THE MICHIGAN SUGAR COMPANY / SPRING/SUMMER 2021 / VOLUME 35 • ISSUE 1

THE NEWSBEET

The Battle to Beat Leafspot

ALSO IN THIS ISSUE:

Sustainability & Corporate Social Responsibility

2020 Research Insights: Nitrogen and Potassium Relationship

Remembering Ernest Flegenheimer

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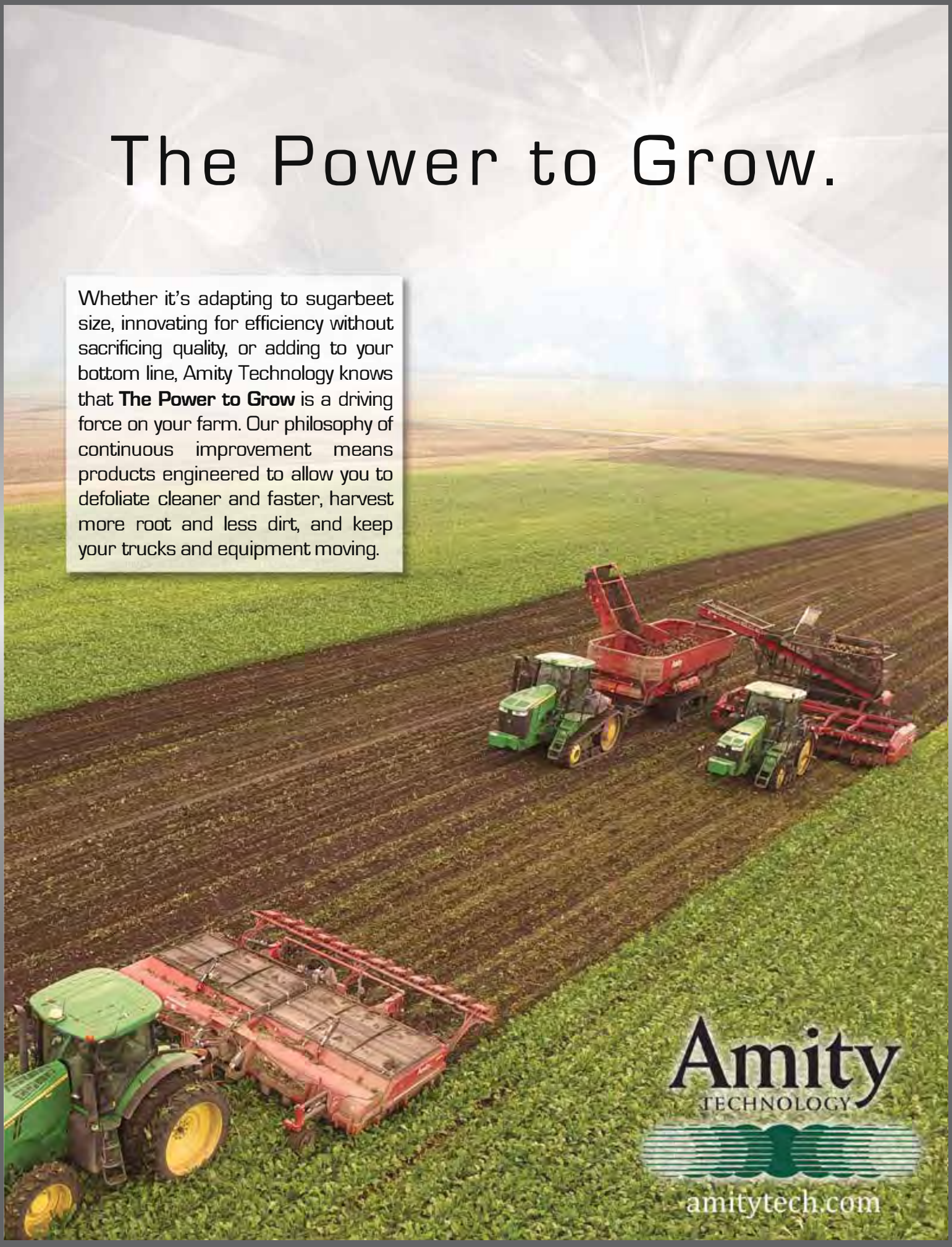

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MICHIGAN SUGAR COMPANY

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MICHIGAN SUGAR COMPANY
PURPOSE, MISSION, VALUES
OUR PURPOSE: Making Life Sweeter
OUR MISSION: Creating Growth & Opportunity
OUR VALUES ARE EPIC+:
Excellence, Pride, Integrity, Compassion, Trust

Making Life Sweeter
MICHIGAN SUGAR COMPANY | SINCE 1906

WE MUST BUILD ON PAST SUCCESSES TO FULFILL OUR MISSION OF *CREATING GROWTH AND OPPORTUNITY*

By Mark Flegenheimer, President and CEO

As we look to the future we must build on the success of last year's campaign. In 2020, Michigan Sugar Company grower-owners delivered a high-quality, clean crop of sugarbeets that stored extremely well, and the factories ran at high rates for both extraction and throughput. Each year will have its own unique challenges and we must be prepared to adapt and change to overcome these hurdles. To get ready for these obstacles we have strategically dedicated resources to both our agriculture group and in our factories.

In this issue of *The Newsbeet*, you will get updates on strategies to overcome leafspot, learn about research activities, and see the investments we are making in the factories. All these programs tie to both our strategic plans and our Mission Statement: ***Creating Growth and Opportunity.*** Going forward, we must provide our shareholders with the tools to produce a crop that exceeds 30 tons per acre and 300 pounds of recoverable white sugar per ton — or RWST. New seed varieties are in the pipeline from our seed company partners and our agronomy team continues to provide excellent advice to maximize quality and yield that will allow growers to surpass these goals. As growers look to increase the amount of sugar they produce from every acre, we hope they utilize the talented resources available in our agronomy department.

During the current inter-campaign, the expansion of the Croswell factory will be completed. Last campaign we started to the see the benefits of this long-term, strategic investment, as Croswell set several production records, including total tons sliced for a campaign and most sugar produced for a campaign. Once we get the new equipment, that is being installed this summer, online and streamlined, we expect to set many more records in the coming years.

> *As a cooperative, we must continue to become more efficient, we must get more value out of each acre and ton of sugarbeets, and we must grow our business.*

Our Mission Statement is simple and straightforward – ***Creating Growth and Opportunity***. While this may have a different meaning for all our stakeholders — from customers to growers to employees — it is clear we cannot rest on our past successes. As a cooperative, we must continue to become more efficient, we must get more value out of each acre and ton of sugarbeets, and we must grow our business. I think you will see in this edition of the magazine some of the initiatives we are undertaking to create that growth and opportunity at Michigan Sugar Company.

Good luck with your 2021 crop!

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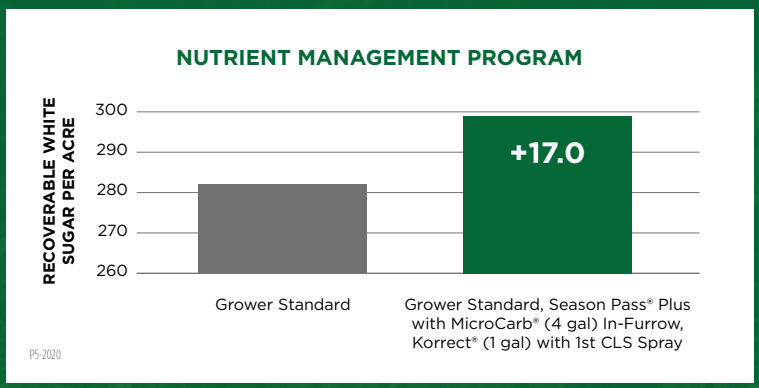

P5-2020

For more information and to download The Andersons High Yield Program for sugarbeets, visit **AndersonsPlantNutrient.com/SugarBeets**.

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THE PRIDE RIDE HAS RETURNED

By James Ruhlman, Executive Vice President

As you take a drive around mid-Michigan and Ontario in early September these days, you will again see sugarbeet fields of green.

It is an early fall evening and you are driving down a country road in your pick-up truck with your arm out the window. You drive by gorgeous fields with lush green leaves that you claim as your own. In your dirty work boots, sweat-stung eyes, weathered jeans, and frayed ball cap, a whisper comes from your mouth: "That's a damn nice field of beets." You think to yourself, "They could go 40-ton."

You are a sugarbeet farmer in mid-Michigan or Ontario, Canada, and you have come to expect this feeling of accomplishment and satisfaction as a grower who has invested all you have in your crop.

Only this year, it is different. Your crop is in danger. The leaves are brown. Some plants have no leaves at all. You are overcome with disappointment, fear, uncertainty, and loss. You turn the radio off, get out of your truck and you find that leafspot has its hold on the crop that you have put your heart and soul in.

For many growers at Michigan Sugar Company, this "Pride Ride" became one of anxiousness for multiple years. Leafspot in various forms invaded our fields and it took a tremendous economic and emotional toll on our family farms.

Round-up Ready seed grown in Michigan lacked the desired tolerance to leafspot. We knew that, and so did our partners in the seed business. Plant geneticists were close to identifying the proper trait mix, but seed with protection against this crippling disease was not yet commercially available. We needed a short-term solution and that solution came in chemistry cocktails, timely application, attention to detail, and a strong desire to win.

With a limited arsenal of tools, our approach became as much an art, as it did a science. Fortunately, we had the talent on our ag staff to determine the cocktails and we had a grower base with the belief and the wherewithal to execute our strategy.

Our cocktails (better known, internally, as spray programs) were custom made. Some included an ingredient of straight up copper, while some were more sophisticated as we considered mixtures with ingredients such as tin, an EDBC, an adjuvant, a strobilurin, and a triazole. The art of applying science to this disease not only included the cocktail, but it also included impeccable timing of execution, and the proper spray technique.

Custom spray clinics featured examples of the best nozzle tip, the proper volume, and ideal pressures. As we sharpened our spray application process, farmers adapted to a paradigm shift when the thought of making three trips across a field to conquer this threat turned into the overwhelming seven to nine times of filling a sprayer with the cocktail and gassing up the tractor to maintain crop health.

We were in survival mode, but we had identified a formula to keep the crop alive. Yes, it was expensive. Yes, the execution was time consuming, but we bought ourselves enough time until the help of a custom-made seed was available.

At the same time we were crafting short-term chemistry solutions, our partners in the seed business had their foot on the gas pedal in search of a genetic solution. Their work, while still underway, has become the hope for our industry. Incrementally, over the past couple of years, seed has become commercially available and has greatly improved our capacity for controlling this disease. Their dedication and world-class work are staples for our long-term success in the sugar industry.

It has been said that an eagle flies into the eye of a storm, while other birds flee and hide from its fierceness. The pressure of the storm gives the eagle power and allows it to fly above the dark gray clouds. In the case of our sugarbeet cooperative in Michigan, leafspot was our storm; our staff and growers were the eagles. They never fled from the disease, they did not give up on the crop, they flew directly in the teeth of the disaster and rose above the dark gloomy threat.

As you take a drive around mid-Michigan and Ontario in early September these days, you will again see sugarbeet fields of green. Satisfaction in the crop has returned and so has the Pride Ride. ∎

CAPITOL BEET

POST-ELECTION OPPORTUNITIES ARISE FOR SUGAR INDUSTRY TO STRENGTHEN AND GROW SUPPORT

By John Boothroyd, Manager of Government Relations

After a long and contentious campaign, the 2020 elections finally are over. Democrats were the clear winners, holding onto their majority in the House of Representatives, gaining control of the White House, and reclaiming the Senate after surprise victories in the two Georgia runoff elections. However, despite achieving the historically rare accomplishment of holding both houses of Congress and the presidency, the Democrats have narrow margin for error.

In the Senate, Democrats hold the majority only because of Vice President Kamala Harris' ability to cast the tie-breaking vote in a chamber that is otherwise evenly split between both parties. In the House, the Republicans, who had been projected to lose up to 20 seats, ended up gaining 11 seats. This leaves the House Democrats with a slim 10-vote majority. Democrats will therefore need to maintain almost unanimous support in their caucuses to pass legislation. This will not be an easy task considering the differences in policy priorities between the moderate and progressive wings of the party.

For the sugar industry, the election has caused a great deal of uncertainty. House Agriculture Chairman and longtime industry champion Colin Peterson (D-Minn.) lost his re-election bid. Peterson was one of industry's strongest supporters in Congress and was integral to our efforts to educate Democrat members without agriculture in their districts about the importance of the domestic sugar industry. With his defeat, we will be relying heavily on our remaining Democrat champions, such as Rep. Dan Kildee (D-Mich.), to increase their advocacy on our behalf. On the Senate side, the industry lost a supporter when Martha McSally (R-Ariz.) was defeated in her campaign for re-election. However, there is some positive news in the Senate: with the Democrats retaking control, Sen. Debbie Stabenow (D-Mich.) once again is Chairwoman of the Senate Agriculture Committee. Having Sen. Stabenow in this role gives Michigan Sugar Company, and the entire sugar industry, a key voice in agriculture policy going forward.

In the administration, President Joe Biden nominated Tom Vilsack to replace Sonny Perdue as Secretary of the U.S. Department of Agriculture (USDA). Vilsack's nomination, which was confirmed by the Senate, came as welcome news to the sugar industry and agriculture in general. Vilsack previously served as President Barack Obama's USDA Secretary for eight years and is a known quantity with a deep understanding of agriculture.

While the 2020 elections have caused a great deal of uncertainty, they also have provided opportunities for the sugar industry to strengthen and grow its support. The unrest preceding President Biden's inauguration caused many Political Action Committees (PACs) to limit their political giving across the board. This has allowed us to use our PAC strategically to build new relationships with members who are struggling with fundraising.

Despite the election defeats of some key supporters, I am confident our strong political presence is going to allow us to cultivate new advocates who will work to strengthen and maintain the sugar program. Ultimately, the future of the domestic sugar industry rests in our hands. Our political advocacy will continue to be the key to our success. We must remember that as a company, and an industry, the PAC contributions by our growers and employees are not a cost, they are an investment in our future. ▮

***John Boothroyd** is Michigan Sugar Company's Manager of Government Relations. He joined the company in 2018 after working four years for U.S. Rep. John Moolenaar.*

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LAND LEGACY: PROTECTING YOUR FAMILY FARM THROUGH ESTATE PLANNING

By Ryan Sullivan, CPA, and James Gerding, CPA, Rehmann

Looking ahead and making long-term plans for the future of your farm is always wise given the importance of real estate to both your operations and your family, and this is particularly important in 2021 with expected tax changes on the horizon.

For family farm owners, determining if and how operations will continue in the years ahead — and who will be at the helm — is an important part of protecting your family and your legacy. It also can feel overwhelming. After all, family farms are tied to the land and that land is an asset that often has been in the family for generations. Figuring out who will be involved and deciding what that means for operations are significant and often emotional decisions for a family.

Whether you plan to pass the farming operations to the next generation or you are seeking only to keep the land in the family, tax-planning strategies can help you achieve your financial and personal goals.

Estate planning is an important part of your financial picture, no matter the size of your family's farming operation, and taking the time to protect your assets (and your loved ones from future tax burdens) is more important than ever. Consider that under current law, the federal estate tax exemption of $11.70 million in 2021 will be reduced to approximately $6 million per person, indexed for inflation, in 2026. The federal estate tax laws (exemption amount, tax rates, etc.) may also be changed at any time by new legislation.

While we do not yet know specifics — President Joe Biden's tax proposal is not yet approved and aspects of it could change — we do know the direction we can expect to see lawmakers take in coming months. With this in mind, we believe it is essential to check in with your trusted advisors to discuss strategies for your specific situation and ensure you are in the best possible financial position.

Here are a few things to keep in mind as you consider making plans:

- **Document organization:** do you have the necessary paperwork in place to ensure your family and legacy is protected (wills, power of attorney, medical directives, etc.)? If you do have these documents in place, it may be time to dust them off. A good rule of thumb is to review your estate plan at least once every five years or upon the occurrence of a family update.
- **Family updates:** have you recently gone through a significant life change, such as a divorce or marriage, or death of a loved one? Are you experiencing family dynamics that should be considered to protect your finances?
- **Asset review:** we tend to forget that over time our estate values grow, and laws change. Annual review of your personal balance sheet helps ensure assets are titled properly, beneficiary designations are current and accurate, and you are thinking about retirement needs, philanthropic goals, and estate and income tax exposure and how you might be able to plan to reduce it.
- **Giving back:** it is important to understand charitable planning techniques and how they can be an integral part of estate planning.

Since there is no one-size-fits-all approach to estate planning, talking with your trusted advisors — tax planner, wealth manager, and attorney — can help you identify best options for your family's situation. Just as you plan accordingly each growing season in hopes of a fruitful harvest, mapping out your estate plan today can boost confidence in a more prosperous tomorrow. ▮

***Ryan Sullivan** is a tax principal at Rehmann. He provides comprehensive tax solutions to both individual and business clients, with an emphasis in the fields of manufacturing, auto dealerships, agriculture, and distribution.*

***James Gerding** is a tax principal at Rehmann. He has assisted numerous private and public companies with formulating sound, innovative tax strategies relating to organizational structures, mergers and acquisitions, executive compensation, and employee benefits.*

EDITOR'S NOTE:

Michigan Sugar Company drafted its Sustainability & Corporate Social Responsibility statement during the summer of 2020. The statement lives under the "About" tab on Michigan Sugar's website at www.michigansugar.com. We are sharing it here, as well, to better educate the Michigan Sugar community about these important foundations of our business.

BUSINESS **FOUNDATIONS**

Sustainability & Corporate Social Responsibility

Michigan Sugar Company aspires to produce, package, and distribute world-class products while being a leader in corporate and agricultural sustainability. Through environmental stewardship, progressive farming practices, safe and healthy workplaces, and service to our communities, we are committed to creating a responsible business model that serves and builds value for our grower-owners, employees, customers, suppliers, and other stakeholders now and in the future.

THESE ARE THE ROOTS OF OUR SUSTAINABILITY AND CORPORATE SOCIAL RESPONSIBILITY EFFORTS:

ENVIRONMENT

Michigan Sugar Company is committed to continuous improvement programs in the areas of energy use, water use/reuse, carbon dioxide emissions, and material and packaging waste management and recycling.

Since becoming a grower-owned cooperative in 2002, we have cut our energy consumption by more than 40% and reduced our carbon footprint dramatically. In 2014, we converted our Caro factory coal boiler to clean burning natural gas and in 2015 did the same at our factory in Croswell. These conversions alone have reduced our annual carbon emissions by 25%. By investing in state-of-the-art, energy-efficient technology throughout our factories, we have achieved a total reduction in annual carbon emissions of 150,000 tons.

During the 2021 inter-campaign, Michigan Sugar is replacing two coal-fired lime kilns at its Croswell factory with a new natural gas-fired lime kiln expected to result in annual energy savings for the company of $300,000.

Today, more than 87% of our factory operations are powered by clean burning natural gas.

Michigan Sugar Company has a goal of zero waste as it pertains to our sugarbeet crop. All components of the sugarbeet are commercialized or recycled. In addition to sugar, we produce co-products, such as pulp and molasses, that can be used in livestock feed, pet foods and even road de-icer, among other things. The topsoil and field stones brought in with the beets, and the beet lime used in the process, are utilized by landscapers and growers as soil additives and decorative features. Furthermore, much of the water removed from the beets is converted to steam to power various operations inside our factories. This total-usage practice is good for business and benefits the environment through reduced greenhouse gas emissions and the elimination of waste.

Michigan Sugar Company is committed to protecting the environment and aggressively manages its impact through waste prevention and minimization, robust recycling, and conservation of energy and natural resources.

AGRICULTURE

As a grower-owned cooperative, Michigan Sugar Company is committed to researching, developing, and implementing agricultural best practices that increase yields while reducing impacts to the land.

Michigan Sugar Company's grower-owners are proud to plant GMO (Genetically Modified Organisms) sugarbeet seed that has allowed them to increased yields by 50% while reducing the number of passes made across their fields by 65% over the past decade. GMO technology has greatly reduced the amount of herbicide being applied by Michigan Sugar's growers. Farmers can now fight weeds by applying herbicides in targeted areas when needed and can use conservation tillage production methods that preserve topsoil, prevent erosion, and reduce carbon emissions.

LEFT/ENVIRONMENT

More than 87% of our factory operations are powered by natural gas.

LEFT/AGRICULTURE As a grower-owned cooperative, Michigan Sugar Company is committed to researching, developing, and implementing agricultural best practices that increase yields while reducing impacts to the land. **BELOW/COMMUNITY** Each year, Michigan Sugar Company donates more than 100,000 pounds of sugar to community food pantries, churches, and nonprofit organizations.

Michigan Sugar Company employees serve as trusted advisors to our grower-owners in our quest for strong land stewardship. We use global positioning system — or GPS — technology to track every sugarbeet field from pre-planting to harvest and provide growers with customized information about use of fertilizer, herbicide, fungicide, and insecticide, all aimed at minimizing soil erosion and phosphate run-off and preserving our natural resources. The use of cover crops is a strong focus as we replenish, through nature, soil nutrients needed for future production of all crops in our rotation.

Each year, Michigan Sugar Company's Agriculture Research team conducts agronomic and seed variety studies on approximately 100 acres of land located in up to 20 locations throughout our growing area. This research allows growers to maximize yields while minimizing impacts to the environment. Michigan Sugar Company is a partner in the Saginaw Valley Research & Extension Center located near Reese, Michigan, and works closely with both Michigan State University and the University of Guelph in Ontario, Canada.

WORKPLACE

Michigan Sugar Company is committed to maintaining safe and healthy work environments while investing in the professional development of our employees to enhance their skills, knowledge, and capabilities for future growth within our cooperative.

At Michigan Sugar Company, we live by our values — Excellence, Pride, Integrity, Compassion, and Trust. This is the foundation of a business environment that sets respect and dignity for co-workers, suppliers, customers, and partners as an absolute expectation. We are dedicated to principles of equality and diversity and comply with all equality and anti-discrimination laws. Michigan Sugar Company is committed to conformity with all state and federal worker safety and labor standards.

Michigan Sugar Company hires career-minded people searching for long-term employment and supports employee growth through robust apprenticeship programs, on-the-job training, internal and external classes and seminars, and tuition reimbursement. Full-time, regular employees are offered a benefits package with quality insurance, paid leave, and retirement plans.

Michigan Sugar Company fosters a multigenerational workforce where more than 130 of the company's 930 year-round and 1,100 seasonal employees have been on the job for more than two decades and many come from the same family. We cultivate this environment knowing our quality products are a direct reflection of our quality people.

COMMUNITY

Michigan Sugar Company is committed to helping our local communities prosper and grow in positive ways through robust volunteerism, thought leadership, product donations and direct financial support — from our company and our employees — to organizations and causes committed to doing the same.

Each year, Michigan Sugar Company donates more than 100,000 pounds of sugar to community food pantries, churches, and nonprofit organizations, including more than 20,000 pounds distributed during our annual Sugar Distribution Day held in partnership with United Way Bay County. With a corporate match program in place, Michigan Sugar and its employees donated more than $30,000 to United Way in 2020 and maintained the agency's "Champion Partner" status.

Michigan Sugar Company annually awards more than one dozen academic scholarships, including grants to students attending Davenport University, Delta College, Northwood University and Saginaw Valley State University.

We support countless organizations, including the Bay Area Women's Center, Bay City Players, Covenant Kids Foundation, Boys & Girls Clubs of the Great Lakes Bay Region, McLaren Bay Medical Foundation, and Delta College Possible Dream Program. Additionally, we annually sponsor county fairs in Bay, Huron, Midland, Saginaw, Sanilac, and Tuscola counties, as well as community festivals in Bay City, Caro, Croswell and Sebewaing. In 2019, Michigan Sugar Company served as the Presenting Port Sponsor for Bay City's Tall Ship Celebration.

Michigan Sugar Company partners with the Saginaw Basin Land Conservancy to maintain the Michigan Sugar Trails, a series of single-track, natural surface, hiking and biking trails located on 26 acres on Bay City's Middlegrounds Island.

Michigan Sugar Company's employees are encouraged to volunteer their time through board service, coaching youth sports, being active members of civic organizations and contributing their time, talents, and money to build and foster strong ties to the community. ▮

LEFT/WORKPLACE Michigan Sugar Company is committed to maintaining safe and healthy work environments while investing in the professional development of our employees to enhance their skills, knowledge, and capabilities for future growth within our cooperative.

BOOTS ON THE GROUND:

The Battle to Beat Leafspot

By Dennis Bischer, Director of Agronomy in the Central & East Districts

Leafspot can, and has been, the most yield- and sugar-robbing disease sugarbeet growers face. Although Michigan Sugar Company had great success controlling and managing leafspot in 2020, that has not always been the case. From 2015 to 2018, there was widespread burndown and significant economic impact from leafspot. In 2019, disease control improved over 2018. In 2020 leafspot control also was improved and resulted in little to no economic loss. We are winning the battle of leafspot, but the fight is far from over. To continue being successful, we must use all the weapons we have to keep leafspot under control.

BACKGROUND

Leafspot has a long history in Michigan sugarbeet production and there have been many years where it caused significant economic loss. Looking back to 2015, we saw leafspot becoming more widespread and becoming more difficult to control. That difficulty continued through 2018 and then in 2019 we began to win the battle.

There were several factors that resulted in disease control getting more difficult and resulting in widespread failure. First, there were a minimal number of acres being planted to leafspot tolerant varieties **(Chart 1).** This lower genetic tolerance to leafspot resulted in growers relying heavily on fungicides to prevent disease.

Second, fungicide performance began to decrease. Cercospora leafspot was becoming resistant to the strobilurin class of chemistry. Additionally, triazole efficacy was decreasing. These two classes of chemistry were the backbone of spray programs and both classes were becoming less effective.

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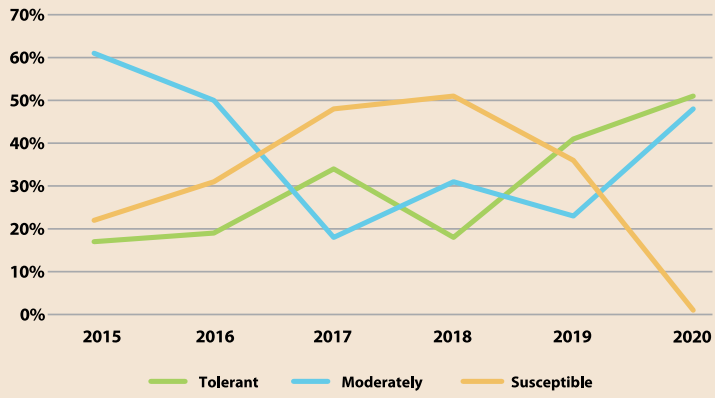
CHART 1. Acres and Leafspot Tolerance



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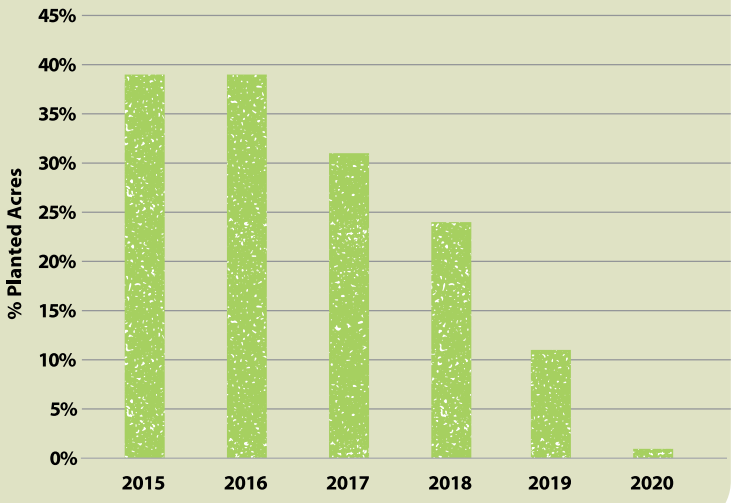
Third, Alternaria leafspot began to increase. Alternaria had been present in Michigan well before 2015, but infection levels were always low, and although we knew it was present it was not a concern. That began to change and, over time, Alternaria became as common and devastating as Cercospora. This created another unique challenge: Alternaria was a disease we had very little experience controlling and changes in management practices needed to be made in order keep it under control. We now had a second foliar disease to control and manage.

ALTERNARIA LEAFSPOT BACKGROUND

Why did Alternaria become an issue when in the past it was not a concern? As was mentioned earlier, Cercospora was becoming resistant to strobilurins and this class of fungicides was being removed from spray programs. Growers were becoming more reliant on triazoles. We later learned that although triazoles are highly effective on Cercospora they are weak on controlling Alternaria. Strobilurins had become weak on controlling Cercospora, but unknown to us they were still one of our more effective classes for controlling Alternaria.

The next issue was that there was a variety being planted on a significant number of acres that was susceptible to Alternaria leafspot **(Chart 2).** This variety was high yielding, with high sugar content, and had good agronomic traits. It became very popular, and unfortunately, this variety had a weakness of which no one was aware — it was highly susceptible to Alternaria leafspot.

CHART 2. Acres Planted to Highly Susceptible Alternaria Varieties



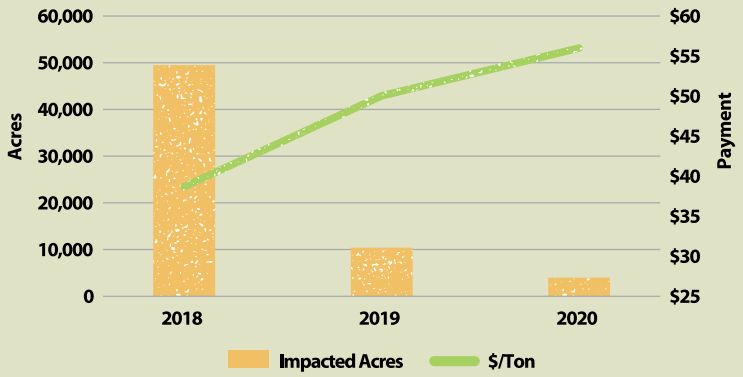
When you combine the fact that one of our best fungicide classes for controlling Alternaria was being removed from spray programs, and increased acres were being planted to a variety that was highly susceptible to Alternaria, the result was we were quickly losing the battle of leafspot. Disease pressure from Alternaria and Cercospora was running rampant and causing widespread burndown. Something needed to be done to get things back under control. But what?

As a result of all the work that was done — research, fungicide application testing, spray clinics, protocol implentation, and more — a strategy was developed to improve leafspot disease control.

FINDING A SOLUTION

Due to both Cercospora and Alternaria, leafspot was out of control. Growers were frustrated and disappointed in their leafspot control, yield, sugar content, and payment **(Chart 3).**

CHART 3. Leafspot and Payment



Something had to change. In order to be successful, disease control needed to improve. The question was: what was the magic bullet that would provide success?

There was not a clear solution to the leafspot problem, but after applying our core knowledge of controlling leafspot, we knew that two strategies were key for leafspot control. The first is to select and grow varieties that have increased genetic tolerance to leafspot. This was going to take some time. Plant breeders needed time to breed increased genetic tolerance to leafspot. While there were varieties available with good genetic tolerance, it also was going to take time to get enough seed of these varieties to supply the increased demand.

The second strategy was to rely on fungicides more heavily to prevent leafspot. There were however many questions to be answered. Tank-mixing fungicide applications was already underway but was not adopted by all growers. We knew some products worked better than others, but we still had a lot to learn. We needed to increase the efficacy of each fungicide application. We also needed a better understanding of how coverage affects fungicide performance. It was known that additional fungicide applications would be required to achieve adequate disease control, but if we were going to increase the number of fungicide applications what would be the most effective strategy? Did we need to start earlier or later? What would be the recommended fungicide application interval? Did we need to spray more in September to prevent Alternaria?

To win the battle against leafspot, we needed answers to these questions. Fortunately, Michigan Sugar Company has a talented and experienced Research Department that helped guide us to solutions. They increased the amount of leafspot control protocols to answer the questions. More research was conducted including starting fungicide applications earlier, shorter fungicide application intervals, testing adjuvants and nozzles, along with continuing to look at the performance of each existing fungicide. Additionally, new fungicides and fungicide combinations were trialed to find ways to improve disease control. Ultimately a great deal of time and care was put into trials to develop the solutions to leafspot that were needed.

Along with the additional research, spray clinics were developed to demonstrate and prove how nozzles, pressure, adjuvants, and water volume affect coverage and therefore fungicide performance. Field consultants were meeting with growers and developing spray plans that were suited to each grower's needs. Spray plan development became the backbone for a successful leafspot strategy.

As a result of all the work that was done, a strategy was developed to improve disease control.

IMPROVED LEAFSPOT CONTROL STRATEGIES

Although it is satisfying when a problem can be solved with one small change or, in the case of leafspot, one additional fungicide application, winning the battle of leafspot was not going to be that easy. Spraying one more time was not going to solve the problem. We needed to look at each step of our leafspot control program and determine where we could improve.

It was observed that small changes to leafspot programs resulted in improved disease control. When we started to make multiple small changes, the results were a dramatic improvement in overall control. To best control leafspot, we needed a complete system approach. Eventually, we developed and implemented the following six keys to successful leafspot control:

1. Plant varieties that are tolerant to leafspot

Leafspot control programs start in December when decisions are made on which varieties to plant during the upcoming growing season. Genetic tolerance to leafspot is the most important factor in a leafspot control program. Choosing a variety that has the best genetic tolerance to leafspot, while also providing other traits that are important to your farm, is crucial to being successful **(Chart 4).**

CHART 4. Genetic Tolerance to Leafspot – 4 Fungicide Applications

2. Start fungicide applications early

It became apparent that fungicide applications were beginning too late. The standard was to begin spraying shortly after the Fourth of July. This was generally before spots were observed in the field and it was believed that we were starting on time. We learned through research that applying an ethylene bisdithiocarbamate (EBDC) seven to 10 days earlier resulted in significantly better leafspot control. We began recommending starting fungicide applications in late June with an EBDC **(Chart 5 and Image 1).**

CHART 5. Early Fungicide Application

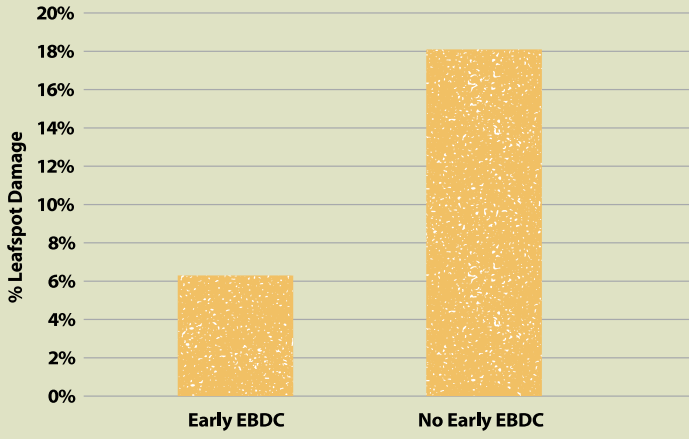


IMAGE 1. EARLY EBDC NO EARLY EBDC

LEAFSPOT CASE STUDY NO. 1

By Glenn Martus, Field Consultant

In 2015 we were presented with a difficult hurdle in sugarbeet production with the onset of severe leafspot diseases.

This case study shows the progress made in controlling leafspot and its impact on sugarbeet yield and sugar for one grower. In 2015, this grower planted susceptible leafspot varieties and had a spray program of three to four sprays. Leafspot set in early and with the first leafspot spray applied in mid/late-July, the crop completely burned down with yield being impacted. However, with the early burndown the percent sugar and recoverable white sugar per ton — or RWST — were able to recover.

In 2018, after implementing what was at the time an improved spray program of four to five sprays with fungicides featuring better leafspot efficacy, leafspot was held in check early in the year. The first spray was applied in early July. However, susceptible varieties still were planted, and leafspot set in late and completely burned down the field. As a result, both sugar and yield were impacted.

Fast forward to 2020, after implementing a further improved spray program of more than five sprays with even better fungicides and a seed plan to use more leafspot-tolerant varieties, leafspot was held in check for the entire growing season. While 2020 was an exceptional growing season, it cannot be underestimated how much the improved spray program and seed plan impacted this grower's sugarbeet production. While we may have turned the page on leafspot, it also is important we are diligent and continue to evolve our spray programs and seed plans to ensure leafspot stays in check for years to come.

	2015	2018	2020
Tons/Acre	25.49	25.36	35.26
RWST	284	235.65	278.26
% Sugar	18.82	15.93	18.55
Lbs. Sugar	1,661,667	1,379,232	2,381,987

***Glenn Martus** is a Michigan Sugar Company Field Consultant in the East District. He is based at the Croswell factory. He joined the company in 2011.*

3. Shorten intervals for fungicide application

In addition to spraying earlier, we also shortened our application intervals. In 2015 it was common to spray every 21 days. As we looked at data from our BEETcast trials, it was determined that shortening application intervals to 14 days resulted in increased disease control and increased revenue **(Chart 6 and Image 2)**. Additionally, it was determined to always be early rather than late with fungicide applications. If weather prevents application at the recommended interval, it is better to apply before the weather event than after.

CHART 6. Fungicide Application Interval

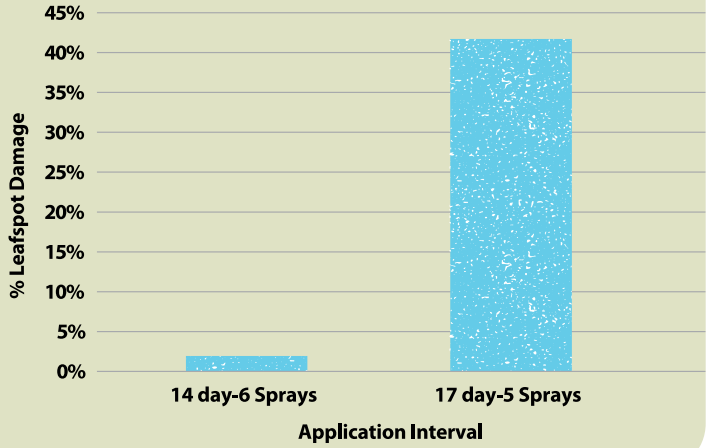


IMAGE 2. Tolerant Variety
Less Agressive interval
5 fungicide applications

Tolerant Variety
14 day interval
7 fungicide applications

CHART 7. Adjuvant Effect

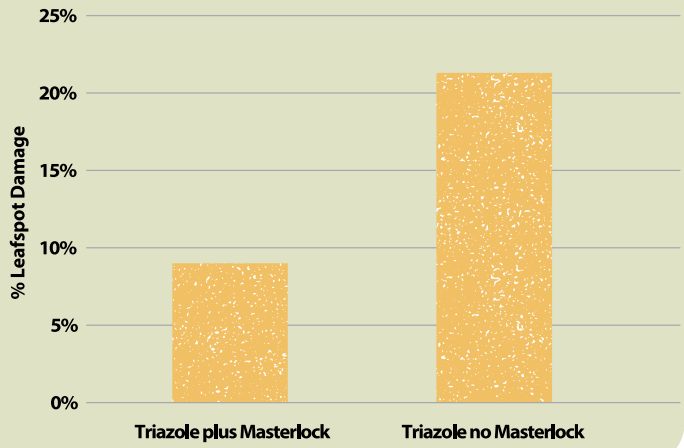


IMAGE 3. Super Tin
No Adjuvant

Super Tin
Reguard plus Diligence

4. Use an effective adjuvant

Using a sticker/spreader helps improve fungicide performance. Depending on the properties of each product, they can help create a more uniform droplet size and therefore increase coverage. They can also help fungicides adhere to the leaf surface, increase the amount of fungicide entering the plant, and increase coverage by improving droplet spread. Not all adjuvants are created equal and some work better than others. There are several products that improve disease control when added to the fungicide application. Masterlock and Reguard were some of the first products used to increase fungicide performance and both are widely used today **(Chart 7 and Image 3)**.

A Look @Leafspot

How leafspot has impacted Michigan Sugar Company growers since 2015 and steps taken in the battle to beat the disease:

2015

- Burndown of fields, unable to control Cercospora.
- Increased research focus on spray timings and frequency.
- Harvest results: 30.50 tons per acre, 17.66% sugar.

2016

- Massive rains, heat, uncontrollable leafspot and increasing resistance to fungicides.
- Alternaria leafspot presence becomes more widespread at levels of economic impact.
- Harvest results: 31.03 tons per acre, 15.85% sugar.

2016-2017

- Increased research focus on spray programs, controlling leafspot, increasing sprays.
- Research trials showing benefit of adding adjuvants for leafspot control.

2017

- Board of Directors implements requirement for growers to have spray program and enter it in crop records.
- June spray clinics – talking about fungicide recommendations, spray nozzle suggestions.
- Harvest results: 25.50 tons per acre, 18.40% sugar.

5. Use the correct nozzle and pressure

To maximize fungicide performance, coverage is crucial. Super Tin, copper and EBDC do not move within the plant and therefore coverage is even more important with these products. Triazoles and strobilurins do enter the plant and move within the plant. Coverage still is critical for these products as movement within the plant can be minimal. The nozzle that is used plays a crucial role in coverage. A nozzle that produces a medium to fine droplet size provides the best coverage and disease control. Through spray clinics and research, the John Deere/Hypro 3D nozzle has proven to be a very effective nozzle for leafspot **(Chart 8 and Image 4).**

CHART 8. Nozzle Effect

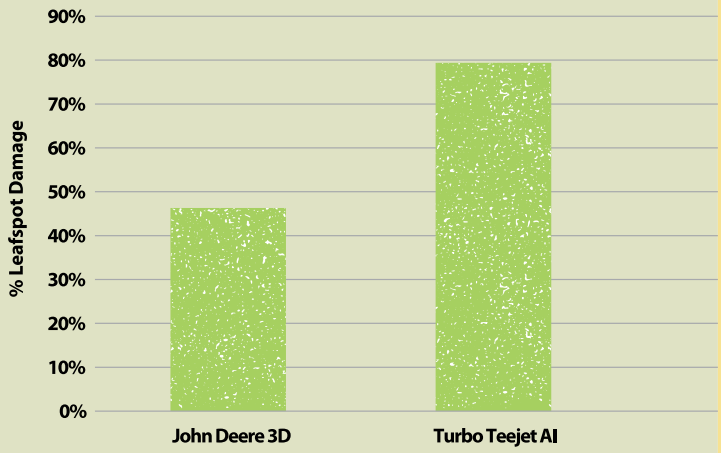
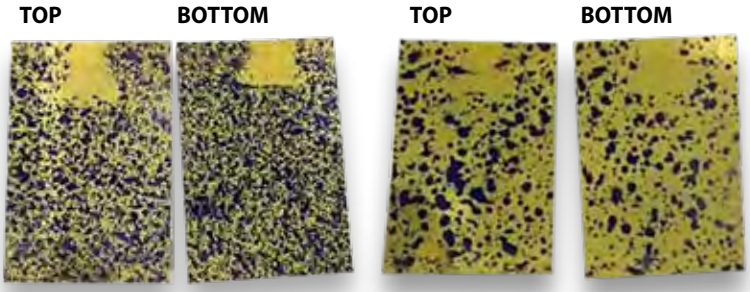


IMAGE 4. Nozzle Spray Samples



Hypro 3D / Provides optimum coverage with the ability to install facing opposite directions.

TTI / Twin style flat spray tip are used to provide a broadcast spray for leaf coverage and canopy penetration.

LEAFSPOT CASE STUDY NO. 2

By Cassie Sneller, Field Consultant

Here is how one Michigan Sugar Company grower in the Central District described the battle against leafspot in 2015:

"We were relaxed. We didn't go out early and spray, and we waited until after the rain. We stretched intervals; really, we did everything we could not to spray more."

In the Central District, 2015 was a huge year in terms of sugarbeet tonnage. In some areas, however, there was rain after rain. It was the perfect, ideal, wonderful rain that leads to those big tons. But that rain kept some growers out of their fields and toward the end of August, things started slipping. Spray intervals were 20-30 days, nothing was tank mixed, and there was no tin used and only one triazole. With the abundance of rain and the relaxed spray program, fields burned down. Growers had never seen this happen in this dramatic of a fashion.

The next year brought with it a "leafspot disaster that everyone and my neighbor had to deal with; only a few were left untouched," said this Central District grower. In response, growers shortened their spray intervals and varied the fungicides they were spraying. There were five sprays starting in mid-July. The sprays were not tank-mixed, and the typical interval was 14 to 28 days. Biologics were used as an ethylene bisdithiocarbamate (EBDC) replacement, and tin was used only once.

But it still was not enough. Fields still burned to the ground. Sugars were low, and so were the spirits of growers. Intervals were still too long, varieties potentially had an impact, and the number of spray passes across the field were insufficient.

The years 2017 and 2018 were full of new education, products, varieties, and other disease issues. Root aphids hit areas hard, along with leafspot. The word "Alternaria" was being thrown around. Field consultants were constantly walking fields and monitoring the disease. Spray intervals were tightened to between 14 and 21 days. The incorporation of adjuvants and tank mixes with two active ingredients were encouraged. Passes across the field increased from five to seven. It was so much more than the growers ever had to do, and they were frustrated. They essentially had to teach themselves another way to grow sugarbeets.

From 2019 to today, we are finally getting ahold of this "leafspot complex." Along with multiple avenues of research and educational meetings, there are spray clinics, new chemicals coming to the market, and improved varieties. Field consultants are working to improve chemical and variety selection earlier in the year. During the growing season, field consultants are scouting for disease and checking spray patterns in the field to ensure good coverage. Spray programs start in late June and consist of seven sprays. The use of tin has increased from one application to two, different triazoles are being utilized, and copper is being used in conjunction with EBDC. Leafspot control has come a long way.

"Do I like going across the field 10 times? No, I don't. But to grow the best crop I can, I will," said the same Central District grower. "I will plant the right varieties in the right fields and use nematode seed when I have to. I don't always buy the cheapest fungicide; sure, sometimes I do. But I work with Michigan Sugar to make sure my program works, and the timing looks right.

"The introduction of the new CR+, it gives me hope, hope things might change. It won't be overnight, but it'll happen. We have gotten it under control one way, and we will do it again."

***Cassie Sneller** is a Michigan Sugar Company Field Consultant working with growers in Michigan's Thumb region to maximize their crop potential. She has been with Michigan Sugar since 2014.*

2018

- February – retooled agronomy meetings for major focus on spray programs, grower education on spray timing, applications, and products.
- Spray clinics in June.
- 14-day fungicide re-application interval becomes recommendation.
- Harvest results: 29.31 tons per acre, 16.20% sugar.
- Number of acres with economic impact due to leafspot: 49,500.

2019

- Announcement of CR+ varieties coming.
- Harvest results: 28.67 tons per acre, 18.10% sugar.
- Number of acres with economic impact due to leafspot: 10,400.

2020

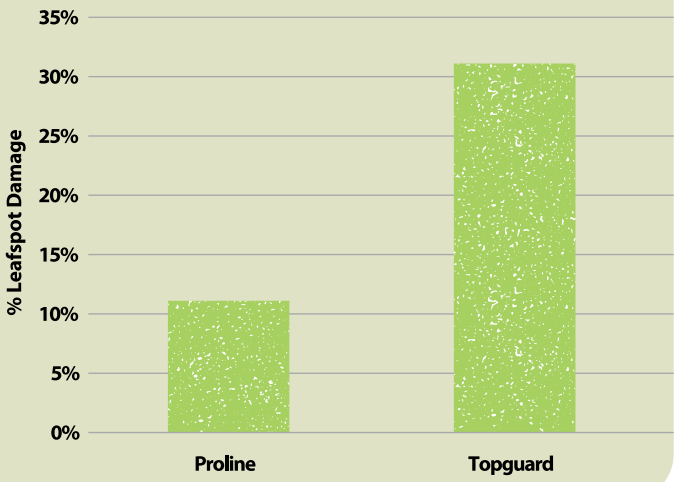
- Research plants CR+ varieties for the first time.
- Harvest results: 28.49 tons per acre, 18.38% sugar.
- Number of acres with economic impact due to leafspot: 4,000.

6. Apply the most effective products

Fungicides vary in their ability to control both Alternaria and Cercospora leafspot. Super Tin has been, and continues to be, our best performing product for both Cercospora and Alternaria. Triazoles perform well on Cercospora, but are much weaker on Alternaria. Strobilurins are weak on Cercospora but perform better than the triazoles on Alternaria and EBDC generally outperforms copper as a tank-mix partner.

Each class of fungicide performs differently and has strengths and weaknesses. Within the triazole class of chemistry there is a difference in product performance. Some triazoles offer improved disease control over others. Additionally, Cercospora resistance to each triazole can vary. Some triazoles have shown to have high levels of resistance, while other triazoles have low levels of resistance. The triazole used plays a role in your success or failure **(Chart 9).**

CHART 9. **Fungicide Effect**



SUMMARY

Winning the battle of leafspot did not happen by implementing one change into our leafspot management strategy. A combination of incremental improvements to each step of the leafspot control program greatly increased the likelihood of success. If one of the six keys to leafspot control is not followed, the chance of successfully controlling leafspot diminishes. If two of the keys are not followed the chance of success decreases even further. It is extremely crucial to follow each step closely.

Michigan Sugar Company grower-owners should be extremely proud of what was accomplished in 2020. Leafspot control was the best it has been in a number of years. This did not happen by accident. It took growers changing their strategy to make controlling leafspot a priority.

***Dennis Bischer** is the Director of Agronomy for Michigan Sugar Company's Central and East districts. He began his career at Michigan Sugar in 2017.*

LEAFSPOT CASE STUDY NO. 3

By Kevin Messing, Field Consultant

One Michigan Sugar Company grower saw two years of declining leafspot control in 2015 and 2016. In 2015 they sprayed four times with intervals ranging from 21 to 30 days between applications and only tank mixed an ethylene bisdithiocarbamate (EBDC) with a strobi. Most of their fields reached an infection level that would result in economic impact, but sugar was still 18.11%.

In 2016 we made small changes to the program and sprayed a total of five times, starting July 13 with application intervals ranging from 11 to 20 days. The only application that featured a tank mix was a GEM/Tin application. That year, many fields completely burned down, and many others had a significant amount of leafspot.

After 2016, the grower and I sat down and completely retooled their spray program. Using data compiled from Michigan Sugar Company's research team, we planned to utilize a spreader/sticker and have two modes of action in every application. In addition, we decided to start with an early application in June and shorten re-application windows. Sensitivity studies showed that triazoles were not performing as well as before, so the decision was made to utilize two applications of tin while continuing to use one strobi in the program. When it came time to apply products, I met the grower in the field and we used water-sensitive paper in the canopy to ensure his application was on target and had good coverage.

Leafspot found in a field on August 17, 2016.

In the years since, the grower has seen a dramatic improvement in leafspot control and hasn't recorded enough disease to cause economic impact. He regularly sprays six to seven times for leafspot during the growing season depending on variety and pressure. Since making improvements to his spray program, he makes better use of each spray, using the best products and tank mixing two to three active ingredients per application in comparison to 2016 when he sprayed five times and did not tank mix, resulting in a burndown.

ABOVE Leafspot burndown in a field on October 2, 2015. **RIGHT** A field damaged by leafspot on October 15, 2015.

	2015	2018	2020
Tons/Acre	35.97	29.53	31.33
RWST	273.1	258.57	296.05
% Sugar	18.47	17.34	19.6
Lbs. Sugar	348,762	267,206	329,289
Leafspot Rating	5	1	0

***Kevin Messing** is a Michigan Sugar Company Field Consultant working with growers in northern Sanilac County, including Ruth, Deckerville, and Sandusky. He has been with Michigan Sugar since 2013.*

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2020 RESEARCH INSIGHTS:

The Nitrogen and Potassium Relationship

By Corey Guza, Ph.D.
Director of Research & Agronomy

One of the most widely known concepts in the sugarbeet industry is the relationship of sugar content and nitrogen (N). As N availability increases, typically sugar content will decrease. Higher N availability generally results in increased root growth or higher tons per acre compared to increases in sugar content. Nitrogen is also an impurity in the extraction of sugar in the factory. As growers strive to push tons per acre higher, an increase in N rate is usually the first step in the process; however, that increases the risk of having a lower sugar content.

Based on the Mulder's chart **(Chart 1),** excess N can antagonize potassium (K) uptake. Potassium is important for sugar movement, according to a March 2012 article published by the Potash Development Association, an independent organization formed in 1984 to provide technical information and advice to growers in the United Kingdom and Ireland. Based on these concepts, high N rates usually result in a lower sugar content in sugarbeets. Michigan Sugar Company conducted a trial in 2020 to examine the relationship between N and K and to determine if N and K rates influence sugarbeet yield and sugar content.

The study examined three N rates — zero, 80 and 160 pounds of actual N per acre. The N was applied as 28% UAN as a 2x2 application, and as coulter applied N at the 6-leaf stage of the sugarbeets. When N was applied, 40 pounds actual was applied 2x2. The coulter applications were then applied at either 40 or 120 pounds of actual N per acre. Potassium rates were zero, 150 and 300 pounds of actual K per acre. Potassium was broadcast applied in the spring as potash and incorporated.

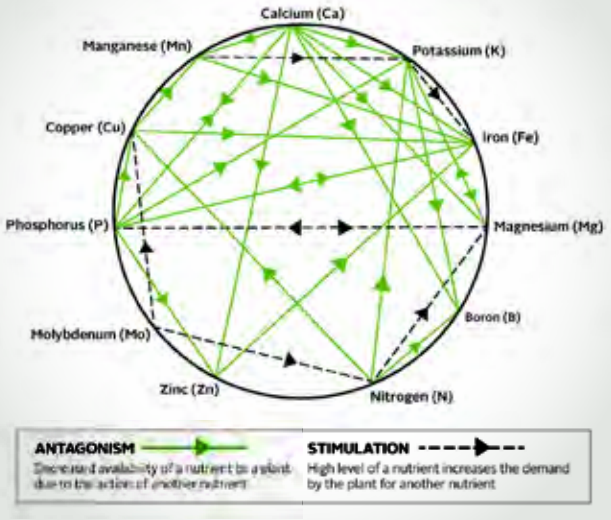
When zero rates of N and K were applied, recoverable white sugar per ton (RWST), tons per acre, and recoverable white sugar per acre (RWSA) suffered **(Table 1).** When K was added to the zero N rate, RWST increased but not tons per acre. When N was added to the zero K rate, tons per acre increased but not RWST. Higher N rates typically resulted in higher RWSA rates. This was mainly due to large increases in tons per acre versus RWST. While high RWSA is important for grower profitability, achieving high RWSA from both high tons per acre and RWST is critical for maximizing the beet payment. High RWST also will allow for maximum factory efficiency. Optimum tons per acre and RWST was achieved by applying both N and K. The concept of applying K with N was exaggerated at the higher N rates. When applying 160 pounds of N, applications of 150 or 300 pounds of K resulted in maximum RWST and high RWSA levels.

TABLE 1. N & K - 2020

N RATE (LBS/ACRE)	K RATE (LBS/ACRE)	RWST	TONS/ACRE	RWSA
160	**0**	**275**	**28.4**	**7811**
160	**150**	**292**	**26.0**	**7554**
160	**300**	**292**	**26.8**	**7808**
80	**0**	**283**	24.0	**6794**
80	**150**	**286**	24.3	**6941**
80	**300**	**296**	23.6	**6982**
0	**0**	**269**	17.2	4630
0	**150**	268	17.2	4649
0	**300**	**290**	17.0	4882
LSD 5%		19.5	**3.7**	**1080**

N applied as 28% UAN 2X2 and side-dress at 6-leaf stage. K applied as Potash broadcast PPI in the spring. Rates are based on actual amounts of nitrogen and potassium. Bold yield results are statistically similar to the top yield in a column.

CHART 1. Mulder's Chart



While this is a single-year study, the concepts of the trial are sound. Also, this study is being repeated in 2021.

Many growers rely on fall applications of K to archive their nutrition goals. This data can be extrapolated to help justify the value of K applications. Michigan Sugar Company and the Michigan State University Soil Fertility Program will be focusing on nutrient relationships and how the relationships impact sugar production in the upcoming years. ▮

Corey Guza, Ph.D., *is Director of Research and Agronomy at Michigan Sugar Company. He works with staff to identify research opportunities, evaluate data, and assist field consultants and growers with educational training and support.*

2020 RESEARCH INSIGHTS:
Nitrogen Application Strategies

By Corey Guza, Ph.D., Director of Research & Agronomy

Timing and placement of N applications can be important for N use efficiency and loss.

Growers are looking for ways to optimize their operations while maintaining or improving yield. Nitrogen (N) applications occur many ways and is sold in many forms. Urea, 28% UAN and Anhydrous Ammonia are some of the common sources of N. These sources are stabilized using polymers (ESN), nitrification inhibitors (nitrapyrin, DCD) and Urease inhibitors (NBPT). Nitrification inhibitors guard against below-ground losses. Urease inhibitors guard against above-ground losses. The polymers guard against both forms of loss by allowing for a slow release of N.

Timing and placement of N applications are important for N use efficiency and loss. Applying all the N broadcast pre-plant is a quick and efficient way to get N applied; however, there is risk that some of the N applied will not be available to the plant if heavy and frequent rainfall occurs. Applying N 2x2 with the planter places N close to the developing seedling and plant; however, applying too much N too close to the developing plant is likely to cause seedling injury, so applying all the needed N this way is too risky. Applying N as the crop is growing ensures that the crop is ready to utilize the N quickly. Nitrogen applications to growing crops can be made side-dress, stream, and foliar.

Side-dressing usually is done with a shank or coulter. Shanks or coulters can be adjusted to get closer to the plant row, so plants uptake the N more quickly. If the N is applied in the middle of the row, it takes longer for the plant to receive it.

Streaming N can be done by applying 28% UAN with a conventional sprayer using streamer nozzles or bars. Streaming applications are considered broadcast applications but adjustments can be made to make the stream more directed to the crop. In recent studies, testing streaming of N on sugarbeets, little sugarbeet injury has occurred with this type of application, although some plant damage is sometimes observed if the stream connects with the plant directly.

Foliar applications are done to supplement N or temporarily relieve N stress. High rates of N foliar will either result in leaf burn or be economically limited. Broadcast or streaming applications of N, whether done pre-plant or after emergence can be done rapidly as large sprayers and applicators are typically used to accomplish the task. Broadcast or streaming applications, however, sometimes causes delays in some of the applied N reaching the plant roots since some of the N will be applied relatively further away from the plant.

Michigan Sugar Company tested N application strategies to determine the risks and benefits. Treatments included applying N: pre-plant broadcast, at-plant 2x2, side-dress coulter at 6-leaf sugarbeets, streaming at 6-leaf sugarbeets, and streaming at 12-leaf sugarbeets. Nitrogen was applied as 28% UAN, at a total of 160 pounds of actual N per acre. Nitrogen was applied either using one method at one timing or using multiple methods and timings **(Table 1).** Timings and methods included: pre-

TABLE 1. N Application Strategies - 2020

PRE-PLANT BROADCAST	AT PLANT 2X2	6 LEAF COULTER	6 LEAF STREAM	12 LEAF STREAM	RWST	TONS/ACRE	RWSA
NITROGEN RATE LBS/ACRE							
160					291	24.8	7213
120	40				284	**30.5**	**8653**
60	40	60			**298**	26.5	**7876**
60	40		60		292	**28.3**	**8268**
	40	120			287	26.6	**7621**
	40		120		**314**	**27.9**	**8755**
	40			120	**302**	**28.7**	**8693**
	40		60	60	**298**	**27.1**	**8094**
LSD 5%					**16.5**	**3.4**	**1158**

Nitrogen applied as 28% UAN. Nitrogen rates expressed as actual N applied in lbs/acre.
Bold yield results are statistically similar to the top yield in a column.

plant broadcast of 160 pounds per acre of N, pre-plant broadcast of 60 or 120 pounds per acre of N, plus 40 pounds of N applied 2x2, followed by 60 or 120 pounds of N applied side-dress with a coulter or streamed, or 40 pounds of N applied 2x2 with stream applications made at 60 and 120 pounds per acre at 6- and 12-leaf sugarbeets. The streaming nozzles used were TeeJet StreamJet SJ7 **(Image 1).** Sprayer nozzle spacing was 22 inches. The trial was conducted at a location with heavy cornstalk reside that influenced the results.

Streaming applications caused minor non-yield reducing injury. Treatments with multiple N applications generally resulted in higher recoverable white sugar per acre (RWSA), recoverable white sugar per ton (RWST), and tons per acre **(Table 1).** Stream applications of N generally resulted in higher tonnage and, sometimes, RWST compared to coulter applications. This effect was amplified when more N was applied through the streamer or coulter versus splitting N pre-plant, 2x2 and side-dress coulter or stream. The higher tons per acre and RWST from the stream application versus the coulter is likely due to greater interception of N by the corn stalk residue in the coulter application that delayed N availability to the plant. When N from the coulter was released from the cornstalk residue it was later in the season, thus reducing the tonnage and sugar potential of the crop. By streaming some of the N, it was applied closer to the sugarbeet row and as a result, the N was more readily used.

Treatments with multiple N applications generally resulted in higher recoverable white sugar per acre (RWSA), recoverable white sugar per ton (RWST), and tons per acre.

While this is one study, other N application studies with Michigan State University's Soil Fertility Program and Sugarbeet Advancement have demonstrated similar results. The trial is being repeated in 2021. Other opportunities include studying the impacts of N stabilizers and other N rates in the system.

IMAGE 1

The streaming nozzles used were TeeJet StreamJet SJ7. Sprayer nozzle spacing was 22 inches. The trial was conducted at a location with heavy cornstalk reside that influenced the results.

Official Variety Trial Program Aims to Help Growers Achieve 30/300 Goal

By Brian Groulx, Research Manager

Seeds submitted for testing must now meet higher standards for Cercospora leafspot

Michigan Sugar Company kicked off its 2020 Official Variety Trial (OVT) program on April 8, 2020, with planting in Gratiot County. Planting wrapped up on May 6, 2020, with the planting of Cercospora and Rhizoctonia Disease Nurseries at the Gilford and Blumfield research stations. Normally, OVTs are planted to a thick 2-inch spacing and thinned to a desired stand at the 2- to 4-leaf stage. For 2020, Covid-19 created health and labor concerns, so the decision was made to plant trials to stand. One Rhizoctonia Disease Nursery was replanted on June 4, 2020, due to weak and sporadic emergence.

Trials planted in early April endured multiple frost events but stand counts before and after those events confirmed plants were not lost. Several OVT locations experienced heavy rainfalls of 6 inches or more on May 17 and 18, 2020, which severely impacted their quality. Growing conditions improved for the remainder of May and most of June, after which, many areas became increasingly dry. Timely rains came in late July and early August improving crop quality and yield as early delivery began.

During the first full week of September, plant breeders from each of the participating seed companies traveled to Michigan to participate in the annual Plant Breeder's Tour. Attendance was lower than normal due to Covid-19 travel restrictions, but participants toured 15 different trial locations over two days. Breeders wrapped up their week in Michigan by meeting with members of the Seed Committee to discuss observations and impressions of the trials. Overall, site selection and trial quality were deemed to be very good, especially during a challenging year.

Official Variety Trial harvest began on Sept. 16, 2020. Three OVTs were harvested in September, four in October, and the final OVT was harvested on Nov. 5, 2020. As most know, harvest in 2020 was a much more pleasant experience than in 2019. Roots from the three OVTs harvested during permanent pile were sorted and placed into our storage room at the Agricultural Research Center for observation and storage quality comparisons. Preliminary data from the 2020 Variety Storage Trials indicates that overall beet health and storage conditions were favorable. The quality of the eight OVTs varied due to environmental impacts throughout the growing season, and only five of the trials were deemed of consistent enough quality to be used for variety approval. Yield and quality results for all trials were published in the 2020 Variety Trial Results book in December 2020 and are also available on the Michigan Sugar Company website at www.michigansugar.com.

continued on page 28

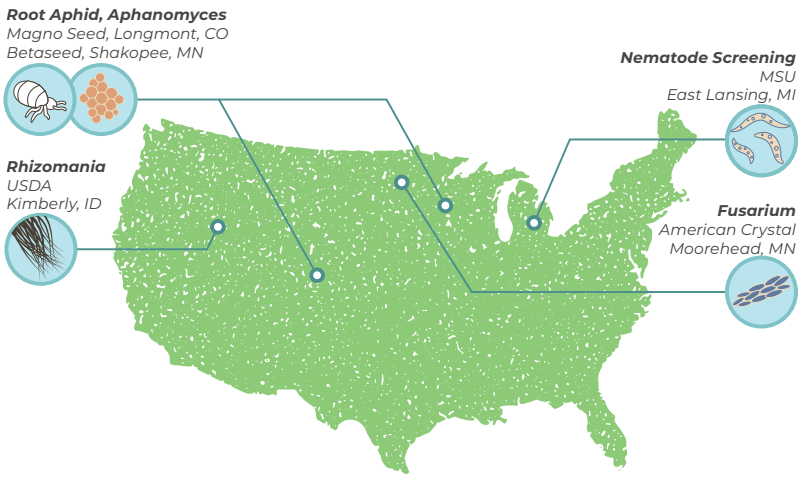
2 Rhizoctonia Nurseries Planted (one nursery used for data).

One trial was conducted by MSC, the other trial conducted by the USDA.

- *Trials are inoculated with AG 2-2 IIIB Rhizoctonia inoculum in July and each root is rated during harvest using 0-7 scale (0=no rot, 7=completely rotted)*
- *MSC trial did not develop enough disease to rate in 2020.*

Contracted Disease Nurseries

MSC is not capable of screening for all diseases, so varieties are sent out to other researchers to determine tolerance.



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2020 Highlights
Official Variety Trial Program

Varieties meeting the new RWSA, RWST, Cercospora leafspot, and root aphid standards will help to achieve the goal of 30 tons per acre and 300 pounds of RWST, while also aiming to reduce the number of fungicide applications required to control disease.

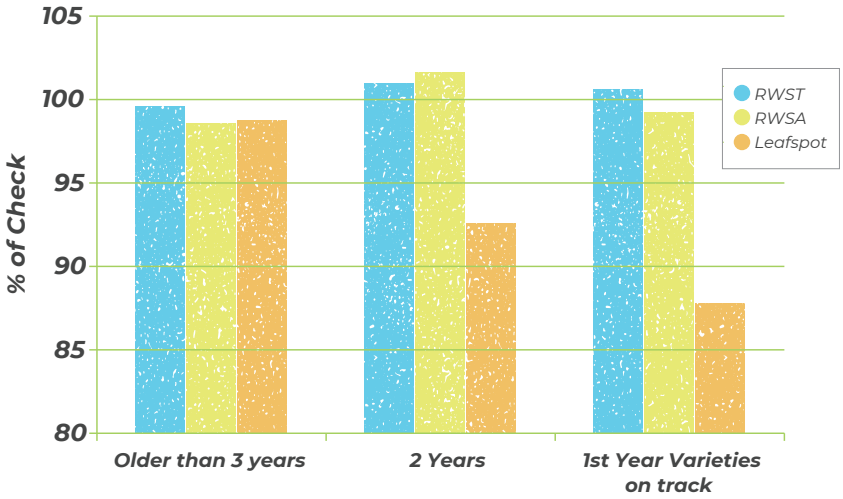
Even during a year as challenging as 2020, there were some highlights that deserve being mentioned. More than 30 varieties are now approved to be sold in Michigan with varying levels of yield, sugar content, and disease tolerance. Of the 12 varieties available to be sold for the first time in 2021, nine have recoverable white sugar per acre (RWSA) levels above 100 percent of check, eight have recoverable white sugar per ton (RWST) levels above 100 percent of check, and eight have a Cercospora leafspot level below 100 percent of check. Higher percent of check levels are better for RWSA and RWST while lower levels are better for Cercospora leafspot.

Four of the new varieties with excellent Cercospora leafspot tolerance contain the KWS CR+ trait that brings tolerance to Cercospora leafspot to an all-new level. For 2020, variety approval standards for newly tested varieties were subject to an increase in minimum RWSA and RWST levels, a decrease in the maximum level of allowable Cercospora rating, and implementation of a new root aphid standard. The new Cercospora leafspot standard brings the maximum allowable disease level down below the pre-2009 levels. The new root aphid standard was set so varieties meeting the standard should not see a significant yield or sugar content reduction even in a bad year for root aphid.

Varieties meeting these new RWSA, RWST, Cercospora leafspot, and root aphid standards will help to achieve the goal of 30 tons per acre and 300 pounds of RWST, while also aiming to reduce the number of fungicide applications required to control disease. New, first-year varieties on track for approval maintain the yield and sugar content characteristics of approved varieties, but average below 90 percent of check for Cercospora leafspot disease levels. This is significantly better than how currently approved varieties perform — around 100 percent of check, on average.

We expect some of the new experimental varieties to meet or exceed those requirements, while also continuing to maintain or increase yield and sugar content while on our way to 30/300 goal.

Compare Older vs. Newer Varieties



Higher value is better for RWST, RWSA; lower value is better for Leafspot. Values are averages of the varieties in each age range.

OFFICIAL VARIETY TRIAL PROGRAM 2021 PLANS AND PROGRESS

Official Variety Trial planting is underway and off to an excellent start in 2021. Warmer- and drier-than-normal spring conditions have allowed good planting progress. There are 52 varieties in the 2021 Official Variety Trials; 22 of which already are approved to plant, and an additional 30 that are in experimental status. As mentioned before, varieties submitted for testing in 2020 and beyond will be required to have a maximum Cercospora Leafspot level below the pre-2009 levels. We expect some of these new experimental varieties to meet or exceed those requirements, while also continuing to maintain or increase yield and sugar content while on our way to 30/300 goal. ▮

***Brian Groulx** is the Research Manager for Michigan Sugar Company. He joined the company in 2009 and is responsible for managing the Variety Program, as well as daily activities in the Research Department.*

APPROVED VARIETIES FOR 2021

2019 and 2020 Data

	Variety	$/Acre	All Values are % of Check									
			RWSA (lbs/acre)	RWST (lbs/acre)	Tons/ Acre	Emergence	Cercospora	Rhizoctonia	Root Aphid	Aphanomyces	Fusarium	Rhizomania
Fully Approved	**C-G675**	$2,146	106.0	101.1	104.9	107 G+	99 G	99 G	71 G	113 F-	113 F-	92 G
	HIL-9865	$2,087	103.2	103.1	100.0	93 F+	105 F	108 F-	65 G	94 F+	140 P	90 G
	C-G752NT	$2,084	104.4	99.5	104.7	97 F+	108 F	97 G	82 G	78 G+	71 G+	93 G
	BTS-188N	$2,070	102.8	101.3	101.6	96 F+	117 P	99 G	114 G	73 G+	75 G+	103 F+
	BTS-1703	$2,058	102.2	100.3	102.0	112 G+	87 G+	101 F	31 G+	104 F	120 P	94 G
	SX-RR1264	$2,045	101.0	102.7	98.5	93 F+	101 G	101 F	77 G	88 G	98 F+	111 F-
	SX-2283	$2,026	100.4	101.5	98.9	101 G	104 F	110 P	123 G	84 G+	97 F+	105 F
	SX-RR1278N	$2,011	99.8	98.7	101.2	99 G	119 P	108 F-	362 F-	90 G	118 P	88 G
	BTS-1399	$2,004	99.1	96.0	103.2	106 G+	85 G+	96 G	87 G	94 F+	66 G+	90 G
	MA-814	$1,974	97.5	98.6	98.9	109 G+	97 G	103 F	63 G	119 P	106 F	114 F-
	SX-RR1275N	$1,973	98.0	98.3	99.4	100 G	110 F-	109 F-	406 P	89 G	109 F-	92 G
	HIL-2238NT	$1,963	96.6	97.7	98.8	108 G+	97 G	106 F	202 F+	116 P	135 P	83 G+
	C-G855	$1,948	96.8	97.9	98.9	99 G	87 G+	92 G	58 G	108 F-	86 G	103 F+
	MA-709	$1,939	96.1	99.9	96.1	96 F+	95 G	105 F	305 F-	114 F-	128 P	101 F+
	HIL-2240	$1,922	95.2	99.0	96.2	97 F+	92 G+	107 F-	124 G	106 F	122 P	101 F+
	HIL-9908	$1,852	91.2	100.3	91.2	87 F	79 G+	97 G	81 G	113 F-	126 P	111 F-
	HIL-9879NT	$1,847	91.0	100.1	91.1	93 F+	94 G	104 F	63 G	121 P	126 P	117 F-
	MA-813NT	$1,804	89.0	98.9	90.4	102 G	93 G	108 F-	78 G	117 P	125 P	111 F-
Limited Approval	**SX-2296N**	$2,103	104.2	103.6	100.6	85 F	117 P	103 F	107 G	92 F+	123 P	99 G
	C-G932NT	$2,084	103.8	100.8	102.7	103 G	113 P	95 G	88 G	74 G+	68 G+	94 G
	BTS-197N	$2,078	103.8	100.4	103.2	104 G	114 P	104 F	85 G	77 G+	76 G	95 G
	SX-2294	$2,062	102.3	102.1	100.3	97 F+	100 G	106 F	191 F+	84 G+	97 F+	103 F+
	SX-2295	$2,059	101.8	102.6	99.4	100 G	99 G	98 G	103 G	92 G	102 F	114 F-
	HIL-2332NT	$2,035	101.4	104.6	96.6	89 F	111 F-	97 G	72 G	96 F+	140 P	103 F+
	C-G919	$2,003	99.5	99.2	100.3	106 G+	78 G+	90 G+	67 G	93 F+	87 G	91 G
	SX-2297	$1,981	98.2	103.3	95.2	94 F+	99 G	91 G+	194 F+	95 F+	104 F	113 F-
Special Approval	**BTS-1606N**	$2,060	103.3	98.2	104.8	98 F+	108 F	103 F	82 G	91 G	67 G+	85 G+
	****C-G021**	N/A	102.0	100.9	101.3	103 G	49 E	97 G	392 F-	85 G+	66 G+	83 G+
	****BTS-1065**	N/A	101.1	97.3	103.7	103 G	53 E	104 F	211 F+	90 G	52 G+	85 G+
	BTS-1941	$2,030	101.0	96.6	104.3	106 G+	44 E	101 F	107 G	90 G	75 G	81 G+
	C-G943	$2,022	100.2	96.3	104.1	105 G+	51 E	100 F	35 G+	109 F-	71 G+	81 G+

A lower value is better for Cercospora, Rhizoctonia, Root Aphid, Aphanomyces, Fusarium, and Rhizomania.

*** Data from 2020 only.*

***$/A:** Gross dollars per acre calculated using early delivery adjustment where necessary, and a per pound payment of $ .165.*

Seeds Available for 2021

ACH Seeds

Fully Approved

C G675 - very good supply
Very high-yielding and above-average-quality variety. Good overall disease package, but susceptible to Fusarium, but has not shown to be a problem in field. No. 1 variety on average of two years of data.

C G752NT - very good supply
High-yielding and average-quality nematode-tolerant variety. Slightly better leafspot tolerance than some other high-yielding nematode-tolerant varieties. No. 5 variety on average of two years of data.

C G855 no supply

Limited Approval (5%)

C G919 - good supply
New limited-approval variety with very good Cercospora tolerance. Very well-rounded disease package with average RWST and RWSA.

C G932NT - good supply
New limited-approval variety with average RWST and above-average RWSA. Good root rot tolerance package, but slightly weak on Cercospora. No. 4 variety on average of two years of data.

Special Approval

C G943 - (5%)
New limited-approval variety with CR+ trait for excellent Cercospora tolerance. Good overall disease package, but lower on RWST.

C G021 - (1000 units)
New first-year variety with CR+trait for excellent Cercospora tolerance. Good disease package, but slight weakness to root aphids. Better RWST than other CR+ varieties available.

Betaseed

Fully Approved

BTS 1399 - no supply

BTS 1703 - very good supply
Newer high-yielding and average-quality variety. Very good tolerance to Cercospora and Alternaria, but weaker on Aphanomyces and Fusarium.

BTS 188N - very good supply
New nematode-tolerant variety with high yield and sugar. Weak on Cercospora, but good root disease traits

Limited Approval (5%)

BTS 197N - very good supply
New limited-approval variety with average RWST and above-average RWSA. Good root rot tolerance packagebut slightly weak on Cercospora.

Special Approval

BTS 1606 (unlimited) - very good supply
High-yielding and below-average-quality nematode-tolerant variety. Slightly better leafspot tolerance than some other high-yielding nematode-tolerant varieties. Good overall disease traits.

BTS 1941 - (5%)
New limited-approval variety with CR+ trait for excellent Cercospora toler ance. Good overall disease package, but lower on RWST.

BTS 1065 - (500 units)
New first-year variety with CR+ trait for excellent Cercospora tolerance. Good disease package, but slight weakness to root aphids. Lower on RWST.

Hilleshög

Fully Approved

HIL 9879NT - good supply
Below-average yielding, but good-quality nematode-tolerant variety. Very good Cercospora tolerance and mostly good disease traits. Poor on Aphanomyces and Fusarium.

HIL 9865 - good supply
High yielding and average-quality nematode-tolerant variety. Slightly better leafspot tolerance than some other high-yielding nematode-tolerant varieties. No. 5 variety on average of two years of data.

HIL 9908 - good supply
Below-average yielding, but good-quality variety. Very good Cercospora tolerance. Fair disease traits, but weak on Fusarium.

HIL 2240 - good supply
Moderate-yielding and good-quality variety. Very good leafspot tolerance, but weak on Rhizoctonia and Fusarium.

HIL 2238NT - good supply
Nematode-tolerant variety with better leafspot tolerance than other high-yielding nematode-tolerant varieties. Weak on Aphanomyces and Fusarium.

Limited Approval (5%)

HIL 2332NT - good supply
New limited-approval variety with very good RWST and above-average RWSA. Slight weakness to Cercospora and Fusarium. Good tolerance to Rhizoctonia.

Maribo

Fully Approved

MA 709 - good supply
Moderate yield, but above-average-quality variety. Very good Cercospora and Alternaria tolerance. Poor on Rhizoctonia and Fusarium.

MA 813NT - good supply
New nematode-tolerant variety with below-average yield and average quality. Good leafspot tolerance, but weak on Rhizoctonia and Fusarium.

MA814 - good supply
New variety with moderate yield and average quality. Good leafspot tolerance, but slight weakness on Rhizoctonia and Apahnomyces.

Seedex

Fully Approved

SX RR1264 - very good supply
High-yielding and high-quality variety. Good overall disease package and full root aphid tolerance.

SX RR1278N - very good supply
High-yielding and good-quality nematode-tolerant variety. Poor on Rhizoctonia and Cercospora.but otherwise good disease traits.

SX 2283 - very good supply
High-yielding and high-quality variety. Good on leafspot tolerance, but poor for Rhizoctonia. Other disease traits are good.

Limited Approval (5%)

SX-2294 - test market supply
New limited-approval variety with very good RWST and above-average RWSA. Slight weakness to root aphid.

SX-2295 - test market supply
New limited-approval variety with very good RWST and above-average RWSA. Well-rounded disease package.

SX-2296N - test market supply
New limited-approval variety with very good RWST and above-average RWSA. Weak on Cercospora and Fusarium.

SX-2297 - test market supply
New limited-approval variety with very good RWST and below-average RWSA. Good Cercospora tolerance. Slight weakness to root aphids.

2021 Leafspot Spray Program Recommendations

By Dennis Bischer, Director of Agronomy, Central & East Districts

When it comes to developing leafspot spray programs, this year is unique. In addition to traditional leafspot tolerant varieties, this season is the first year that CR+, highly tolerant leafspot varieties, are being grown.

These varieties bring a new level of genetic tolerance to leafspot we have not seen before. This increased level of genetic tolerance to leafspot results in fewer fungicide applications and longer re-application intervals. Michigan Sugar Company's research team, however, has limited experience with CR+ varieties; they have only been tested in our leafspot fungicide trials for one year. But based on those results, fungicide recommendations have been created. It is very possible and likely that as experience is gained with these varieties, leafspot management recommendations may change from year to year or even be adjusted during the growing season.

NON-CR+ VARIETIES

To have the best chance of controlling leafspot, it is important that some keys to leafspot control be followed. Fungicide applications should begin before the presence of disease. The Michigan Sugar Company research team recommends fungicide applications begin in late June before infection has occurred. Fungicide application intervals should not be longer than 14 days and could be as short as seven days depending on the fungicide applied. An effective adjuvant should be included with each application. The proper adjuvant will increase the deposition and spreading of the fungicide application along with helping the fungicide adhere to the leaf surface.

Coverage also is key to fungicide performance. Using the proper nozzle with the proper pressure, along with 20 gallons of water or more, will improve disease control.

Finally, using the most effective products will result in increased disease control. Super Tin continues to be the most effective fungicide for cercospora and alternaria leafspot control and should be incorporated into a leafspot spray program.

Here is an example program for traditional leafspot tolerant varieties:

DATE	PRODUCTS
June 25	EBDC
July 5	Triazole+EBDC
July 19	Super Tin+EBDC
Aug. 2	Priaxor+Topsin+EBDC
Aug. 16	Triazole+EBDC
Aug. 30	Super Tin+EBDC
Sept. 13	Triazole+EBDC

FUNGICIDE	APPLICATION INTERVAL
EBDC	7-10 days
Copper	7-10 days
Copper plus EBDC	10-14 days
Triazole plus EBDC	14 days
Priaxor plus Topsin plus EBDC	14 days
Super Tin plus EBDC	14 days

CR+ VARIETIES

There are four new CR+ varieties being grown in 2021. They are Beta 1941, Beta 1065, Crystal 943, and C 1065. Since these CR+ varieties have increased tolerance to leafspot they do require a different leafspot management strategy. There are, however, key aspects that remain the same, such as starting early, using a proper adjuvant, maximizing coverage, and using the most effective products.

While the Michigan Sugar Company research team recommends seven or more fungicide applications on non-CR+ varieties, three to four fungicide applications should result in season-long disease control with CR+ varieties. A standard practice has been to apply an ethylene bisdithiocarbamate (EBDC) in late June. With CR+ varieties, that no longer is required, but is still recommended. The general recommendation is to make at least three fungicide applications during the growing season, starting on July 1 and applying again on Aug. 1 and Sept. 1.

Here is an example program for CR+ varieties:

DATE	PRODUCTS
June 25	EBDC (optional)
July 1	Delaro+Proline+EBDC
Aug. 1	Super Tin+Topsin+EBDC
Sept. 1	Triazole+EBDC

Meeting Donuts

By Elizabeth Taylor, Ag Relations & Communications Manager

It doesn't get much better than meeting donuts, does it?

Meeting donuts are fresh, locally made, and usually include a ton of varieties from which to choose. Add in conversing with Michigan Sugar Company's awesome Agronomy and Research teams, fellow growers, and learning new strategies for growing high-quality sugarbeets and you've got yourself a pretty great morning. Pre-pandemic, I would estimate our cooperative collectively ate many hundred meeting donuts in a year.

Unfortunately, meetings and meeting donuts have been on hold for more than a year now. Yet, as they say, the beet must go on, and as an Ag Department we still need to get important and timely information out to our growers. Last spring, we started integrating in-field video updates to the weekly Crop Updates that are posted during the growing season and will continue again this year.

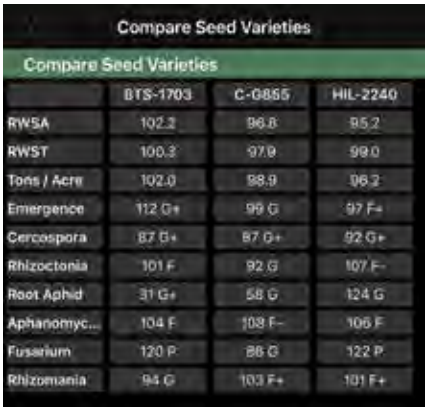
In October, we held an in-person research crop tour, featuring variety and agronomy trials, new source plots, and many BEETcast programming trials. A video playlist also was released that walked the entire tour virtually. It is a great resource for growers unable to attend in person to document research trials and crop development for the year.

Our annual Seed Week meetings and our winter agronomy meetings also were held virtually this fall and winter, with great attendance and content. While we as a department missed being together in person, we agreed there was definite value in recording the presentations for later viewing. We plan to continue both options for meetings in the future.

To complement all this, our new agronomy section recently went live on the Michigan Sugar app. In this new section, growers can see information and photos of diseases, weeds, and pests. The Cercospora section gives sample spray programs and spray interval suggestions. Growers also can compare up to three seed varieties at a time and see ratings for leafspot, Rhizoctonia, Fusarium, and more. Also included, are calculators for stand and seed. We are excited about this new feature and will continue to add to this section over time.

This past year provided an opportunity to push us to grow — it forced us to be creative and expand the ways we connect with our growers. Sometimes in the state of uncertainly, you discover an avenue for something new. We adopted new techniques, new flavors, and new options with technology. And while technology can accompany our ability to connect, educate, and share, we find that our favorite flavor of interacting is still in person, with meeting donuts.

Our new options for connecting are like the meeting coffee. The meeting donuts is the preference and the mainstay, and the coffee serves as the accompaniment. Someday soon, in person meetings will return, and with it, meeting donuts, coffee, and camaraderie.



New additions to the Michigan Sugar Company app provide information on seed varieties, diseases, pests, and more.

***Elizabeth Taylor** is the Ag Relations & Communications Manager at Michigan Sugar Company. She joined the company in 2016, and works closely with the Agronomy Department to create and share meaningful information with its growers.*

'The Gift of the Lowest Moment'

MEET NEW MICHIGAN SUGAR COMPANY DIRECTOR GREG GROCHOLSKI

By Rob Clark, Director of Communications and Community Relations

"When life throws you curve balls, you adjust and learn to hit curve balls."

Greg Grocholski says he was given "the gift of the lowest moment" of his life as a teenager growing up in rural Bay County.

But experiencing great tragedy at a young age set Grocholski on a life's journey that would see him rise to high levels in business, earn his master's degree, and travel the world.

"When life gives you the gift of the lowest moment, you have a choice," said Grocholski, who was elected to Michigan Sugar Company's Board of Directors in January and will serve a four-year term representing Region 3 of the West District. "You can't go any lower at that point. You have to accept what it is and climb out. Everybody will have a lowest moment. Will it take you down, or sideways, or will it be an inspiration to move you forward?

THE FARM LIFE

Grocholski grew up in Beaver Township, a tight-knit farming community on the western side of Bay County with a population of fewer than 3,000 people. He was one of 11 children of Floyd and Julia Grocholski and spent time each day at a farm owned by his grandparents, Peter and Tillie Grocholski, who were affectionately referred to as Dzia Dzia and Buscia (Polish for grandfather and grandmother). There, he helped with the daily farm chores – gathering stones, picking pickles, hoeing beans, bailing straw and hay, chopping corn, feeding the animals, and shoveling manure.

"I've never been afraid to work or get dirty," Grocholski said. "Back then, we'd pick pickles by hand every three days. You started with a 1-gallon pail and when you could handle it, you moved up to a 5-gallon pail."

Grocholski said he learned many important life lessons on the farm.

"This is where one's character gets planted," he said. "Get the job done. Don't whine. Feel proud when the job gets done. Help the neighbors and community."

When the workday was done, the music lessons and practice sessions began, said Grocholski, whose father founded Floyd Grocholski's Li'l Naturals polka band in 1969 with the eldest Grocholski children playing in the band. Greg Grocholski would join in 1977 playing clarinet and later bass guitar and concertina. During his 20 years in the group, Grocholski said the band played at countless weddings, festivals, and anniversary events.

TRAGEDY STRIKES

Just before Christmas in 1975, Julia Grocholski died after a battle with cancer. Greg Grocholski was 14 years old at the time. Just over a year later, Grocholski's father died of a heart attack while the band was getting ready to perform at a polka dance in Cass City. At age 15, both of Grocholski's parents were gone.

Probate court assigned eight of the Grocholski children who were under age 18 to the custody of the two oldest siblings — Floyd Jr. and Jeannie Grocholski, who both were in their early 20s.

"The younger brothers and sisters kept working on the farm and the rest started employment in various local companies," said Greg Grocholski, noting this was the lowest moment of his life. "When life throws you curve balls, you adjust and learn to hit curve balls."

Two years after the death of his father, Grocholski graduated from Bay City Western High School and found his way to Northwood University in Midland to pursue a degree in accounting and management. On weekends, he continued playing in the family band. He earned his bachelor's degree in 1983 and then enrolled at Saginaw Valley State University to pursue his master's degree in business administration. Soon after, he accepted an internship at Dow Chemical Company working in the accounting department.

Greg and Luanne Grocholski are pictured at their home in Freeland in front of their camel rug. The couple lived in Saudi Arabia from 2014 to 2020 while Greg worked as Vice President, Internal Audit, for SABIC one of the world's largest chemical companies.

CAREER AT DOW

At the end of his internship, Dow offered Grocholski a full-time accounting position. He accepted and began a 31-year career that progressed through various management and executive roles in accounting, information systems, controllers, audit, and business finance. He earned his MBA from SVSU in 1990; was sta-

Greg Grocholski sits behind the wheel of his 1939 John Deere Model H two-cylinder tractor that he is working to restore. Grocholski is looking forward to harvesting his first crop of sugarbeets this fall. He is renting 30 acres in Kawkawlin, where he is growing his crop.

tioned by Dow from 1994 to 1996 in Antwerp, Belgium; was named Chief Audit Officer in 2010; and retired in 2014.

He then accepted the role of Vice President, Internal Audit, at SABIC, another of the world's largest chemical companies. That took him to Riyadh, Saudi Arabia, where he would work another six years before retiring again in 2020.

Today, Grocholski works with several companies as a financial and audit consultant.

BACK TO HIS ROOTS

As he begins the latest chapter of his life, Grocholski says he feels as though he is returning to his farming roots. He is renting 30 acres of land in Kawkawlin and is looking forward to harvesting his first sugarbeet crop this fall.

"A lot of my friends grow sugarbeets and they will mentor me along the way," he said. "It's going to be a challenge and it's going to be fun."

At his side is his wife of 35 years Luanne, who enjoys horse riding and is an active volunteer for the Humane Society of Bay County. The couple has two adult sons — Joshua and Jacob — and three grandchildren — Oliver, Leo, and Charlotte. You might see Greg and Luanne cruising around town in their 1957 Ford Thunderbird or cruising various lakes in their 1947 Chris Craft wooden boat. Grocholski also is restoring a 1957 Ford Fairlane and a 1939 John Deere Model H two-cylinder tractor.

Grocholski said he feels a strong connection to Michigan Sugar Company because of the cooperative's economic impact in the region.

"Michigan Sugar Company is significant to the region in terms of jobs, community giving, purchasing impact, taxes, and overall health to the region," he said. "I love to learn. I get involved. I am comfortable with complexity. I look forward to adding my skills and experiences so that we, collectively as a board, properly engage and discuss the path forward for this great company." ▮

Meet the Grocholski family, shown here with Greg and Luanne Grocholski's 1957 Ford Thunderbird. They are, from left: Jacob and Chelsie Grocholski, Greg and Luanne, Kim and Joshua Grocholski, and grandchildren Charlotte, Leo, and Oliver (at the wheel). Jacob and Joshua are Greg and Luanne's sons.

***Rob Clark** is Director of Communications and Community Relations for Michigan Sugar Company. He is a 1995 graduate of Knox College and worked for 22 years as a journalist before joining Michigan Sugar Company in 2018. He and his wife Claire have four sons.*

Robert Haag, 38, of Sebewaing Township, was elected to the Michigan Sugar Company Board of Directors during the cooperative's annual meeting held virtually on Jan. 14. He is pictured here at his family's farm with a 1970 John Deere 4320 tractor still in operation.

Lifetime of Learning Leads to MSC Board

MEET NEW MICHIGAN SUGAR COMPANY DIRECTOR ROBERT HAAG

By Rob Clark, Director of Communications and Community Relations

At 38 years old, Robert Haag has carved out an impressive résumé in the world of Michigan agriculture.

Most recently, during Michigan Sugar Company's Annual Meeting, held virtually on Jan. 14, he was elected to serve a four-year term on the Co-op Board of Directors, representing the Central District. He replaces long-time Director Tom Gettel who is Haag's farm neighbor and was term-limited and could not seek re-election.

"My goal is to represent the growers as best as possible and give them a voice in their co-op," said Haag, who farms about 2,400 acres of land in Huron and Tuscola counties in partnership with his father Tom. "This all revolves around farmer input."

A native of Sebewaing Township and 2001 graduate of Unionville-Sebewaing Area High School where he was the class valedictorian, Haag went on to earn bachelor's degrees in crop and soil sciences and agribusiness management from Michigan State University in 2005. During college, he continued coming back to the farm and joined full-time after graduation.

In addition to about 200 acres of sugarbeets — harvested each year in partnership with Tom's brother, Terry Haag — Robert and his father grow dry beans, wheat, and corn.

"Raising sugarbeets definitely brings back lots of memories of success and struggle over the years," said Haag. "The main reason we grow them is to strive for a higher return per acre than what other crops can offer; something to make the extra work worthwhile."

Haag said his knowledge about sugarbeets began to take hold during his childhood when he was involved in Michigan Sugar Company's Youth Project, receiving lessons from Jeff Elston, who now works as Haag's Field Consultant.

"I learned a lot from him and 25 years later, I'm still learning from him," Haag said.

Haag went on to apply that base of knowledge to his high school FFA project in the category of Specialty Crop Production, for which he earned National FFA Proficiency.

Robert Haag, center, with his parents Bonnie and Tom in front of the Sebewaing Township home where Robert grew up.

Robert and Amy Haag are parents to four children, from left: Harold, 8; Henry, 11; Anna, 6; and Walter, 10. The family also has a 6-year-old border collie (left center and above) named Daisy. They are pictured here in front of an old wooden shed outside their late 1800s farmhouse in Sebewaing Township.

"The youth program really helped me understand what goes into raising an acre of sugarbeets and, after I took that knowledge to the next level, helped me earn the National FFA Proficiency," Haag said.

Haag's agriculture lineage can be traced back at least to his great-grandparents. Both sets of his grandparents — Clarence and Donna Haag on his father's side and Kenneth and Ilah Bell on his mother Bonnie's side — also farmed. To this day, Haag still operates the 1970 John Deere 4320 tractor once owned by Kenneth Bell. Most of the other implements at Haag's farm, located off Canboro Road just east of Sebewaing, also are green.

As for his own family, Haag and his wife Amy are parents to four children – Henry, 11; Walter, 10; Harold, 8; and Anna, 6. They attend school in the Laker School District. The family also has an energetic and playful border collie named Daisy who eagerly greets visitors to the farm and is insistent on playing a bit of fetch.

Haag's résumé also includes several years of service to both the Huron County Farm Bureau and Michigan Farm Bureau. He has served the Huron County Farm Bureau for many years, including a stint on the organization's Board of Directors as the Young Farmer Chairman. He currently serves as Chairman for the Policy Development Committee.

At the state level, Haag served on the Michigan Farm Bureau Policy Development Committee from 2017 to 2019.

When he is not farming, Haag said he enjoys commodity trading and spending time with his family. ▮

Bay City

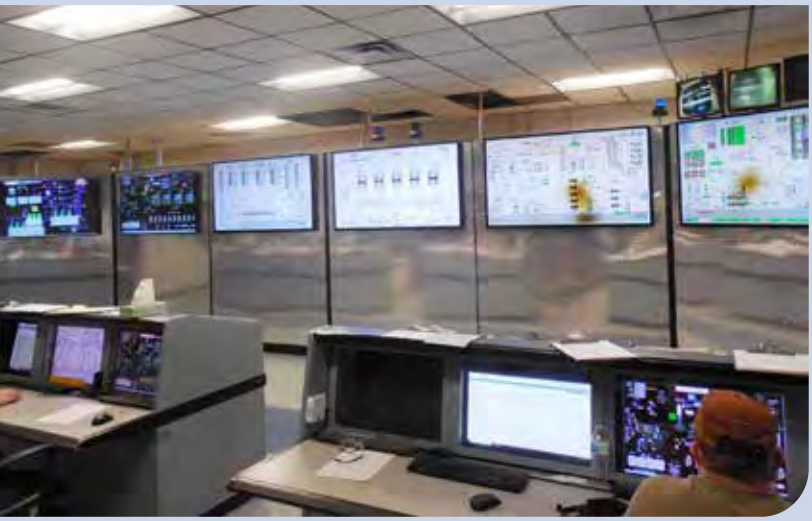
By Jason Lowry, Vice President of Operations, and Nick Klein, Director of Engineering

The Bay City factory completed the 2020-2021 season after slicing 1,594,881 tons of sugarbeets in 204 days. The crop went into piles in excellent shape, and ideal storage conditions allowed for a great raw material feeding the factory for the entire campaign. Despite many challenges due to unfilled positions and absences largely due to COVID-19, the factory ran quite well through most of the campaign. The lime kiln presented challenges both at the start of the campaign and part way through, but these were overcome by working together to identify and address the root causes.

A sugar factory requires unique skill-sets and talents to operate, and the Bay City team has resolved to create opportunities from within to fill open positions. Several younger employees are showing a strong work ethic and taking advantage of the opportunities afforded to them in Bay City, taking on new and challenging roles as they are vacated. Apprenticeships, offered by the company to build the skilled trades from within, also will open opportunities. These growth opportunities are available and will be taken up by the next generation of leaders at the site.

Bay City management is working hard to foster a safety-first culture through collaboration with our hourly workforce on several initiatives. Bay City factory employees are looking forward to a successful maintenance period and commencement of campaign when the new crop is ready. ■

BELOW Here is a look at the Central Control Room at the Bay City factory.



BELOW Here is a look at the white centrifugal deck at the Bay City factory.

Earlier this year, Michigan Sugar Company installed a Pneumatic Transport System manufactured by Kice Industries, of Wichita, Kansas, at its factory in Caro. In these photos, the Granulated Sugar Receiver, which is part of the system, is shown before and while being put into place. The system will allow Michigan Sugar to pull white granulated sugar from a number of sources at the factory, including the vertical and horizontal silos, bulk trucks, and totes. Powered by a compressor, the system will feed sugar into the hopper that feeds the liquid sucrose tanks at the Caro factory. The new unit replaces an elevator system previously used at the factory.

The Caro factory finished the 2020-2021 season slicing 688,452 tons of sugarbeets over a 212-day campaign. Factory staff and hourly employees worked together to process the crop provided to us by our grower-owners and stored well thanks to the efforts of our Ag Department.

The first challenge the team had to overcome was before the campaign, as we had to work together to sufficiently process the previous season's wastewater and discharge it to make room for the coming crop. This was done through innovative thinking and use of company assets at other sites to reduce the loading and move the water on successfully.

Through the campaign, the Caro team encountered several challenges in the processing of the beets, primarily in the purification and filtration stages. Several small victories were achieved, and the team managed to record one of the lowest steam-on-beet values in recent history, reducing the cost of production. Maintenance stoppages were minimized through the efforts of the team as they welcomed a new maintenance manager to the company.

Additionally, a new production superintendent, factory chemist, and temporary shift supervisor have been hired.

Caro was not immune to the effects of the tight labor market and the impacts of the COVID-19 pandemic, often operating on a reduced crew due to these issues. Employees new and old stepped up, working many hours of overtime and in new positions to ensure that the crop was processed in a reasonable season length and with great efficiency. ■

***Jason Lowry** is Michigan Sugar Company's Vice President of Operations. In this role, Jason provides leadership and direction to the areas of factory operations, engineering, asset management, environmental compliance, and quality for the company. Jason joined Michigan Sugar in early 2019 and has worked in the global sugar industry in both beet and cane sugar milling and refining.*

***Nick Klein** is the Director of Engineering for Michigan Sugar Company. He is a 2003 graduate of Ferris State University and joined Michigan Sugar Company in 2009. He currently serves on the Board of Directors for the American Society of Sugar Beet Technologists. He and his wife Megan have three children.*

Croswell

The Croswell factory sliced 906,323 tons of sugarbeets over a 212-day campaign to complete the 2020-2021 season. Three production records were set this year — one for the daily average of sugarbeet tons sliced, another for total tons sliced during a campaign, and a third for total sugar produced during a campaign.

Croswell factory staff and hourly employees worked together to drive consistent and safe operations and learn new systems and processes throughout the season, bringing the new beet receiving and washing systems online. The old flume system was utilized while the new system was commissioned, and very promising results were achieved with the new spray table that allowed for higher slice rates with cleaner beets entering the factory.

The season was not without its challenges as the factory struggled to fill roles and worked around many vacancies due to the COVID-19 pandemic. On average, 20% of all hours worked were overtime, as many hourly and staff employees worked additional hours and roles to keep the factory running.

The factory hourly employees and staff worked together to roll out new safety initiatives during the campaign. These are designed to raise hazard awareness and mitigate risks before they result in injuries.

Croswell welcomed three new shift supervisors during the campaign, and many younger employees stepped up into key roles in the operation. Training and coaching of new employees in new positions is key, and the Croswell team is coming together to ensure future success. ▮

BELOW This new sugarbeet receiving, washing, and chip recovery system was installed last year at Michigan Sugar Company's Croswell factory. During the 2020-2021 slicing campaign, the old system for receiving, washing and transporting beets into the factory was phased out and this new system went online.

Sebewaing

The Sebewaing factory finished the 2020-2021 campaign after slicing 1,087,695 tons in 211 days. During that time, the factory set two new production records — one for the most sugar produced in a campaign and the second for the highest daily sugar production rate for a season. This was due to modifications made to the system over the last inter-campaign, as well as teamwork and collaboration by the staff and hourly employees.

Importantly, the site safety awareness has been increased in the last year resulting in reduced injuries year over year.

Additionally, the site staff and hourly workforce are working together through several safety initiatives that will build trust and risk awareness at the site.

Despite challenges to fill all open positions and maintain our workforce in the face of the COVID-19 pandemic, the team had a very successful year. A true testament to that effort was the score of 98 received from the Safe Quality Foods audit, the highest score to date for Sebewaing. Many members of the staff and hourly workforce also performed multiple jobs and worked extensive amounts of overtime to process the crop in a reasonable length of time.

Many of our longer-term employees have elected to retire in the past year, and while we are sad to see them go, it does present opportunity for newer members of the team to step up. Combining their enthusiasm with training and coaching will result in a strong team for the future of the Sebewaing facility. ■

ABOVE During the 2020-2021 sugarbeet slicing campaign at Michigan Sugar Company's factory in Sebewaing, structural improvements were made and new insulation was added to this white sugar pan. The pan is where thickened sugar juice (like maple syrup) is sent and where the sugar crystals grow. This is one of three such pans at the Sebewaing factory.

LEFT Matt Siegel, a welder at Michigan Sugar Company's factory in Sebewaing, grinds down a section of the mud cone at the base of the flume tank on Wednesday, April 21, 2021. The cone is being replaced this year as part of routine maintenance at the factory.

Sweet Success:
High Sugar Producers 2020

ABOVE *Glen Messing, left, and Perry Messing of Messing Sons LLC in Ruth.*

By Adam Maurer, Field Consultant

Messing Sons LLC of Ruth, a beef cattle and cash crop farm operated by brothers Glen and Perry Messing, is the winner of the 2020 East District High Sugar Producer Award.

The winning 15 ½-acre field was planted on April 11, 2020, with Crystal 675 seed in 20-inch rows.

When choosing sugarbeet seed varieties, the Messings said they selected those that work best on their farm and produce the most sugar. They are firm believers in soil sampling, applying lime, and using P&K corrections in the fall before planting beets. They also apply 2x2 starter at the time of planting to help the beets get off to a good start.

The Messings' herbicide program consisted of glyphosate, stinger, and warrant to offer another mode of action and keep resistant weeds at bay.

The Cercospora/Alternaria program used was a combination of triazoles, tins, and strobilurins along with ethylene bisdithiocarbamates (EBDCs) and topsin to aide as tank mix partners, to form a well-rounded program sprayed on two-week intervals.

The field was harvested in November with a self-propelled harvester, which they managed the carting for and direct hauled to the factory.

The winning field produced a crop with recoverable white sugar per ton (RWST) of 329.36 pounds, comprised of 21.53% sugar and a 96.66 clear juice purity.

A former dairy farm, the Messing brothers are following in the footsteps of their father Russell. In addition to raising beef cattle and growing sugarbeets, they grow alfalfa, soybeans, white wheat, and corn. ▮

***Adam Maurer** is a Michigan Sugar Company Field Consultant serving growers in the Ruth and Verona areas. He joined Michigan Sugar in 2019.*

BELOW *Brothers Clint Hagen, left, and Brad Hagen operate Atwater Farms in Ubly.*

By Cassie Sneller, Field Consultant

Atwater Farms, a 6,500-acre farm in Ubly, operated by brothers Clint and Brad Hagen, is the winner of the 2020 Central District High Sugar Producer Award.

The winning 362-acre field was first planted on March 23, 2020, but, like a lot of other fields last year, had to be replanted, which was done on April 17, 2020. Two varieties were planted in the field — 220 acres with Crystal 675 and 142 acres with Beta 188.

Getting seed in the ground is just one part of the planting season at Atwater Farms.

"Our 2020 beet crop started in August of 2019," said Clint Hagen. "The radish cover crop along with soil testing and beet lime application is a crucial factor in our operation."

Hagen said it all starts with soil health.

"We believe the healthier the soil, the healthier the plant," he said, noting soil health and nutrient management combined with proper disease management are the keys to success in any field. Atwater Farms also grows navy beans and white wheat.

The farm's winning sugarbeet field produced a crop with recoverable white sugar per ton (RWST) of 324.31 pounds. Overall, Atwater Farms finished the 2020 growing season by harvesting a crop that averaged 33 tons per acre and RWST of 301.44 pounds.

"It isn't any one thing within our program that's leading to high sugar," said Clint Hagen. "It is the combination of the things we've been experimenting with over the last several years.

"A little bit of luck doesn't hurt either." ▮

East District 2020 High Sugar Producers

Name	RWST
Messing Sons LLC	329.36
MC Acres LLC	324.13
MC Acres LLC	321.20
Jocelyn L. Smith	318.06
Maple Grove Acres Inc	316.80
MC Acres LLC	316.64
Clear Creek Farms Inc.	316.01
Andreas P. Boekhorst	316.00
Essenmacher Farms LLC	315.51
Meissner Farms of Minden City	315.47

Central District 2020 High Sugar Producers

Name	RWST
Atwater Farms Inc.	324.31
Atwater Farms Inc.	323.67
Darwin D. Sneller	321.90
Ridge Run Farms	318.43
Atwater Farms Inc.	318.09
Atwater Farms Inc.	316.71
TL Bushey LLC	314.32
Adam Farms LLC	314.24
Mike Bushey LLC	312.93
Ridge Run Farms	311.41

West District 2020 High Sugar Producers

Name	RWST
Weburg Farms Inc.	343.17
John A. Bremer	317.85
Gulick Farms LLC	314.18
Russell W. Reinbold	312.93
Russell W. Reinbold	310.47
Larry Ronald Butcher Trust	309.21
Fieldview Farms LLC	308.18
Gulick Farms LLC	307.41
JMH Farms Inc.	306.24
Block Farms LLC	305.51

BELOW *Cousins Jamie Weburg, left, and Bob Weburg of Weburg Farms in Gratiot County.*

WEST DISTRICT

By Dave Bailey, Field Consultant

Weburg Farms, a 3,500-acre cash crop farm in Gratiot County's Emerson Township, operated by cousins Jamie Weburg and Bob Weburg, is the winner of the 2020 West District High Sugar Producer Award.

The winning 54-acre field is in Ithaca and was planted on April 13, 2020, with the CG752 seed variety and an average seeding rate of 55,110. The seed variety was chosen based on what works for the farm, and knowing which fields are susceptible to nematodes.

The field was variable rate planted with a Monosem, electric drive, precision planter. The Weburgs feel better seedling emergence can be achieved by using Copperhead closing wheels. Seeding rates ranged from 55,000 to 60,000. Higher seeding rates were planted on heavier soils. A starter fertilizer containing sulfur, manganese, and boron was applied 2x2.

"We have been blessed by having great employees that are essential to our farm's day-to-day activities," said Jamie Weburg.

The Weburgs target a four- to five-year crop rotation between sugarbeet crops and they plant sugarbeets following wheat. The straw is bailed from the wheat crop which they feel results in a drier seed bed in the spring. Fall turkey litter or hog manure is applied to the wheat stubble which they believe helps with sugarbeet plant health. They deep rip till and level the seed bed in the fall. In the spring they apply nitrogen with added sulfur.

Other strategies the farm follows include maximizing soil fertility, regular soil testing every three years on 2 ½-acre grids, spreading lime, and applying phosphorus and potassium in the fall before sugarbeet planting.

The farm's winning sugarbeet field produced a crop with recoverable white sugar per ton (RWST) of 343.17 pounds. Tons per acre totaled 30.57, sugar percentage was 22.60, and purity was 97.27.

Established in 1919, Weburg Farms is a third-generation operation that has been growing sugarbeets for 75 years. Jamie and Bob Weburg are following in the footsteps of their fathers, George Weburg and Dale Weburg, who still help out with planting and harvest. ▮

***Dave Bailey** is a Michigan Sugar Company Field Consultant in the West District, serving the Breckenridge and Ithaca areas. He has been with Michigan Sugar for 22 years.*

RIGHT Ernest Flegenheimer, center, was born Jan. 30, 1927, in Zurich, Switzerland, the son of Albert and Helen (Stern) Flegenheimer. They are pictured here in 1944 in Waverly, Iowa. Albert Flegenheimer also was a pillar and pioneer in the sugar industry.

Remembering Ernest Flegenheimer

Jan. 30, 1927 – Feb. 2, 2021

Michigan Sugar Company President and CEO 1963-1993

On Feb. 2, 2021, Michigan Sugar Company lost a beloved member of its cooperative family.

Ernest Flegenheimer, a sugar industry giant who served as President and CEO of Michigan Sugar Company from 1963 to 1993, died early that morning at the age of 94.

Ernest was born Jan. 30, 1927, in Zurich, Switzerland, the son of Albert and Helen (Stern) Flegenheimer. Albert Flegenheimer also was a pillar and pioneer in the sugar industry. Ernest came to the United States in 1942 and was naturalized in 1943.

He began his career in 1950 in New York City. From 1954 to 1962 he worked for Menominee Sugar Company in Green Bay, Wisconsin, before joining Michigan Sugar Company in 1963. During his 30 years at Michigan Sugar, Ernest oversaw the transformation of the company's factories.

On June 7, 1952, Ernest married Marjorie McGinn, who preceded him in death. The couple had four children — Ellen, Lauren, Eric and Mark. Today, Mark Flegenheimer serves as President and CEO of Michigan Sugar Company, continuing his family's legacy in the sugar industry.

Ernest will always be a beloved member of the Michigan Sugar family and we know his impact went far beyond our footprint. Simply put, Ernest influenced and touched countless people during his life and career.

At Michigan Sugar Company, we keep his memory alive through the annual Ernest Flegenheimer Award, given each year during the company's Employee Service Awards ceremonies to honor an employee for their outstanding wisdom, integrity, and character — the same qualities Ernest brought to the company during his years as our leader.

TOP Ernest Flegenheimer, left, and his father Albert Flegenheimer are pictured in this undated photo outside Michigan Sugar Company's Carrollton facility.

BOTTOM Ernest Flegenheimer, left, and his son, Mark Flegenheimer, are pictured in a farm field in this 2010 photo. Ernest served as President and CEO of Michigan Sugar Company from 1963 to 1993. Mark joined the company in 1994 and has served as President and CEO of Michigan Sugar since 1998. *Photo by Karen Gerhardt*

RIGHT Ernest Flegenheimer is pictured in 1985 with the 1 millionth bag of Pioneer Sugar to come off the line in Fremont, Ohio, for the Great Lakes Sugar Company. In 1985, Michigan Sugar Company acquired Northern Ohio Sugar Company, which had a factory in Fremont and a warehouse and distribution facility in Findlay, Ohio. This new wholly owned subsidiary was named Great Lakes Sugar Company.

Ernest Flegenheimer's Obituary

Ernest Flegenheimer, 94, of Saginaw Township, celebrated life from Jan. 30, 1927, until Feb. 2, 2021. He passed away surrounded by his children.

Devoted husband, father, grandfather, and great-grandfather, Ernest was born in Zurich, Switzerland, to the late Helen and Albert Flegenheimer. He lived in Germany, Italy, and Switzerland, until the age of 12, fleeing Nazi Germany in 1939.

Winnipeg, Canada, became his new home and ultimately the United States in 1942, where he became a naturalized citizen a year later. He graduated from Lake Forest Academy (Illinois), attended New York University, Middlebury College (Vermont) and Grenoble University in France. Playing soccer, hockey, and tennis were highlights of his high school and collegiate career. He married the love of his life, Marjorie McGinn, on June 7, 1952, in New York City.

His entire business career was dedicated to the sugar industry beginning with a small family company importing sugar byproducts. Vice-president of Menominee Sugar Co. in Green Bay, Wisconsin, followed and in 1961 he joined Michigan Sugar Company, where he was elected President and a Director, serving in that capacity until his retirement in 1993.

Ernest's management skills focused on his ability to communicate, to innovate, and to make Michigan Sugar larger and stronger. He inspired and fostered an atmosphere of mutual respect with his employees and growers. Ernest was a trustee of the U.S. Beet Sugar Association, Washington, D.C., board member of The Sugar Association, Washington, D.C., president of the Farmers and Manufacturers Beet Sugar Association, Saginaw, Michigan, and a director of Savannah Foods & Industries, Savannah, Georgia.

He received the B.W. Dyer Memorial Sugar Man of the Year award in 1994.

Ernest's leadership and impact extended beyond the sugar industry serving on the Advisory Board of Mutual Insurance Co., Wakefield, Massachusetts, and the boards of Saginaw General Hospital, United Way, Junior Achievement and the Saginaw Bay Symphony Orchestra, Saginaw, Michigan. Most recently, he

ABOVE Ernest Flegenheimer is pictured with Viola "Babe" Taylor, who worked at Michigan Sugar Company from age 16 to 72 as Secretary to the President. Taylor was well known for saying she "trained presidents."

RIGHT Ernest Flegenheimer served as President and CEO of Michigan Sugar Company from 1963 to 1993. He passed away on Tuesday, Feb. 2, 2021, at the age of 94.

became a part of the Wall of Honor at Saginaw Valley State University's new Carmona Business School.

Ernest was a member of the Saginaw Club, and a past member of the Saginaw Country Club, Crystal Downs Country Club, Frankfort, Michigan, and Sailfish Point Country Club, Stuart, Florida. He was an avid tennis player, enjoyed golf until his late 80s, and always cheered for his beloved Green Bay Packers.

Ernest cherished his summers at the family cottage on Crystal Lake in Beulah, Michigan. It was here where he created a legacy for his children, grandchildren, and great-grandchildren filled with memories too numerous to count. Aside from his business acumen and skill, Ernest was a gentleman in every respect who earned an unblemished reputation for honesty, integrity, and goodwill.

Ernest will be deeply missed by his family; four children, Ellen (Frank) Riggle, Lori (Tom) Deisler, Eric (Libby) Flegenheimer and Mark (Anne) Flegenheimer; 10 grandchildren, Adrienne (Ray Diehl) Oakley, Alyssia (Jeff) Leggett, Zach (Sarah) Riggle, Shelby Riggle, Ryan (Jennifer) Deisler, M.D., Andrew (Ashley) Deisler, Jessica (Jon) Meyer, Graeme Flegenheimer, Trevor and Katie Flegenheimer; nine great-grandchildren, Jake and Taylor Oakley, Mackenzie and Avery Leggett, Bode, Cameron and Rory Deisler, and Smith and Eliza Deisler. He is also survived by nephews, Ron (Karen) Herzog, Leslie (Jacqueline Beckley) Herzog, Moncef (Salima) Bouhafa, and niece, Barbara (Jordan) Pober.

He was predeceased by his wife, Marjorie.

A private funeral service for Ernest will be held with burial to follow at Crystal Lake Cemetery North, Frankfort, Michigan. In lieu of flowers, those planning an expression of sympathy may wish to consider a memorial to Crystal Lake & Watershed Association, P.O. Box 89, Beulah, MI 49617; Saginaw Art Museum, 1126 N. Michigan Ave., Saginaw, MI 48602; The Saginaw Community Foundation - Flegenheimer Family Scholarship, 1 Tuscola St., Suite 100B, Saginaw, MI 48607; and the Saginaw Bay Symphony Orchestra, 201 N. Washington Ave., Saginaw, MI 48607.

BELOW Ernest Flegenheimer's Michigan Sugar Company portrait from 1963, the year he became President and CEO and from 1993, the year he retired.

ABOVE On June 7, 1952, Ernest Flegenheimer married Marjorie McGinn. The couple had four children — Ellen, Lauren, Eric, and Mark. The couple is pictured here in January 1962 in DePere, Wisconsin. Marjorie passed away on Nov. 9, 2017, at age 92.

RIGHT Ernest Flegenheimer, left, and his son, Mark Flegenheimer, tour Michigan Sugar Company's Croswell factory on Oct. 29, 2020. Ernest, who served as President and CEO of Michigan Sugar Company from 1963 to 1993, was 93 years old at the time of the tour.

MICHIGAN SUGAR GIVES BACK

HOW EMPLOYEES IN THEIR

By Rob Clark, Director of Communications and Community Relations

Making Life Sweeter. This is Michigan Sugar Company's Purpose Statement, and we mean it not only literally (we do produce more than 1 billion pounds of sugar each year) but figuratively.

Each year, Michigan Sugar Company donates more than 100,000 pounds of sugar to charitable organizations, we sponsor dozens of community events and are unwavering supporters of United Way and countless other nonprofit organizations.

Our dedication to philanthropy goes beyond corporate giving. It lives, too, in the DNA of our employees who are volunteer firefighters, coaches, nonprofit board members, and scouting leaders. They organize drives to feed the hungry and put clothes on the backs of those less fortunate. They advocate for animals, mentor children, and serve their communities as elected officials.

In short, they give back.

Recently, we featured some of these employees on the Michigan Sugar Company Facebook page and wanted to share their acts of service and kindness here as well. We are thankful to have so many wonderful people in our ranks who seize the opportunity to serve and make a positive difference in the world.

Shery Bedore, Dock Loader
Sebewaing Factory
Unionville Fire Department
Ladies Auxiliary

Bill Bevins, Maintenance Manager
Croswell Factory
Youth Coach and Hitting Instructor

John Boothroyd, Manager of Government Relations
Corporate Headquarters
Board of Directors,
The Arc of Midland

Chris Boughner, Industrial Cleaner
Bay City Factory
Coordinates holiday food drive as member of the White Knuckle RC motorcycle club.

Gerold Cepeda, Storeroom Assistant
Croswell Factory
Volunteer Firefighter,
Croswell Fire and Rescue

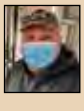
Rob Clark, Director of Communications and Community Relations
Corporate Headquarters
Board of Directors,
Hidden Harvest

Aaron Eurich, Control Room Operator, Sebewaing Factory Board of Directors, USA Little League Baseball

Carnel Fader, Specialist
Bay City Factory
Volunteer, Cass River Pet Friendz

Pedro Figueroa, Vice President of Sales & Marketing
Corporate Headquarters
Board of Directors, Shelterhouse

Mark Flegenheimer, President and CEO
Corporate Headquarters
Board of Directors, Midland Center for the Arts and Delta College Foundation



Chad Gaeth, Sugar Specialist
Sebewaing Factory
Assistant Scout Master,
Boy Scout Troop 551 in Fairgrove

ARE MAKING LIFE SWEETER COMMUNITIES


Margie Gonzalez, Accountant; Kathy Morse, Inventory Assistant; Dawn Premo, Inventory Specialist; Kristi Sauer, Credit and Collections Manager, Corporate Headquarters
Keepers of the Michigan Sugar Community Garden Plot at the Kantzler Memorial Arboretum in Bay City.

Brian Groulx, Research Manager
Ag Operations
Captain and Volunteer Firefighter, Merritt Township Fire Department

John Hacker, Yard Leader
Caro Factory
Varsity Softball Coach, Cass City High School

Randy Hallock, Industrial Cleaner
Sebewaing Factory
Member, American Legion Post 293 in Sebewaing and Post 239 in Linwood

Brian Haraga, Chief Financial Officer
Corporate Headquarters
Volunteer, Junior Achievement of North Central Michigan

Tony Hartsfield, Cleaner
Bay City Factory
Runs a Hats for the Homeless drive each winter through Lighthouse Family Worship Center in Bay City.

Don Haynes, Systems Analyst
Corporate Headquarters
Board of Directors, United Way of Bay County

Ann Kovacs, Senior Accounting Manager
Corporate Headquarters
Board of Directors, Bay Area Chamber of Commerce

Mark Linzner, Electrician/ Instrumentation Technician
Sebewaing Factory
Electronics Advisory Committee, Tuscola Technology Center

Jason Lowry, Vice President of Operations
Corporate Headquarters
Board of Directors, Dow Bay Area Family Y

Nathan Maguire, Oiler
Caro Factory
Volunteer Firefighter, Akron Fire Department

Steve Matuszak, Welder
Caro Factory
Assistant Varsity and JV Cross Country Coach, Caro High School

Julie Perry, Executive Assistant to the President and CEO
Corporate Headquarters
Lunchbox Learners Mentor, Big Brothers Big Sisters of the Great Lakes Bay Region

Eric Rupprecht, Environmental Engineer
Bay City Factory
Soccer Coach, Trinity Lutheran School in Reese

Scott Stanger, Director of Purchasing
Corporate Headquarters
Board of Directors, Boys & Girls Clubs of the Great Lakes Bay Region

Kevin Stillson, Beet Receiving Leader and Diffuser Operator
Croswell Factory
Assistant Softball Coach, Lansing Krash

Eileen Wait, Factory Administrative Assistant
Croswell Factory
Helps coordinate monthly food drive through Valiant Ministries of Croswell; also participates in annual Sanilac County Harvest Walk.

John Whaley, Director of Sales and Marketing
Corporate Headquarters
Member, Bay City Morning Rotary Club

Lisa Wood, Assistant Office Manager
Croswell Factory
Buel Township Clerk

SWEET!

Check out our new brand website @www.pioneersugar.com

By Rob Clark, Director of Communications and Community Relations

Michigan Sugar Company recently launched a redesigned brand website at www.pioneersugar.com.

The site includes information about our pure, all-natural white granulated, Golden Light Brown and Dark Brown, and Confectioners Powdered Pioneer Sugar, as well as profiles about our grower-owners, our farm-to-table story, and a helpful directory listing stores where consumers can typically purchase Pioneer Sugar products.

Of course, the site also includes dozens of recipes in four categories — sweet, savory, beverages, and health & wellness. If you're planning a get-together this summer, check out delicious options like the Michigan Sour Cherry Pie, Slow Cooker Michigan Pulled Pork, and Fabulously Simple Lemonade.

And, if you're looking for a great exfoliant, give the Pioneer Brown Sugar Body Scrub a try.

"This new site is not only beautiful, but extremely functional," said Pedro Figueroa, Vice President of Sales & Marketing at Michigan Sugar Company. "It helps us tell the story of our incredible Pioneer Sugar brand, while also providing important information our consumers want to know."

For example, Figueroa pointed out that under the "Products" tab of the website, consumers can easily access the nutrition labels for each type of consumer sugar, whether it be white granulated, brown, or powdered sugar.

"And we make it clear which of our products are Certified Vegan, Kosher, and gluten free," he said.

The new site was created and designed by Ohno Design of Bay City. Thanks go to Ohno owner Michael Robb and lead designer Alan Garcia.

Those who visit the site also will be greeted on the homepage by a photo featuring four Bay City-area residents. Huge thanks go out to Thad Van Tifflin and Morgan Rifenbark, the adults in the photo, and siblings Isaiah and Makayla Hoffman, the children of Ebony and Phillip Hoffman. Isaiah, 14, is a student at Christa McAuliffe Middle School in Bangor Township and Makayla, 9, is a student at Bangor Lincoln Elementary School.

Thanks also go to Barney's Bakehouse Bakery in Bay City for supplying all the delicious treats in the photo and to The Maytag Store of Michigan in Saginaw for allowing us to conduct a photography session in their beautiful showroom kitchen.

Finally, thanks to photographer Rick Moreau of Moreau Visuals for taking the photo.

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