than 20 percent split beans will be discounted. Producers can use a simple and quick procedure (hypochlorite test) to identify seed coat damage that is not easily detected by the naked eye. Simply soak 100 beans in a 20 percent bleach solution for about five minutes. Beans with damaged seed coats will swell and be larger than undamaged beans. Wrinkled seed coats are okay.

Your target moisture content depends on your storage and marketing plans. If you plan to deliver the beans shortly after drying or store them until spring, shoot for 13 percent moisture. If you plan to store the beans on-farm through the summer, dry the beans to 12 percent moisture.

Your best strategy for holding the beans through the winter is to cool the grain mass to 32 to 35°F using aeration fans. If daytime temperatures are above 35°F, run the fans at night when temperatures fall below 32°F. Ice or frost may occur on bin vents at temperatures near or below freezing, so leave the fill hole or access door open to reduce the potential for damaging the bin roof when operating fans.

Check the temperature of the beans in several locations in each bin every two to three weeks during the winter and more frequently as outside temperatures increase in the spring. Pay particular attention to the south side of the bins in late winter or early spring as the grain temperature along the bin wall will increase more rapidly due to increasing solar energy. Keep grain cool during the spring and summer. Grain temperatures above 50°F increase the potential for insect and mold development. Careful management when drying and storing soybeans is essential to maximizing your income.

Frost-Damaged Soybeans

By: Mike Staton, MSU Extension Soybean Educator and
Kenneth Hellevang, PhD, PE, Extension Engineer & Professor,
Interim Department Chair, NDSU

The late planting season has increased the potential for frost damage to occur in soybeans this fall. The following recommendations will help you reduce the adverse impacts if some of your soybean fields are damaged by frost.

Frost-damaged soybeans are generally considered salvageable for grain harvest as long as the plants reached the R6 growth stage at the time the killing frost occurred. The R6 growth stage occurs when the beans completely fill one pod at one of the upper four nodes on the main stem on 50 percent of the plants in the field. In dense, green soybeans, frost/freeze damage kills the upper leaves but rarely penetrates deeply into the canopy when temperatures remain above 30°F. However, once the upper leaves have been damaged, subsequent freeze events will penetrate deeper into the canopy. Once plants reach the R7 growth stage, yield reductions due to frost/freeze injury will be minor. The R7 growth stage occurs when one pod on the main stem has attained its mature color on 50 percent of plants in the field.

COMBINE ADJUSTMENT: Frost-damaged beans will probably be wetter than normal and more difficult to thresh. Your first step in adjusting for this condition is to reduce the concave clearance. If acceptable threshing still does not occur, increase the speed of the cylinder/rotor. Make incremental adjustments and check your progress after each adjustment.

HARVEST AT HIGHER MOISTURE

CONTENTS: Soybeans that experienced severe frost/freeze damage extending well into the crop canopy will dry down slowly. In this case, producers should avoid significant harvest delays by harvesting frost-damaged fields at moisture levels between 16 and 18 percent. Data from the University of Wisconsin showed that shatter losses of 0.2 bushels per acre per day occur after the beans reach 16 to 18 percent moisture. The beans will need to be dried to a safe moisture level for storage (12 percent for 6 months). Electronic moisture meters will likely be inaccurate and tend to underestimate the moisture levels in green and immature soybeans, so remember to add

1.5 percentage points to the moisture meter readings when testing mixtures of green, immature and mature beans and adjust drying times accordingly. Recheck the moisture content after drying and after a couple days to permit moisture equilibration. In fields where only the upper leaves were damaged by frost, producers should wait and allow the beans to mature and dry to 14 to 15 percent in the field if possible.

DRYING FROST-DAMAGED SOYBEANS

WITH AMBIENT AIR: If only 2 to 3 points of moisture need to be removed, the air temperature is above 60°F and below 75 percent relative humidity, no heat is required in drying bins equipped with full perforated floors and fans capable of producing 1 to 2 cfm/bu. However, drying will occur slowly. Drying times depend on initial moisture content, air flow, grain depth and weather conditions. Drying fans should be run continuously when the beans are above 15 percent moisture and the average humidity of the air is below 70 to 75 percent.

DRYING FROST-DAMAGED SOYBEANS

WITH A HIGH TEMPERATURE DRYER: If you plan to dry soybeans in a high temperature dryer, be careful as soybeans are more fragile than corn and are normally dried using temperatures below 130°F. Seed coat cracking and split beans increase with increasing temperature. The air relative humidity is cut in half for every 20 degrees that the air is warmed, so keeping the relative humidity above 40 percent limits the drying temperature to about 20 degrees above outside temperature. Control the heat and humidity of the drying air by using short burner cycles or by changing the burner jets.

STORING FROST-DAMAGED BEANS:

Elevators will discount loads containing green and immature soybeans and, in some cases, may reject entire loads if the damage levels are high. Discounts can be reduced by screening out the small beans, drying the rest to 12 percent moisture and storing them in aerated bins for a couple months.

Crop Protection Network

Bridging the gap between research and farmers

By: Carol Brown, NCSRP Communications Liaison

Researchers and extension specialists across the Midwest are working together to improve access for farmers to find and use the latest results from agricultural research. In its third year, the Crop Protection Network is creating and compiling publications and other resources to help farmers manage disease pressure and improve yields, primarily for soybeans, corn and wheat.

"In a meeting a few years ago, we realized that several states were producing similar extension materials about common issues such as soybean rust and frog eye leaf spot," says Daren Mueller, a plant pathologist at Iowa State University and the project's principle investigator. "We took a hard look at the way we did things and decided we wanted to be more efficient."

This team of extension professionals, formerly called the North Central Disease Study Group, established the Crop Protection Network. They expanded the group to include soybean agronomists and entomologists to increase the resources on agronomic and pest issues for farmers.

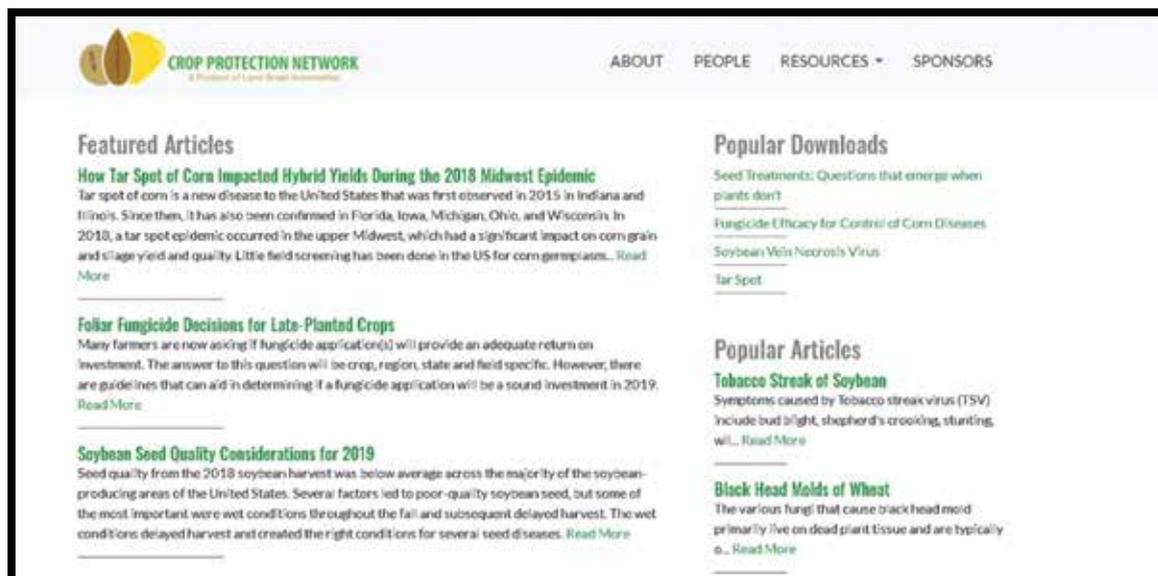


Martin Chilvers, plant pathologist and associate professor in the Department of Plant, Soil and Microbial Sciences at Michigan State University, is one of the founding members of the study group. He agrees with Mueller about increasing efficiency.

"Everyone's got reduced resources nowadays. So, it really allowed us to extend those grant dollars much further," Chilvers says. "One of the exciting things is the collaborative nature of the Crop Protection Network and the high-quality extension publications that are being produced."

Working with scientists from other land grant universities, the group has written and amassed articles and publications with the latest information on soybean and corn diseases. The publications are mainly focused on the soybean concerns in the north central region of the United States.

"It would be very hard to do on our own and we'd be reinventing the wheel, but by working together like this, we've done a really good job at creating useful guides," Chilvers says.



The North Central Soybean Research Program (NCSRP) and other organizations have supported this work by awarding research contract funding to accomplish the Crop Protection Network's goal of getting these resources into the hands of farmers.

"As we developed the publications, we noticed that most of the work we do is not specific to a problem in one state. Most of our issues are crossing state lines," continues Mueller. "We approached NCSRP after we developed the idea. They were the first group that invested in this."

The group launched its collaborative website, CropProtectionNetwork.org, in early 2018 as a central location for these resources from 29 extension offices across the United States. The website includes publications available for downloading, social media highlights, links to partner videos, and a library of articles on numerous diseases sortable by crop, season or category such as foliar; root; ear, head or seed; and stem or stalk.

In just a few months, the group recorded more than 10,300 publication downloads, according to the Crop Protection Network's year-end report to NCSRP. Sections devoted to insects and weeds will be added soon.

GETTING CREDIT FOR READING

The newest section on the Crop Protection Network website is the availability for certified crop advisors (CCA) to earn continuing education credits. Crop advisors can visit the website, read certain publications and take a quiz afterward to earn a 0.5 credit for each passing score.

A total of 19 quizzes are currently available through the website. Each quiz is based on publications that

cover areas including diseases and their management, pest resistance and mycotoxins.

Participants must earn a passing score of 70 percent or more on a quiz to qualify for credit. Results are sent monthly to the American Society for Agronomy for processing, and participants will be presented with a certificate for their records. Participants can take these quizzes at no cost, either through a dedicated web page (<https://ceu.cropprotectionnetwork.org/>), or through a link with corresponding publications (<https://cropprotectionnetwork.org/resources/publications>). Each quiz was written and reviewed by CCAs and extension specialists for difficulty and accuracy.

The scientists heading up the Crop Protection Network project are adding to the website monthly.

"It's a constant effort to update the different articles we have and to write new articles," Chilvers says. "We're responding to the conditions we've got now such as prevented planting, and always consider the economics of soybean production. We try to be responsive to needs and write specific pieces for them. That is important to us."

Sponsors of the Crop Protection Network project include: North Central Soybean Research Program (NCSRP), United Soybean Board (USB), Grain Farmers of Ontario (GFO), North Central Integrated Pest Management (NC-IPM) Center, National Institute of Food and Agriculture (USDA NIFA) and the U.S. Wheat and Barley Scab Initiative.

CPN is a multi-state and international partnership of university and provincial extension specialists, and public and private professionals that provides unbiased, research-based information. Our goal is to communicate relevant information to farmers and agricultural personnel to help with decisions related to protecting field crops.

CROP PROTECTION NETWORK SUCCESS BY THE NUMBERS:

- CROP PROTECTION NETWORK PUBLICATIONS WERE VIEWED MORE THAN 25,000 TIMES ON THE SOYBEAN RESEARCH AND INFORMATION INITIATIVE (SRII) WEBSITE IN 2016 AND 2017.
- CROP PROTECTION NETWORK PUBLICATIONS (INCLUDING BOTH NCSRP-SPECIFIC AND OTHER PUBLICATIONS) WERE PRINTED NEARLY 100,000 TIMES IN 2016 AND 2017. SEVERAL PUBLICATIONS WERE TRANSLATED INTO FRENCH FOR USE IN CANADA.
- THE CROP PROTECTION NETWORK HAS LEVERAGED THE TALENTS OF 99 EXTENSION AND INDUSTRY SPECIALISTS FROM 30 UNIVERSITIES AND INSTITUTIONS TO CREATE MORE THAN 40 PUBLICATIONS ON SOYBEAN PROTECTION AND OTHER TOPICS.

US Soybeans and China:

Looking back and trying to look forward.

By: Caleb Sundblad, Grain and Dry Bean Marketer

In 2017, the United States shipped a record number of soybeans to China. Of the 4.39 billion bushels produced by U.S. farmers that year, 1.2 billion bushels were shipped to China. As the demand for protein in China continued to explode, the percentage of acres and price for U.S. soybeans responded accordingly, with farmers more than willing to supply the growing need. The growing middle class in China and their appetite for pork convinced agricultural economists worldwide that the demand train was not slowing down. Despite some indicators trying to show that China's economy was slowing, all signs pointed towards a stable customer who would be in to buy U.S. product for years to come.

The story about what happened next and how the U.S. soybean farmer become a favorite political football has been told many times over and I won't re-hash it here. However, the total impact of the subsequent dominos that have fallen is what I will discuss, as I believe it provides some good insight into just what the lasting impacts will be.

In the year since the tariffs were first imposed, the United States harvested their largest soybean crop ever - 4.54 billion bushels. They have sold only 500 million bushels to China, however, with only two months left before the marketing year closes. Currently, this number is the lowest in 11 years and as of June 1, the U.S. still has 1.8 billion bushels left in stocks as it heads towards the 2020 harvest season. With over a quarter of last year's production still in storage, the need for U.S. soybeans has plunged, as has the price.

So, what has happened in the global market and what will the long-term implications of all this



scary data be? Well first, the Chinese have incentivized their farmers with subsidies to supply more of their demand in-house. Meanwhile, they have also changed many of their feed rations to decrease their reliance on soybean meal. Finally, China has lost roughly 40 percent of their total hog production to a massive outbreak of African Swine Fever (ASF). All of these factors have dramatically reduced China's soybean demand and led to

their lowest total imports in years.

The imports that are flowing into China are coming almost exclusively from Brazil. Now the world's largest producer, the Brazilian farmer senses a golden opportunity, and has the land, resources and ability to produce even more. U.S. companies have actively pursued the Brazilian market, and their processing and logistical capacity has expanded as a result. However, with China's need for soybeans reduced due to ASF, their expected payday has been muted.

The final piece to this puzzle is the U.S. farmer, who has been left behind in this perfect storm. We have increased our resources and technology in order to meet the needs that we expected to keep growing two years ago. Now, we are expecting to carry over 1 billion bushels into next year and the futures market and basis levels have combined for the weakest cash soybean market in many years. How long until we can expect a turnaround? Given all the current factors, the outlook appears pretty bleak. However, it does not take a long look into the rear-view mirror to see how big the opportunities are, and how quickly the market can turn.



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Weed Management “Down Under”: Lessons in harvest weed seed control

By: Christy Sprague, Professor and Weed Extension Specialist, MSU

Last winter I had the opportunity to travel to Western Australia (WA) with a group of four United Soybean Board (USB) farmer directors from around the U.S. The goal of the trip was to learn more about herbicide-resistant weed management strategies used on WA farms. Traveling to WA was an awesome experience, not just because it was summer there and 80°F in December, but because WA farmers have developed several innovative techniques to help manage herbicide-resistant weeds. To start out, here is a little background about WA agriculture. The primary crops grown in WA are wheat (11 million acres), barley (4 million acres), canola (2.4 million acres) and lupins (900,000 acres). Planting starts once rain begins after the dry summer (April/May - June/July) and crops are harvested between October and December. In addition to crops, the sheep industry is still a vibrant part of WA agriculture with a total flock of 14.2 million sheep. I mention sheep for two reasons: 1) annual ryegrass (*Lolium rigidum*), currently one of the biggest herbicide-resistant weed problems, was seeded in paddocks

(fields) as a feed source for sheep across WA, and 2) sheep currently contribute to helping battle herbicide-resistant weeds in WA. The problem with annual ryegrass began when the sheep industry was declining in the late-1970s and WA farmers planted what was once their pastures to crops (mostly small grains). As early as 1982 populations of annual ryegrass were found to be resistant to three different herbicide sites of action and this resistance problem became wide spread. Currently, there are different annual ryegrass populations resistant to a total of seven different herbicide sites of action, including glyphosate, and many of these populations are resistant to multiple herbicide sites of action. The mechanism of resistance in some of these populations is metabolism based so there is the opportunity for a population to become resistant to additional herbicide sites of action. As a side note, what the Western Australians refer to as annual ryegrass is a different species than the annual ryegrass (*Lolium multiflorum* Lam.) that is currently used in the U.S. as a cover crop.



WHAT IS BEING DONE IN WA TO HELP MANAGE HERBICIDE-RESISTANT WEEDS?

Western Australian agricultural researchers and farmers have been working to help battle herbicide-resistant weeds. There are two main groups that have helped develop herbicide-resistant weed management techniques, provide recommendations and help disseminate and work with WA farmers to implement these strategies. These groups are AHRI (Australia Herbicide Resistance Initiative) (<https://ahri.uwa.edu.au/>) and WeedSmart (<https://weedsmart.org.au/>). On my trip to WA, I was able to meet with researchers and educators from both of these groups and visit with farmers from eight different farms throughout southwest WA.

THE BIG 6

Western Australians use The Big 6 to manage herbicide-resistant weeds. Many of these recommendations are similar to what we recommend in the U.S., with one exception. Western Australians have made great advances in decreasing overall populations of herbicide-resistant weeds with harvest weed seed control. The Big 6 include:

- Rotate crops and pastures
- Mix and rotate herbicides
- Crop competition
- Double knock - This is following glyphosate with a high rate of paraquat to control survivors in fallow or pre-planting situations.
- Stop weed set
- Harvest weed seed control

Harvest weed seed control is what many Western Australians consider the "Holy Grail". In this process, weed seed survivors are captured at harvest using various methods including: narrow windrow burning, bale direct, chaff lining, chaff tramlining, chaff carts, or integrated weed seed destructors. On my trip I was able to visit farms and speak with farmers who are using at least one of these strategies. These farmers swear by these techniques to reduce the overall number of weed seeds that enter the soil seedbank at harvest, ultimately reducing the number of weeds that need to be managed the following year. These systems work extremely well with annual ryegrass, since it retains its seed until harvest. Here is a little more information about each of these harvest weed seed control techniques.

- **Narrow windrow burning** was one of the most common harvest weed seed control methods. This is where the chaff fraction, which contains weed seeds, is in a narrow line and then burned. Narrow windrow burning is extremely effective, but is time consuming, removes nutrients and there is the risk of catching the whole paddock on fire.
- **Bale direct** is a system where large square balers are attached directly to the combine. The baler captures both chaff and straw that contains weed seed. The bales are then removed from the field. Studies have shown that the bale direct systems removes 95% of annual ryegrass seed that enters the front of the combine.



Chaff carts

Chaff lining/Chaff windrowing

Your Soybean Checkoff

- **Chaff carts** are towed behind the combine at harvest and collect the chaff fraction that contains weed seed. The chaff dumps can be grazed by sheep or burned to destroy weed seed.
- **Chaff tramlining** is a system that uses a chaff deck to divert the chaff fraction containing the weed seeds into tramlines, using a controlled traffic system. The chaff fraction is left to rot or the area can be more intensely managed, since the weed seeds are in the concentrated area.
- **Chaff lining** uses a simple chute to divert the chaff fraction, containing the weed seed, into narrow rows, that can be left to rot. This technique is also best used in a controlled traffic system.
- **Impact mills** include the Integrated Harrington Seed Destructor (iHSD) and the Seed Terminator. These machines are currently being integrated into combines in WA. The initial cost is high, but these impact mills pulverize the entire chaff fraction and destroy over 95 percent of the weed seed that enters the mill. These are very promising technologies and, more recently, researchers in the United States have been working to see if these impact mills will work with our weed problems and crop rotations.

More information on Harvest Weed Seed Control techniques used in WA can be found at: <https://weedsmart.org.au/the-big-6/harvest-weed-seed-control-holy-grail/>.



2019 Soybean Harvest Equipment Field Day

By: Mike Staton, MSU Extension Soybean Educator

Reducing harvest losses is a simple and effective way to increase soybean yield and profitability every year. However, reducing harvest losses becomes even more important when planting is significantly delayed. The plants may be shorter than normal, which increases gathering losses. Reducing harvest losses by just one bushel per acre will produce more than \$8.25 per acre of additional income in 2019.

Because of this, the Michigan Soybean Checkoff is cooperating with Ed Groholski Farms, AWS Airbar Systems, Burnips Equipment Company, Cray Industries, GreenMark Equipment, Spartan Crop Insurance, Stine Seeds, Wells Equipment, Williams Farm Machinery, Inc. and Michigan State University Extension to conduct a Soybean Harvest Equipment Field Day. The event will be held in Calhoun County at 1350 12 Mile Road, Burlington, MI 49029 on **Tuesday, September 24, 2019**. Participants will learn how harvest losses occur and how to measure and reduce them.

The field day will begin with a Michigan Farm Bureau presentation on farm truck regulations and safety at 10:45 a.m. and conclude by 3:30 p.m. The following topics and equipment will be demonstrated: draper heads, auger heads, air-assisted reels, harvest loss measurements, and how ground speed and reel settings affect harvest losses.

There is no charge for the field day. However, pre-registration is requested by calling 269.673.0370 ext. 2562 before noon on Friday, September 13, as a complimentary lunch and educational materials will be provided. Please call the same number and extension for cancellation or rescheduling updates.

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Aquaculture and Soybeans— Why?

By: Kathy Maurer, Financial and International Marketing Director

Farmers are problem solvers and are always looking for new opportunities. One opportunity soy checkoffs have been working on in recent years is the potential growth of soybean meal as a protein source in aquaculture feed rations. Fish meal is in scarce supply due to oceans and lakes being overfished. It is a limited and increasingly expensive feed ingredient. Fish raised in aquaculture systems need a reliable, high-quality protein source and soybeans fill that need.

The Soy Aquaculture Alliance (SAA), which includes 13 state checkoffs, the United Soybean Board (USB), American Soybean Association (ASA) and U.S. Soy Export Council, was formed to research how soybeans can fit into fish diets.

Globally, seafood out produces beef and poultry. According to the National Oceanic and Atmospheric Administration, part of the U.S. Department of Commerce, the U.S. imports 80 percent of their seafood. Additionally, half of the seafood consumed in the U.S. comes from fish farms. The U.S. is currently in a seafood trade deficit of \$10.4 billion annually. An American favorite is shrimp, and 90 percent of shrimp globally is farm raised.

Where do soybeans come in? As a plant protein, soybeans are a sustainable substitute for fish meal. Depending on the species, an inclusion rate of 15-65 percent soybean meal can be used in fish diets. Unlike our feathered and hooved friends, fish do not need carbs, so only the protein is put into the fish diets.

Seafood is popular as a major protein source around the world and Americans are consuming more

in recent years. The U.S. Food and Drug Administration recommends eating seafood twice a week for a healthy diet. SAA and soybean farmers have been doing research on the inclusion of soybean meal into different species of seafood.

“Every study we do gives us more information and more credence to believe soybeans are a real opportunity for the U.S. aquaculture industry,” said SAA executive director Andy Tauer. “We’ve been investing for a number of years and every study builds on the one before. We’re making real headway now and seeing results that will benefit the fish farmer and the soybean farmer alike.” Successful research projects have included catfish, salmon, trout and shrimp.

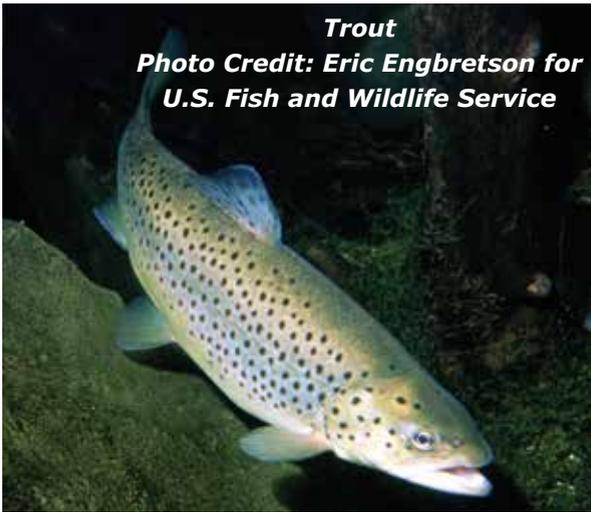
SAA is dedicated to expanding the use of U.S. grown soybeans in domestic aquaculture diets. Soybeans and fish may seem unlikely partners, but bringing the land and sea together offers major opportunities for both. SAA supports research, promotion and collaboration that build this partnership.

Soy-fed aquaculture opens unprecedented opportunities to:

- Feed a growing population with the most feed-efficient farm-raised protein.
- Build a lucrative domestic market for fish growers and soybean farmers alike.

By 2030 the demand for fish protein will increase by 44 percent. Soybean meal is affordable and sustainable. It helps to solve a problem. It is a win for the aquaculture industry as well as soybean farmers.





Trout
Photo Credit: Eric Engbretson for
U.S. Fish and Wildlife Service



Catfish
Photo Credit: Eric Engbretson for
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Salmon
Photo Credit: Hans-Petter Fjeld



Shrimp



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The mission of the Michigan Soybean Promotion Committee is to manage checkoff resources to increase return on investment for Michigan soybean farmers while enhancing sustainable soybean production.

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Why Should Farmers Care About Transportation?

... because our international competitiveness depends on it.

By: Kathy Maurer, Financial and International Marketing Director

When selling to international markets, the cost of transportation is an important factor, as it adds to the final cost of exported soybeans. It’s important to consider which forms of transportation are most efficient to move soybeans.

The Texas Transportation Institute calculated how far a gallon of fuel would move one ton of freight with the following modes:

- Truck = 145 miles
- Railroad = 477 miles
- Barge = 647 miles

The table below looks at transportation costs from three different locations to Shanghai during the fourth quarter of 2018 using the various modes of transportation.

Metric Ton Cost	Davenport, Iowa	Sioux Falls, South Dakota	N. Mato Grosso, Brazil
Soybeans	\$313.55	\$294.81	\$293.43
Truck	12.10	12.10	79.37
Railroad		57.10	
Barge	71.80	25.97	30.00
Total Cost	397.45	389.98	402.80
Transportation	83.90	95.17	109.37
% Transportation Cost	21.11%	24.40%	27.15%

Table Source: USDA

China is currently investing in the infrastructure of Brazil. They are putting in efficient railroads, shoring up highways and roads and building new ports. As their cost of transportation comes down and is more efficient, Brazil will become more competitive.

It’s important for the United States to update our aging railroad and highway infrastructures. If we are going to compete in the global economy, we need to give ourselves every edge we can.

The Michigan Soybean Promotion Committee is working with the Soy Transportation Coalition (STC) in partnership with twelve other soybean growing states, which represent 85 percent of the soybeans grown in the U.S. STC has been working with federal and state transportation organizations to find ways to improve the efficiency of our transportation infrastructure.

Whether we are shipping soybeans to Shanghai or Central America, we need efficient and reliable transportation to transport our soybeans.





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TRANSPORTATION CALCULATOR

Where should I deliver my soybeans or grain?

Should I deliver my soybeans or grain to the local elevator offering a more modest price or the more distant market offering a premium price?



Farmers must not only be mindful of the price received, but also the costs associated with the delivery. After all, the goal is to maximize profit vs. maximize revenue.

The calculator works for soybeans, corn, wheat and other commodities. In a few short steps, farmers can determine not only how much money will be received but also how much will be spent.

Search for **"Soy Transportation Coalition"** or **"STC Calculator"** on the App Store or Google Play. The calculator can also be accessed online at www.soytransportation.org/calculator.

Established in 2007, the Soy Transportation Coalition is an organization comprised of the Michigan Soybean Promotion Committee, twelve other state soybean boards, the American Soybean Association, and the United Soybean Board.

Funded by the soybean checkoff.



Exporting Soy via Pork & Beef

By: Sonja Lapak, Communication Director

Last year MSPC became a member of the United States Meat Export Federation (USMEF) and the USA Poultry and Egg Export Council (USAPEEC). The livestock industry is the largest consumer of soybeans globally and the MSPC board recognizes the importance of investing in the organizations that work to export soy by way of beef, pork, lamb, poultry and egg products. Our membership in these organizations helps promote U.S.-raised meat products around the world as high quality, nutritious and sustainable options for people seeking protein sources.

This spring I attended the USMEF Spring Meeting and was able to learn a lot about the work USMEF is doing around the world. It is important for us to stay up-to-date on issues livestock producers are facing, because those issues have a direct impact on soybean meal consumption.

African Swine Fever (ASF) was a major topic of discussion during the meeting. The effects of China being hit hard with this disease will be long-term and impactful. China is currently home to half of the world's hogs but will now need less soybean meal because of a lower hog population. Additionally, pork prices will rise globally, and other pork-producing countries have the opportunity to meet the demand China no longer can. The U.S. has an opportunity to export more pork and grow the hog industry domestically, as we currently have record production and are seeing steady production growth. If tariffs weren't a factor, even more growth would be expected.

ASF was just one of many issues discussed during the meeting. Other topics of discussion included feed quality, amino acids, domestic and international transportation opportunities and challenges, biosecurity, labor and importer regulations and preferences. Our membership in this organization is a great opportunity to stay in-touch with the next steps in the value chain.

Livestock & Soybean Meal Facts:

- Over the next 10 years, meat exports are forecast to generate a projected \$30.8 billion in cumulative annual market value to corn and soybeans based on USDA's long-term forecast for crop prices.
- Since 2015, meat exports represent the fastest growing category of corn and soybean meal use.
- It is estimated that in 2018 beef and pork exports added \$0.39 to the average 2018 corn price of \$3.53/bushel. Similarly, it is estimated that pork exports added \$0.85 per bushel to the average 2018 soybean price of \$9.30/bushel.



Michigan Soybean
Promotion Committee
The Soybean Checkoff
michigansoybean.org

Exporting Michigan Soybeans through U.S. Pork



In 2018, the market value of pork exports to

MICHIGAN SOYBEANS

\$18.9 million

(soybeans consumed by pork exports * annual avg soybean price)

In 2018 pork exports
added **9%**
of bushel value



Thinking Sustainability? Think Soy

The versatile chemical composition of soybeans makes it possible to replace petrochemicals and other ingredients with soy derivatives to produce “greener,” more environmentally-friendly products, without sacrificing performance or competitive pricing.

The idea isn’t new. In fact, Henry Ford and George Washington Carver shared a vision of using soybeans and other natural derivatives to make plastics, paint, fuel and other products. Following World War II, petrochemicals replaced soy feedstock in many industrial products due to their availability and cost. However, times and economics have changed.

These days, manufacturers are incorporating soy into formulations to:

- Reduce dependency on petroleum and associated price fluctuations for raw materials
- Replace suspect carcinogens
- Differentiate and improve product performance
- Improve corporate sustainability practices while reducing regulatory compliance and insurance costs
- Make products eligible for higher LEED credits
- Improve production with an uninterrupted, abundant supply of biobased renewable raw materials

Soybean oil has been proven to be an effective and economical ingredient in products ranging from polyurethane foam to plastics, paints, rubber and lubricants. Soybean meal is used to make plastic composites, synthetic fibers, paper coatings and formaldehyde-free adhesives.

Learn more about the many uses of soy by visiting soynewuses.org. View the Soy Products Guide to learn about a variety of commercially-available products you can purchase: bit.ly/soyproductguide.



FREE MSPC Biobased Product Tshirts

Do you use biobased products in your home or on your farm? We want to hear from you!

Email pictures of you and biobased products you love to slapak@michigansoybean.org with your mailing address and we will send you a FREE tshirt!

Be creative! Photos could include fueling up your tractor with biodiesel, your child coloring with soy crayons, staining your deck with a soy-based stain or anything else you can think of!

*Photos may be used in our magazine or on our social media pages.



Trade Mission to the Philippines

By: Laurie Isley, MSPC President

When we deliver a truckload of soybeans to the elevator, we seldom think about their final destination. After visiting the Philippines as part of the U.S. Soy Export Council (USSEC) Soy Producers Mission, I now know faces and names of some of those end-users. The trip was a well-constructed selection of information and experiences.

We began our week with an overview of the agricultural production and consumption of countries in Southeast Asia. This included the Philippines, Thailand, Indonesia, Myanmar and Vietnam. USSEC has been working with these countries to develop and promote a preference for U.S. soybeans. The countries are each at different stages of acceptance and implementation of this, but progress is being made. Targeted areas include aquaculture in Vietnam and livestock feed processing in Thailand.

The Ag Supply Chain Asia 2019 Conference was held in conjunction with our visit and we participated in the meals and activities during the first day. This allowed us to interact with purchasers and stakeholders from this critical region of the world. U.S. producers and USSEC staff presented sessions on trade, product availability and quality and sustainability. Participants heard directly from U.S. soybean farmers about their farms, how they use conservation to produce a quality product, the challenges they face and the legacy they plan to leave to their children and grandchildren.

Another highlight of the trip was the visits to area farms and industries who use and promote U.S. soy.

We visited a soy milk plant who has had great success with their products. They are looking to expand both their selection and their market area. Our second visit was to a feed processing mill, which produces full fat soybean meal for their swine facility and for other livestock farmers in the region. At both visits we were welcomed warmly and the positive relationship with USSEC and preference for U.S. soybeans was readily evident.

Our second day of visits took us to an aquaculture producer on Taal Lake. There were over 6,000 net pens in the lake - the producer we visited owned about 700 of them. We were able to feed the fish (mostly milkfish and some tilapia) and watch the harvesting, sorting and packing of the fish. It was a fascinating and fun visit.

We also stopped at a large layer operation where we watched the electronic egg sorter, saw the feed production facility (U.S. soybean based, of course) and then visited one of the farms. They have farms in four locations and each one houses 25,000 birds. The warm climate allows for open housing and the workers are assigned to a specific farm to reduce the chance of disease transmission.

The farm and industry visits and our participation in the conference reinforced my support for our USSEC staff around the world. They use partnerships, workshops, technological advancements and knowledge to work continuously towards sustainable relationships, which result in increased sales of U.S. soybeans to our consumers around the world.

Philippines Facts:

- Ranked 4th as global soybean meal importer - 2.95 million metric tons annually
- Welcoming of GMO products and technology
- Buyers are sensitive to quality
- Currency exchange is an issue
- Only one crushing facility in the country, which exclusively uses U.S. soybeans
- U.S. remains their largest supplier of agricultural products (soybeans, soybean meal, wheat, dairy products, red meats and poultry)



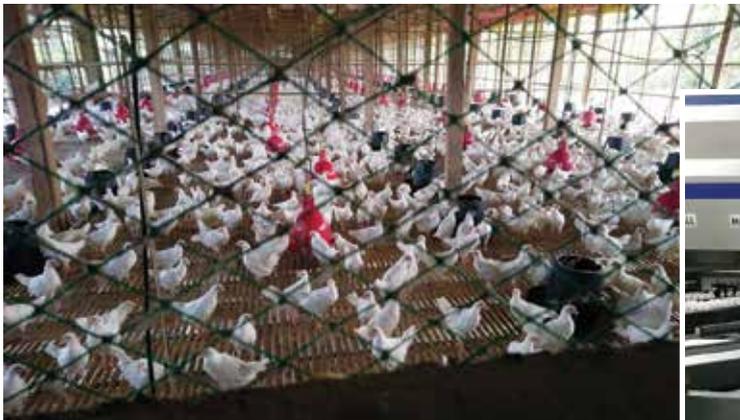
Laurie Isley at the AG Supply Chain Asia 2019



Asian Brewery soy milk sampling



Taal Lake and milk fish



Chickens and egg sorter



ZFS Creston Soy Flour Sales Grow Through ASA/WISHH Work in Central America & Africa

MSPC's support of ASA/WISHH has created new African and Central American customers for ZFS Creston's soy flour. Michigan checkoff funds are building even more demand by supporting WISHH's ongoing work as well as training that assists these companies and their governments in offering innovative soy-based foods to meet their growing population's demands for healthy school meals, beverages, breads and even a frozen soy dessert.

Last year, MSPC President Laurie Isley and International Marketing Director Kathy Maurer joined WISHH in calling on Central American companies that are already buyers of U.S. soy or are potential customers. They identified multiple demand-building opportunities for ZFS Creston's soy flour. In 2019, more new Central American soy flour orders are rolling in. One new ZFS Creston customer alone imports 20 tons of ZFS Creston soy flour a month, which equals 12,240 bushels of soybeans annually. The customer produces fortified beverages and other products with the soy flour.

ASA/WISHH is laying the foundation for even more sales through MSPC-supported educational programs, including a July 2019 seminar on the importance of soy for cost-effective meals, which play a vital role in

meeting protein needs of children and adults. WISHH leveraged MSPC checkoff dollars with U.S. Department of Agriculture Market Access Program funds to convene the seminar, which featured expert nutrition speakers. A key government official who attended reported that the seminar expanded his view of soy, which he had previously perceived as a supplement. As a result of the MSPC-supported program, he said he now recognizes soy as an important protein source for daily diets and knows it can help Guatemala overcome nutritional deficiencies that are prevalent in the country.

Thanks to MSPC and USDA's Foreign Market Development Program, WISHH is able to provide further training to these Guatemalan companies. These companies are vital to the supply chain for U.S. soy in Central America. WISHH selected key company representatives to attend the INTSOY training at the Northern Crops Institute in Fargo in August. The course explores new ideas for soy-based foods, including snack foods, as well as concepts for animal feed.

In Africa, ASA/WISHH's Ugandan strategic partner is another new customer to ZFS Creston. SESACO food and beverage company has purchased ZFS Creston soy flour to bring the nutritional power of soy protein to breads, beverages, school meals and more. In April,

*Guatemalan companies have invested to develop and market a wide array of highly popular foods made with U.S. soy. ASA/WISHH's educational programs provide new ideas for further innovation.
Photo Credit: Theresa Fang*



Your Soybean Checkoff ✓

the continuously innovating company introduced a frozen soy dessert, a first for Uganda and quite possibly the entire East African region.

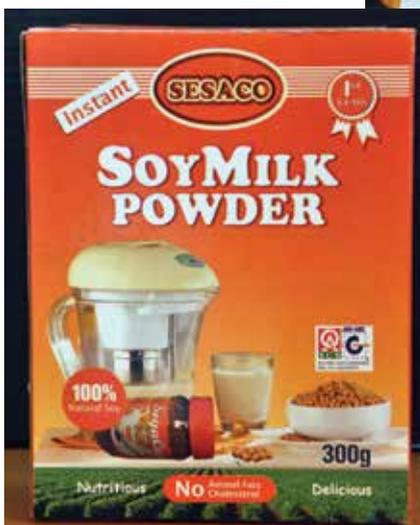
SESACO signed a memorandum of understanding with WISHH in 2011. The company was purchasing soy from African farmers. Business growth and the need for high-quality soy protein products like defatted soy flour and textured vegetable protein opened the door for trade. "We can't produce these products at home so we better import them from the USA so we can address two main challenges: one nutrition and the other economic," says SESACO founder Charles Nsubuga.

MSPC has directly contributed to WISHH's work with SESACO to introduce the company and its customers to ZFS, as well as give them the training to ensure they succeed with U.S. soy in their food formulations. SESACO's enterprise-driven attitude makes the company a valued WISHH strategic partner to meet the world's growing protein needs. "The collaboration is promoting trade between us," Nsubuga says. "The neighboring countries are picking up the idea because of what is existing between us and ASA/WISHH. The economic impact is such a big one that could not have taken place without this kind of partnership."



MSPC support of WISHH plays an important role in WISHH's work with African supply chain partners that use soy as the key cost-effective ingredient to provide enough protein for growing children. Developing countries investing in their own healthy school meal programs is driving demand for U.S. soy.

Photo Credit: SESACO



FREE Soybean Education Kit

By: Noelle Byerley, Special Projects Coordinator

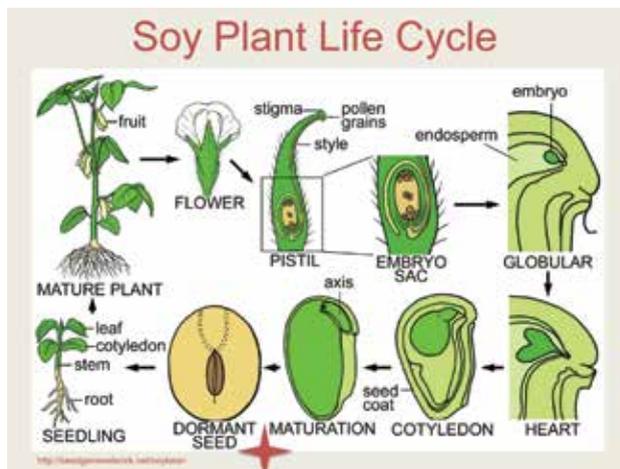
Kids are back to school and once again the Michigan Soybean Promotion Committee (MSPC) is offering a FREE "Soybeans Go To School" education kit to all Michigan teachers. The kit is recommended for third through fifth grade students. Since 1999, MSPC has sent out over 6,800 education kits and reached over 208,000 students in Michigan.

The "Soybeans Go To School" kit lessons include:

- The life cycle of the soybean plant.
- How soybeans touch our lives every day in the foods we eat and the different products we use.
- The history of the soybean and the impact on different cultures.
- Different researchers such as George Washington Carver and Percy Lavon Julian with the many soy-related discoveries they had.
- The innovations of Henry Ford and the fact that, to this day, Ford vehicles still use soy.

This soybean education kit is compliments of Michigan's soybean farmers through their investment in the soybean checkoff. Thanks also to the generous product donations provided by Star of the West-Fairgrove and Michigan Farm Bureau.

As we gear up for the 2019-2020 school year, look for our lessons and order form online. To review lesson plans or to place an order, visit our website at www.michigansoybean.org.



Thank you to the Soybean Promoters

By: Noelle Byerley, Special Projects Coordinator

Over the past year, soybean promoters have represented the Michigan soybean industry and soybean growers at a variety of events including family farm events, Project RED, Ag in the Classroom, farm shows and more. Our soybean promoters make a difference by getting soybean messages out to a wide variety of audiences at both statewide and local events. The Michigan Soybean Promotion Committee would like to THANK our volunteers who participate in the Soybean Promoter Program: Ellen Vanderwal of Lake City, Amanda Ferguson of Yale, Heather Feuerstein of Belding and Richard and Mary Janssens of Monroe.

The soybean promoter program is designed to promote soybeans, soy products and soybean program information to farm and non-farm families throughout Michigan. The key objective of the Soybean Promoter Program is to expand Michigan's soybean representative base to reach more Michigan consumers at the local level. The more promoters we have who are willing to share the importance of soybeans, the more opportunities we have to share our message.

If you are interested in becoming a soybean promoter, visit the Soybean Promoter Program page at <http://michigansoybean.org/about-us/leadership-opportunities/soybean-producer/>.



Ellen Vanderwal of Lake City

Apply for the 2020

Corteva Agriscience™
YOUNG LEADER PROGRAM
American Soybean Association



"The training and interaction with growers and ASA leaders this past year has been an invaluable asset to me personally and a source of new ideas and avenues for my family farm."

– Stuart Sanderson (AL), Class of 2019

Influence, Inspire, Learn and Connect

Apply for the 2020 ASA Corteva Agriscience Young Leader Program!

The Young Leader Program, sponsored by ASA and Corteva Agriscience, provides training for actively-farming couples or individuals who are passionate about the possibilities of the future of agriculture.

This two-phase training program is unique in that your spouse (if applicable), even if not employed full time on the farm, will be an active participant in all elements of the training.

As a Young Leader participant you will:

- Engage in leadership-focused training that impacts not only your farming operation but other organizations in which you serve
- Gain tools to better enable you to tell your story
- Connect with soybean farmers from the U.S. and Canada, creating valuable new agricultural relationships

Deadline is September 20th!



Program information:

PHASE I

Tuesday, December 3 – Friday, December 6, 2019 at Corteva Agriscience in Indianapolis, Indiana

PHASE II

Tuesday, February 25 – Saturday, February 29, 2020 in San Antonio, Texas, in conjunction with Commodity Classic.

The ASA Corteva Agriscience Young Leader Program is for those young in leadership, regardless of age.

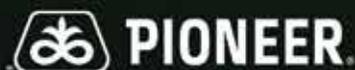
For more information about the Young Leader Program and to apply for membership in the class of 2020, go to: SoyGrowers.com



WHERE DNA MEETS ROI.

Backed by superior agronomics and a wide range of herbicide tolerant traits, our soybeans are equipped with the strongest DNA in Pioneer history. Ask your local Pioneer sales representative how to maximize returns with our unrivaled soybean lineup.

Pioneer.com/soybeans



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