

MICHIGAN SUGAR COMPANY • WINTER 2016-2017



THE NEWSBEET



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ROOT OF THE BUSINESS

by Mark Flegenheimer, President and Chief Executive Officer

PLANNING FOR OUR GROWING FUTURE


This winter's edition of *The Newsbeet* looks at handling and managing larger and larger crops. Yields over the last decade have increased at an impressive rate. Agronomic practices, seed varieties, and weather all play a part in driving up tonnage. We expect these trends to continue and have made plans accordingly. The largest part of this plan is slicing more beets in Croswell. We are in year two of a planned five-year upgrade program (see story Page 25). This exciting project requires a real team effort involving all aspects of our Cooperative. Plans have been developed from financing the project to packaging and shipping the sugar. We continually update, review, and tweak these plans to try and ensure the best long-term success, while minimizing the capital outlay.

Not only must we look at the equipment we will utilize to handle more bountiful crops, we also are examining the structure of the Ag Department to support our shareholders. Jim Ruhlman lays

out a new vision for the Ag Department on Page 22. This new structure will provide more focused, expert agronomic advice to our growers, while providing an intensive look at beet receiving and storage. Having fewer areas of responsibility will allow our employees the ability to foster continuous improvement along with our shareholders. A cornerstone of the Ag Department is our outstanding research programs — this magazine highlights their excellent work.

As you make plans for the 2017 crop, I ask each of you to think about ways you can improve your crop. Unfortunately, we cannot control the weather or market prices, but we can control our effort in striving for the best. What new practices can you deploy to combat leafspot? How can you grow a bigger, higher quality crop? When everyone strives to do better, the Cooperative flourishes as a result of our combined efforts.

Good luck with your 2017 crop. ■



“Yields over the last decade have increased at an impressive rate. Agronomic practices, seed varieties, and weather all play a part in driving up tonnage. We expect these trends to continue and have made plans accordingly.”

“Our agronomy staff has sifted through loads of information, held meetings with agribusiness and farmers, and studied results from our research resources to come up with recommendations for next spring. We are fine-tuning our recommended spray program and are offering guidance on a customized program for those growers seeking it.”

COLLABORATING AND COOPERATING TO MAKE WISE CHOICES FOR 2017...AND BEYOND

by James Ruhlman, Executive Vice President

In reflecting on this past year's crop, many thoughts pass through our minds as we try to understand the end result. We all seek the answers to low sugar content and disease pressure that plagued us in the fall of 2016. Sometimes the answers are not readily apparent when there are so many factors that influence the final outcome and sometimes it takes longer to find solutions when the problem is more complex.

Unlike other commodity crops, we have the opportunity as a cooperative to pull many resources together to fully understand the issues at hand and come up with a remedy that can guide us in a direction next year that will help us prosper again. Farmers, agriculture staff, research partners, seed companies, agribusiness, and our management team all need to come together and collaborate so we have the necessary knowledge to make wise choices in the spring of 2017. We need to check personal egos and competitive thoughts at the door and collectively study the facts to arrive at thoughtful and fruitful answers.

As we look at our data internally, we see an unusual weather pattern that actually started last winter with historically warm temperatures. We never encountered that deep freeze that can sometimes kill off a disease before a spring planting. We had a summer with literally no rainfall for several weeks where the crop never had the opportunity to take in nutrients from the ground, which made the plant weak and more susceptible to disease and illness. We had wet and humid conditions in late August and early fall that allowed for leafspot diseases, and we had a very warm harvest season which allowed for continued plant growth, but not necessarily the storage of sugar. Weather and environment play a huge role every year in crop development, but this year, with a weak plant and high disease pressure, we found ourselves in a battle that we could not completely overcome.

One of my favorite all time quotes is “You cannot let fear of failure stop you from doing what's going to make you great.” I realize that there is some apprehension in the minds of some of our shareholders about next year's crop. Will the battle that we fought this year be the same battle next year? What will happen if we have the same weather next year as we did this year? Will leafspot appear again and hinder tonnage and sugar potential? The answers to these questions are MAYBE and MAYBE NOT, but one thing is for certain — spring will come, beets will be planted, and we should not let fear of failure consume our thought processes. We are smarter now. We will be better prepared, and we have the collective wherewithal to manage our risk next year.

By the time you receive this issue of *The Newsbeet*, you may have attended one of our Research and Production meetings. Our agronomy staff has sifted through loads of information, held meetings with agribusiness and farmers, and studied results from our research resources to come up with their recommendations for next spring. We are fine-tuning our recommended spray program and are offering guidance on a customized program for those growers seeking it. Those attending the meeting heard again about seed selection and diversification. We hope you came out of those meetings with optimism and hope for another successful crop. The following quote was shared at our district meetings and I would ask that it be your guiding principle as you prepare for spring:

“...Grant us the serenity to accept the things we cannot change, the courage to change the things we can, and the wisdom to know the difference.” — Reinhold Niebuhr ■

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The Trump Transition, and the Trans-Pacific

by Ray VanDriessche, Director of Community and Government Relations



A White House in Transition

In naming his Cabinet appointees, President Trump made it very evident that there is real potential for sweeping changes within a number of government agencies. He has made his views clear on what he believes is overreach, specifically pointing out the EPA's Waters of the U.S. Act (WOTUS) regulations which he has committed to rescind before they can be implemented. Those close to the Trump administration state that he will have a number of Executive orders that will be executed early in 2017 to rescind policies developed by the prior administration. Although his stance on agriculture policy has not been truly defined as of yet, his long list of agriculture advisors is an indication that he wants to have broad input from those directly connected with production agriculture and agribusiness. On January 18, after a month-long vetting process of potential candidates, President Trump chose former Georgia Governor Sonny Perdue to serve as Secretary of Agriculture. Perdue, who grew up on a cash crop farm and is a doctor of veterinary medicine, has a well-rounded agricultural background. With the Farm Bill renewal process already in motion, Michigan Sugar Company is looking forward to working with the new administration, our industry champions, and newly-elected legislators as we work through the 2018 Farm Bill discussions and other issues related to the sugar industry.

Trade Agreements

U.S./MEXICO SUSPENSION AGREEMENTS • In November of 2016, after a request by the U.S. sugar industry for a review of how the suspension agreements were working, the Department of Commerce determined that Mexico was not abiding by the true spirit of the terms of the agreement. At issue is the amount of sugar that is being shipped directly by Mexico to melt houses and bypassing U.S. refiners for further refining. This sugar does not fit into the true criteria of "raw sugar" and is not within the original intent of the suspension agreement, thus creating an over-supplied U.S. market. As of the writing of this article, the U.S. and Mexico governments, in conjunction with consultation of industry representatives from both countries, continue talks to resolve issues that violate the intent of the agreement. The Department of Commerce will issue its final administrative review reports on the agreement on April 4, 2017.



TRANS-PACIFIC PARTNERSHIP (TPP)

One of former President Obama's goals before leaving office was to exit with a legacy of his administration having negotiated and completed the Trans-Pacific Partnership (TPP) agreement. The TPP could provide tremendous export potential for the agriculture industry as well as other industries. The trade agreement did not receive the support of Congress before President Obama left office and was not completed. President Trump has indicated that he does not support the current terms of the TPP agreement and has signaled that he may be in favor of bilateral trade agreements instead going forward.

Biotechnology/GMO

GMO LABELING

After almost two years of debate following Vermont's passage of GMO labeling legislation, both the House and the Senate passed the Biotechnology Disclosure Bill in mid-July of 2016. The legislation pre-empts individual states from implementing state-by-state GMO labeling requirements. The labeling bill offers transparency of food ingredients while not stigmatizing the sound and safe science behind genetically engineered foods. The bill requires USDA to draft the implementation language/regulations within two years of the date of the passage of the bill. The USDA will be lobbied hard by those on both sides of the issue — those who want mandatory on-package labeling which signals apprehension and fear of the safety of the product versus those who are in favor of disclosure, but in a way that provides more thorough and scientific-based information. Your industry representatives will be working closely with the USDA to ensure that the implementing language abides by the true intent of the legislation.

STATE AND COUNTY GMO REGULATIONS

On December 9, 2016, the U.S. Court of Appeals for the Ninth Circuit issued a decision on whether federal and state laws supersede the authority of individual counties to regulate the use of genetically modified crops and pesticide use. The ruling declared, "The regulation of commercialized crops, both of GE and traditional varieties, remains within the authority of state and local governments." In addition, the Court also ruled that the

Trade Agreements Partnership...

U.S. Department of Agriculture (USDA) is the sole authority that can regulate field trials and experimental GM crops, which would usurp state or local governments from banning research of GE crops. Currently, Boulder County, Colorado, and individual communities in Hawaii, have bans on the planting of GMO crops.

Michigan Sugar Company Growers PAC Fund Support and the 2017 Fourth of July Fireworks Reception

The fireworks reception hosted by Michigan Sugar Company in the summer of 2016 at the Uptown Corporate Office location was very well received. At the end of the evening, many of the guests commented, "We enjoyed the fireworks, the food and visiting with others so much that we hope you are going to offer the opportunity again next year." As a result, Michigan Sugar Company will be hosting the reception again on Saturday, July 1, 2017, for those shareholders who contribute \$4.00 per acre to the Michigan Sugar Company Growers PAC fund and to eligible employees. Supporting the PAC fund at the top tier level provides an opportunity to enjoy the fireworks reception while, at the same time, increasing our industry's ability to educate legislators about the sugar industry.

President Trump has a majority in both the House and Senate which can offer some real opportunities for agriculture as well as some challenges. This makes it all the more critical that we have the ability, through legislative visits and education, to take advantage of opportunities while the door is open and push back hard on challenges that we may face in the farm bill debate. Your Michigan Sugar Company representatives will be on Capitol Hill in early March to do just that after the 115th Congress has had a chance to settle into their respective committees and leadership roles. ■



Ray VanDriessche, Michigan Sugar Company's Director of Community and Government Relations, is also a third-generation farmer in mid-Michigan. He travels to both Lansing and Washington D.C. often to follow and advise on political activity that will affect agriculture in Michigan.





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**NEW FEATURES
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PICTURE 1, ABOVE, 20X Active *Cercospora beticola* (Cercospora leafspot).

2016 PROVIDED AN ENVIRONMENT FOR A VARIETY OF SUGARBEET LEAFSPOT DISEASES

by David Pratt, Chief Agronomist, and Corey Guza, Ph.D., Director of Agronomy

Historically, in the Michigan/Ontario growing region, the primary leaf disease in sugarbeets has been Cercospora leafspot (*Cercospora beticola*, Pictures 1 and 2). In 2016, two other leaf diseases were present at high levels, Alternaria (*Alternaria brassicae* and *A. alternata*, Picture 3) and Bacterial (*Pseudomonas syringae*, Picture 4) leafspot. While the diseases can provide similar symptomology in sugarbeets, they are all quite different. Alternaria leafspot is a fungus like Cercospora leafspot while Bacterial leafspot is a bacteria as the name suggests. Since the pathogenicity and biology of the pathogens are different, management of the diseases and sugarbeet variety tolerance to each of the diseases is also different.

Alternaria and Bacterial leafspot have rarely caused economic loss prior to 2016 in the growing region. For this reason, little is known about the best chemical control measures for the two diseases. Cercospora leafspot, however, causes economic damage consistently each year and fungicides that have efficacy on the disease have been well studied.

In vegetable crops, copper-based fungicides have been documented to slow Bacterial leafspot disease progression, but the effectiveness of these products for use in sugarbeets is still in question. Vegetable growers have used copper-based fungicides, EBDC fungicides and Quadris products to try to manage Alternaria leafspot.

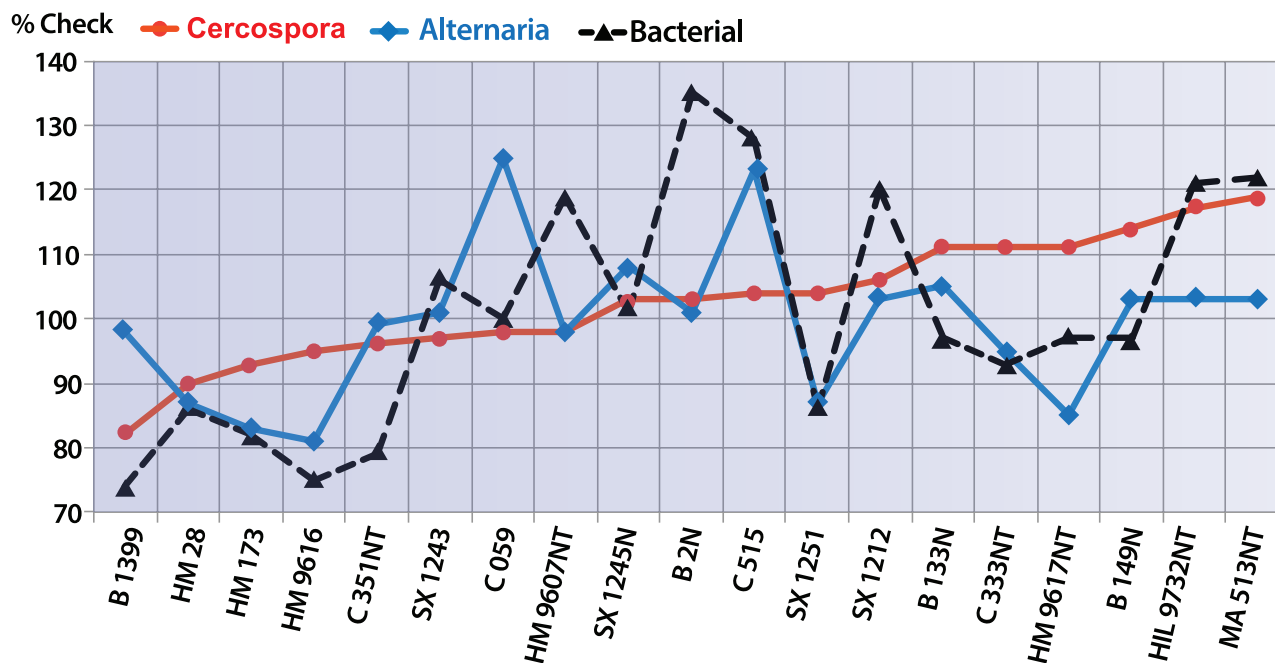
In 2016, Michigan Sugar Company was able to rate variety tolerance to Alternaria and Bacterial leafspot along with Cercospora leafspot. What was discovered is that differences in variety tolerance can be found for each of the diseases (Figure 1).

While there are quite a few differences between the pathogenicity and control measures of the three leafspot causing diseases, there are a few similarities. Each of them can spread rapidly in hot, high humidity conditions. Stress to plants, such as drought and nutrient deficiency favor disease development. Leaf damage, wilting that allows contact with the soil surface and splashing rains all provide opportunities for the disease to invade the plants.

Michigan Sugar Company was able to make a few general observations about the leafspot diseases in 2016. Cercospora leafspot was an issue, along with Alternaria and Bacterial leafspot. Many times, all three diseases were found on the same plants within a field. While it is not unusual to be able to find any one of the leafspot diseases in any given year, the added pressure of having all three provided the ultimate challenge for protecting the sugarbeet canopy.

continued on page 12

Figure 1. Varietal Tolerance to Cercospora, Alternaria and Bacterial Leafspot



Fields next to 2015 sugarbeet fields had a higher level of infection potential. A gradient of a higher to lower infection pattern could be observed in 2016 sugarbeet fields.

Growers applied fungicides more aggressively than ever before with five to seven applications being very common. The end result was good to poor depending on the field. While many growers were disappointed with the results, without the aggressive effort, the end result would have been much worse. On a positive note, even though many fields lost all of the original leaf tissue, the aggressive spray programs were very effective in protecting new leaf growth while slowing down leaf tissue loss. The intensive management allowed the plants to regrow new tissue at a rate similar to the original tissue loss thus keeping a green canopy on the plants the entire year.

There are numerous reasons for the severe leafspot infection in the 2016 crop. The heavy population of inoculum from last year's crop provided plenty of opportunity for infection to occur. Weather conditions for the months of August and early September were ideal for disease development, providing adequate moisture and temperatures for sporulation and infection. One of the more popular varieties proved to have a weakness to Alternaria leafspot, thus affecting many acres. Preliminary results from Michigan State University and USDA

ARS are indicating that *Cercospora beticola* is developing some level of resistance to the Triazole class of fungicides. Triazole fungicides, Inspire, Eminent, Proline and Topguard are currently the most effective products for protection. Data is very limited, but it is also believed that *Alternaria brassicae* and *A. alternata* also have some level of resistance to some fungicides. Michigan State University and USDA ARS are currently conducting fungicide resistance studies for both *Cercospora* and *Alternaria* leafspot to understand the situation more completely.

Applying fungicides now and in the future for these diseases is a very short-term strategy. We are working with the breeders to develop more resistant varieties, but unfortunately it takes time and better disease resistance usually has a negative impact on tonnage and sugar content, which complicates the issue.

A systems approach to managing leafspot disease challenges in sugarbeets can be very effective. Relying on one management tool may not provide the desired results, but using all the tools available will prove to be the most effective. Choosing the right variety can provide the first step to help manage the many diseases, followed by the proper crop protection products at the proper time. ■



David Pratt is Chief Agronomist at Michigan Sugar Company. He works with shareholders on agronomic practices. David joined the Company in 2015.



Dr. Corey Guza is the Director of Agronomy at Michigan Sugar Company. He works with staff to identify research opportunities, evaluate data and assists field consultants and growers with educational training and support. Corey rejoined Michigan Sugar in 2016.



PICTURE 2, LEFT, 20X
Active *Cercospora beticola*
(Cercospora leafspot).



PICTURE 3, LEFT, 20X
Alternaria brassicae and
A. alternata (Alternaria)
are fungus-like Cercospora
leafspot infections.



**PICTURE 4, LEFT AND ABOVE
AT 10X MAGNIFICATION**
Pseudomonas syringae
is a Bacterial leafspot.

VARIETY APPROVAL AND CERCOSPORA LEAFSPOT TOLERANCE:

by Jim Stewart, Director of Research

TABLE 1. VARIETY APPROVAL CHALLENGES IN THE ERA OF ROUNDUP READY®

YEAR	NUMBER OF FULL APPROVALS*	NUMBER OF SPECIALTY APPROVALS
2007*	16	1
2008	0	3
2009	0	7
2010	4	10
2011	10	12
2012	9	7
2013	11	5
2014	9	4
2015	11	6
2016	13	3
2017	12	3

Prior to Roundup Ready® almost all varieties had full approval. During the first few years of Roundup Ready® almost all varieties were specialty approved. In recent years most of the Roundup Ready® varieties are fully approved.

* No Roundup Ready® Varieties in 2007, almost all Roundup Varieties in 2008 and all Roundup varieties from 2010 on.

TABLE 2. CERCOSPORA, RWSA AND RWST LEVELS OF SELECTED VARIETIES, 2016 OVT DATA

VARIETY	STATUS	NEMATODE TOLERANT	% OF CHECK VALUES		
			CERC	RWSA	RWST
HIL 9879NT**	1st Year*	Yes	66	100	104
B 1399	Full	No	86	108	99
HM 9616	Full	No	90	94	103
C 351NT	Full	Yes	91	102	105
SX 1243	Full	No	100	103	101
SX 1251	2nd Year*	No	103	105	102
C 059***	Full	No	103	102	102
C 515	2nd Year*	No	104	102	100
SX 1245NT	Full	Yes	105	109	102
C 333NT	Specialty	Yes	108	105	99
B 149N	Full	Yes	109	106	98

*Varieties on approval track

**HIL 9879NT is a 1st year nematode tolerant variety with excellent Cercospora tolerance, high quality and acceptable yield

***C 059 had higher Cercospora levels than in previous years

Michigan Sugar Company growers produced a record tonnage sugarbeet crop in 2015, followed by another very high tonnage crop in 2016. Unfortunately, the same weather conditions that allowed for the record-setting tons also contributed to serious leafspot infections and a lower sugar content (Figure 1). For the past two seasons, we have experienced warm and wet fall weather which promoted Cercospora leafspot infections. The weather conditions in the summer of 2016 also caused Alternaria and Bacterial leafspot diseases to develop. Normally, Alternaria and Bacterial leafspot are not problems, but for the first time, the diseases caused significant damage to the sugarbeet crop. Another factor contributing to lower sugar content in 2016, was the extended drought. The abnormally dry weather conditions caused a situation in which higher amounts of nitrogen were stored in the soil until rains resumed the middle of August. After the rains, the crop canopy grew vigorously, right through harvest, contributing to the lower sugar content.

The lower sugar content in 2016 is the result of a combination of factors, including damage from leafspot, increased leafspot resistance to fungicides, excess soil nitrogen, and unfavorable late season growing conditions were all contributing factors. Michigan Sugar Company growers have been questioning if the varietal tolerance of currently approved sugarbeet varieties is strong enough to meet the leafspot and low sugar challenges that they face. A change to the variety approval process historically has been in response to changes in grower needs. In 2008, Michigan Sugar Company's Seed Committee approved varieties with lower tolerance to Cercospora leafspot, to allow nematode tolerant and Roundup Ready® varieties to be planted. In the first year of planting Roundup Ready® and nematode tolerant varieties, there were no fully approved varieties. In 2007, the previous year, 16 varieties were fully approved with most of the varieties having relatively good Cercospora leafspot tolerance (Table 1 and Figure 3). Three Hilleshog varieties, HM 27RR, HM 28RR and HM 29RR, were allowed specialty approval in 2008 and almost the entire crop was planted to these varieties, with a few growers planting Beta 1643N, a non-Roundup Ready® nematode tolerant variety. The Hilleshog varieties had adequate Cercospora leafspot tolerance, but sugar content was low. It wasn't until 2010 that HM 27RR became the first fully approved Roundup Ready® variety.

Between 2008 and 2011, Roundup Ready® varieties with very high tonnage and sugar content were being developed by Betaseed and ACH Seeds. The Michigan Sugar Company Seed Committee began allowing a limited number of these high-producing varieties to be grown as "Specialty Varieties." An approval plan was developed that allowed the high-producing, leafspot susceptible varieties to be grown short term, with a requirement that seed companies gradually bring Cercospora leafspot tolerance back up to 2007 levels by the year 2020.

Currently, Cercospora leafspot tolerance levels are being improved as yield and quality requirements are being raised (Table 2). Plant breeders are also incorporating nematode tolerance into a majority of our varieties. It appears that varieties will easily meet the 2020 RWSA (tonnage and sugar content) requirements, but it will be more difficult to meet the RWST (sugar content and purity) and Cercospora leafspot requirements. There are, however, several varieties on track that meet all of the goals, so the future looks promising to increase both disease tolerance and yield. Figure 2 illustrates the level of sugarbeet yield, quality and Cercospora tolerance, from the Official Variety Trials, from 2007 to 2016. On the graph, higher values are better for RWSA and RWST but lower levels are better for Cercospora leafspot. The graphed values are expressed as a percent of HM 28 instead of percent of check because HM 28 is the only variety that has been in the trials from 2007 until 2016. That makes HM 28 an ideal benchmark to compare the past to the present. The uptick in Cercospora levels in 2016 (OVT Data) was due primarily to better-than-average performance by HM 28 and below average performance from several other varieties in the 2016 Cercospora nurseries, possibly caused by Alternaria leafspot contamination in the trials (Figure 2).

A new plant breeding technique being used to improve sugarbeet varieties is called CRISPR-Cas9, and shows great promise for sugarbeet breeding. This technology uses "molecular scissors" which cut DNA strands at precise locations so genetic material can be added, removed or altered. CRISPR-Cas9 is a quicker and less expensive method for altering the plant genome compared to utilizing traditional GMO methods. Another important distinction between CRISPR-Cas9 and GMO is that resulting varieties are not considered to be GMO, a clear advantage from a sugar marketing standpoint.



Jim Stewart, Director of Research, coordinates the agricultural research activities at Michigan Sugar Company and specializes in weeds, disease and pest control, soil fertility, and other sugarbeet production practices. He has been with the company since 1999.

BETTER VARIETIES ARE COMING

The Michigan Sugar Company has made significant improvements in recent years. Sugarbeet yields have been increasing by approximately 0.75 tons per acre per year for the past 15 years. Sugar content had been slowly increasing until the recent downturns in 2015 and 2016. Rhizomania tolerance and adapting the Roundup Ready® system have been game changers for Michigan Sugar Company. Improvements in tolerance to other sugarbeet diseases and pests have also been important developments.

Looking ahead, two second-year varieties and a first-year nematode tolerant variety are on approval track. The nematode tolerant variety, from Hilleshog, also has significantly better leafspot tolerance than our current best leafspot tolerant variety (Table 2). This variety also has high RWST and acceptable RWSA levels. Variety improvement is a slow process and the Michigan Sugar Seed Committee is focused on aggressive variety improvement. Plant breeders have success developing varieties with high yield and good leafspot tolerance, or varieties with high quality and good leafspot tolerance, but putting all three together can be a challenge. Seed companies are confident, however, that they will achieve the Seed Committee's approval goals. ■

FIGURE 1.
Growers Tons Per Acre and % Sugar from 2000 to 2016

Data from Michigan Sugar Company grower records

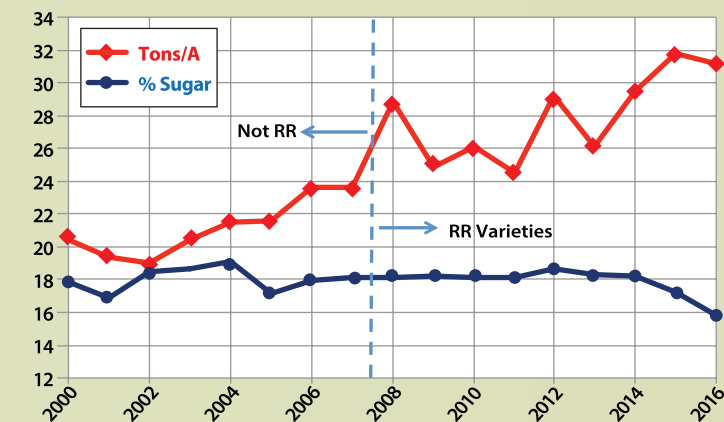


FIGURE 2.
Sugarbeet Yield, Quality & Cercospora Tolerance
OVT Trials, 2007-2016

Potential yield and quality of varieties in the absence of disease or other problems. Cercospora varietal tolerance is determined in high disease level (inoculated) trials.

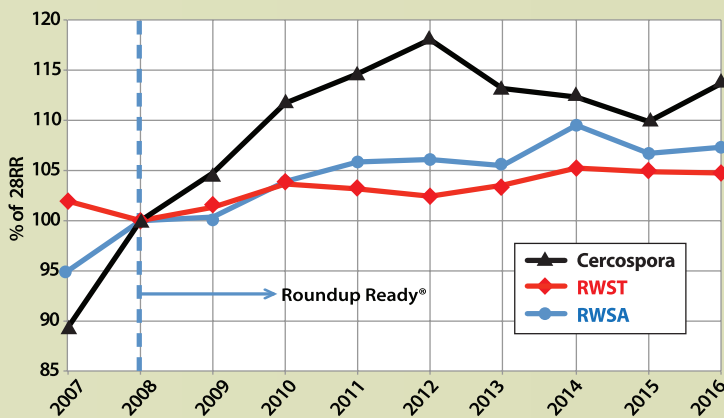
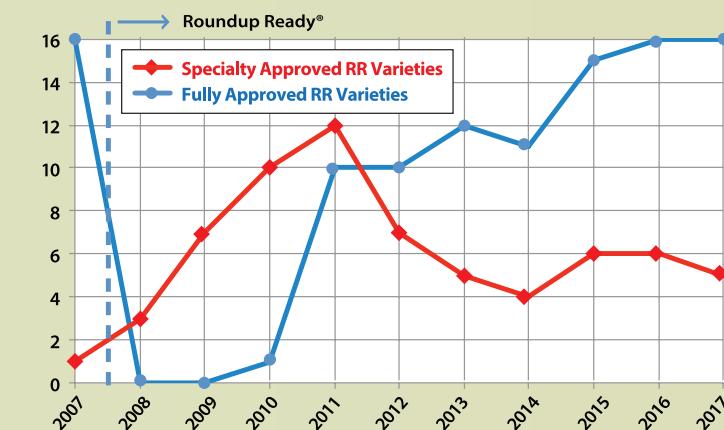


FIGURE 3.
Number of Full and Specialty Approved Varieties, 2007-2017

Before Roundup Ready® (RR, 2007) there were 16 fully-approved varieties and one specialty variety. For the first two years of RR production we had no fully approved varieties. The first fully-approved RR variety came in 2010. A large number of specialty approvals were needed to ensure seed supply.



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WHAT HAPPENED TO SUGAR IN 2016?

by Steve Poindexter, Senior Sugarbeet Educator, Sugarbeet Advancement, MSU Extension

Trying to explain everything that happened to sugar content in the 2016 growing season may be difficult and not conclusive. Research has found that maximizing beet quality (% Sugar) and recoverable sugar per acre (RWSA) involves more than a dozen controllable factors (see REACh Management Guidelines for Improving Sugarbeet Quality). To complicate matters, sugarbeets react to differing environmental situations that "Mother Nature" gives us each year. These will include the amount of rainfall, temperature, the length of the growing season along with disease inoculum level. Depending on the year, each factor can have varying degrees of impact on yield and quality.

Other sugarbeet growing areas in the Midwest also experienced a significant slide in sugarbeet quality. In the Michigan Sugar Company official variety trials, where leafspot was well controlled, sugar content was also lower than normal. The same is true in the Sugarbeet Advancement variety trials this year. This is an indication that environment played a big factor along with leafspot disease levels.

IN 2017, GROWERS WILL NEED TO BE VIGILANT AGAINST LEAFSPOT BY:

- **Tightening spray schedules and always tank mixing different chemistries.**
- **Applying fungicides later in the season, justified when an extended fall occurs.**
- **Utilizing more leafspot tolerant varieties if they are a good fit for selected fields.**
- **Re-examining their nitrogen rates to make sure they are not unnecessarily high.**

There is no doubt that leafspot issues in 2015 and again in 2016 played a large role in reduced quality. Many of our most popular varieties are fairly susceptible to leafspot. Going into the 2016 growing season, *Cercospora* inoculum levels were very high from the 2015 infestation. After the first week of August, rainfall occurred weekly causing DSVs on BEETcast® to increase daily at a high rate for several weeks. Prolonged wet leaves are the perfect environment for all leaf diseases including *Alternaria* and Bacterial leafspot. Even though growers were aggressive with fungicide applications, leafspot diseases were able to get a foothold, and many fields were defoliated. Michigan Sugar Company's research had found that early defoliation will significantly reduce tonnage and sugar content up to 2%.

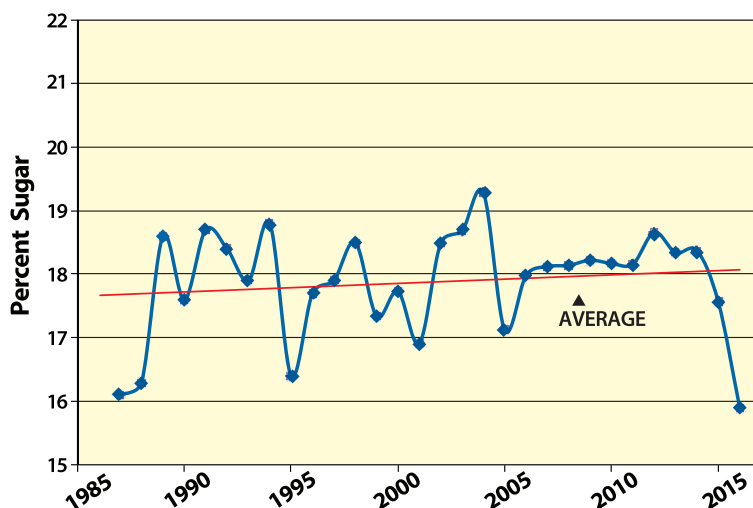
Early season droughty conditions, coupled with a warm extended fall, also had a significant part in lower sugars. Sugar storage to the roots is stimulated in the plant as temperatures cool during the fall. Extended periods with cold nights and sunny cooler days provides the best conditions for sugar storage. Cold temperatures coupled with nitrogen depletion in the soil also reduces the stimulus for plants to continue to grow.

The first half of 2016 had very dry conditions which reduced early growth and did not allow for the normal amount of nitrogen uptake. Additionally, growers have been increasing nitrogen rates over the past several years in response to higher yields, even though research has found that higher rates may not be economically justified. Nitrogen, not used early, was then being carried over in the second half of the growing season when rainfall returned. This extra nitrogen availability, coupled with a very warm and extended fall, stimulated plant growth. Sugarbeet plants with healthy foliage did not go light green this fall as is normally seen. Those plants that had burned down were also trying to produce foliage which actually used sugar. Abnormal warm temperatures put us well into November before we had the first killing frost.

As we look into the 2017 growing season, growers need to be aware of the increased risk for leafspot. Disease inoculum levels will be high from high levels of *Cercospora* in the 2015-16 growing seasons. Given the right environmental conditions, this problem can repeat itself. The climate is changing, allowing for higher intensity storms, warmer conditions, and extended growing seasons. Fungicide resistance has developed in strobilurin fungicides and is increasing in the other chemistries. Until new leafspot tolerant varieties enter the market, the majority of the highest yield potential varieties are fairly susceptible to leafspot disease.

There certainly are other factors that can play a role in lower sugar that are not being discussed in this article. In 2017, growers will need to be vigilant against leafspot by tightening spray schedules and always tank mixing different chemistries. Application of fungicides later in the season are justified when an extended fall occurs. Utilize more leafspot tolerant varieties if they are a good fit for selected fields. Growers should also re-examine their nitrogen rates to make sure they are not unnecessarily high. With sugar prices relatively low and nitrogen cost fairly high, economics will change the most cost-effective rates. ■

Figure 1. Michigan Sugar Company Grower Sugar 1986-2015

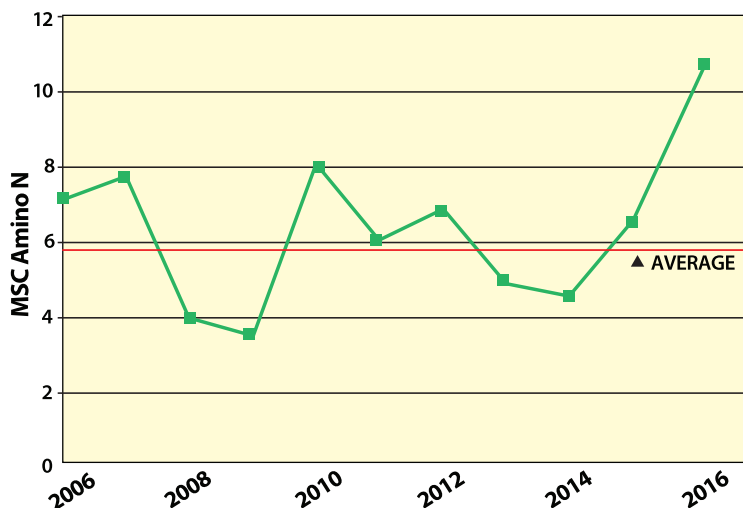


Steve Poindexter is the Senior Sugarbeet Educator with Sugarbeet Advancement, MSU Extension. Steve has been with the Extension since 1980 and served as Director of Sugarbeet Advancement since 1997.



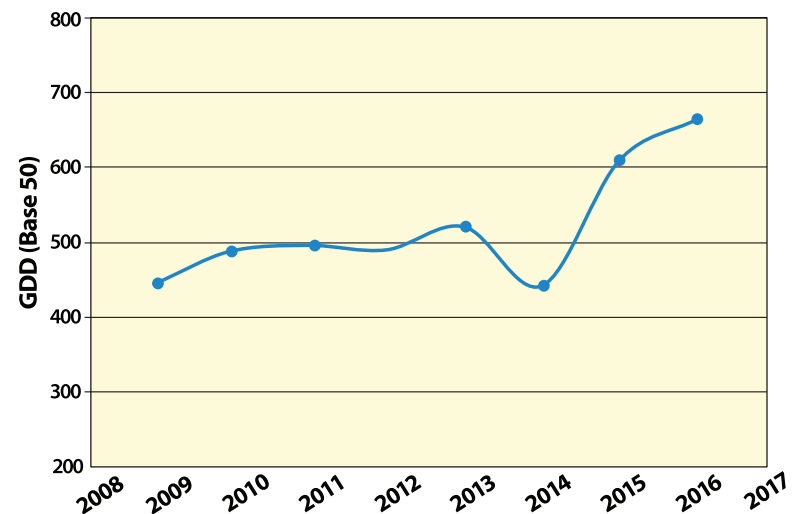
ABOVE Genetic differences in variety susceptibility to Cercospora leafspot.

Figure 2. Quality Sample Amino N* 2006-2016



NOTE: Amino N was 78% higher than the average of 5.9, 2006-2015

Figure 3. Accumulated Growing Degree Days,* September and October, 2009-2016



NOTE: Growing Degree Days (Base 50) were 33% higher than the average of 499 from 2009-2015.



ABOVE Jim Roggenbuck, and his wife, Stacey, are from Harbor Beach, Michigan, where they live with their children, Justine (17), Madison (15), Kade (12), and Colin (11).

GET TO KNOW YOUR BOARD

James Roggenbuck, Harbor Beach, Michigan Michigan Sugar Company Board of Directors

Our newest Board member, Jim Roggenbuck, and his wife, Stacey, are from Harbor Beach, Michigan, where they live with their children, Justine (17), Madison (15), Kade (12), and Colin (11).

They raise 1,500 acres of sugarbeets, and rotate corn, edible beans, wheat, and feed 1,600 head of cattle. They also own and operate a farm in Lincoln, Michigan, where they raise edible beans and wheat.

The farming operation, Helena Farms, is comprised of Jim and Stacey and their children; Jim's parents, Michael and Patricia; Jim's brother, Doug and his wife, Debbie, and their children, Shaun and Krista. That makes three generations working on the farm, every day!

Jim said he has always liked farming, but finds it even more enjoyable now that his children are helping. He loves teaching them things around the farm, and seeing the pride show on their faces when they are able to work independently. He appreciates the faith his parents put in him and his brother, Doug, and wants to teach his own children the same values they learned.

Jim and Stacey's children are very active in sports, but also very interested and involved in the farm. They operate the grain cart, help with the sugarbeets, moving straw bales to storage in the summer, picking rocks, and working with the cattle. With Shaun and Krista (Doug's children) working on the farm, it helps them feel more comfortable and excited about farming.

Jim says he barely remembers a time without sugarbeets on the farm. His father has been growing sugarbeets since the early 1960s. Jim has fond memories of going to the field as a kid and watching the harvest. He's been in sugarbeet production since he was a teenager; starting with cultivating the sugarbeets during summer vacations from school and later moving into all aspects of the crop. Sugarbeets have been important to the growth of their farm and largely responsible for why he is able to farm along with this next generation. Jim feels growing sugarbeets enabled his parents to give him and his brothers and sisters many opportunities and continues to enable his own family to expand their farm and allows for his children to remain involved in the operation into the future.

Prior to his election to the Michigan Sugar Company Cooperative Board, Jim served on the East District Board since 2007, as its District President. While on that board, he also served on the Political Action, Youth Advisory, and Grower Relations Committees. He was recently nominated and served one year on the Michigan Bean Commission. ■



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Lewis Farms LLC: Six Generations of Growing Sugarbeets

By Glenn Martus, Agriculturist

Charlie Lewis and his wife, Gwyn, are fifth generation sugarbeet growers. Charlie recently has transitioned to operating the family farm started by his great-great-grandfather, Charles Lewis in 1876. Charlie's parents, Marty and Carol Ann, were the previous operators. They raised three children; Charlie, Dan, and Karen. Karen spent a summer working with Luther Markwart at the American Sugarbeet Growers Association in Washington, D.C., through the Bill Cleavinger Summer Internship Program. She earned her PhD in Business Administration (Agribusiness) and is currently a Professor at the University of Tennessee. Dan also received a PhD in Business Administration (Agribusiness) and works for Price Waterhouse Cooper in Atlanta, Georgia.

Shortly after the Croswell sugar factory opened and the North Street Station was established, Lewis Farms grew their first crop of sugarbeets; however, there was a brief hiatus from sugarbeet growing from 1954 until 1962 while they tilled their farm to improve the sugarbeet crop. Today, Lewis Farms grows on 1,150 acres of owned and rented ground, which includes 450 acres of sugarbeets, 400 acres of corn, 200 acres of soybeans, and 100 acres of wheat. In addition to crop farming, Lewis Farms raises approximately 850 head of Holstein cattle that they purchase as feeder cattle and sell as finished animals. To help with the busy farm, Charlie has four employees, Chris McNaughton, Charlie Kunisch, Steve Eldridge, and Dennis London. The farm has enjoyed the benefits of Roundup Ready® sugarbeets and having beets as a "mortgage lifter." They are grateful for the value the Political Action Committee (PAC) contributions have had on sugar payments and the sugarbeet industry in general. While farming and specifically the sugarbeet industry, have had challenging times, Charlie and Marty are both proud of what the farm and Michigan Sugar Company have become.

Many may recognize the name Marty Lewis and for good reason. Marty spent 15 years on the Croswell District Board and served five years on the Cooperative's Board of Directors; one year as Vice Chairman. Marty was also one of founding fathers of Sugarbeet Advancement, serving as its Chairman. Charlie is following in Marty's footsteps in serving the agricultural and sugarbeet industries. Charlie first served on the St. Clair County Farm Bureau Board from 2001-2010. Then in 2010 he became a UPI District Representative; however, in 2013 Charlie dove in with both feet. It was then that he was elected to the East District Board of Michigan Sugar Company where he presently serves. As part the District Board, he is also a member of the PAC and Seed Committees. Also in 2013, Charlie joined the St. Clair County Soil Conservation District and the St. Clair County FSA County Committee.

The sixth generation has begun with Charlie and Gwyn's two children, Lorelei (3) and Edwyn (10 months). Although they are still too young to work on the farm, they love going for rides in the farm tractors and trucks and watching the cattle. Someday, they will have the opportunity to carry on the long and proud tradition of farming and growing sugarbeets on Lewis Farms. ■



ABOVE, LEFT TO RIGHT

Charlie (holding Edwyn), Gwyn, Carol Ann (holding Lorelei), and Marty Lewis.

RIGHT, LEFT TO RIGHT

Lorelei, Charlie, and Edwyn enjoying a ride in the beet truck.

BELOW, LEFT TO RIGHT

Charlie and Marty Lewis, Charlie Kunisch, Chris McNaughton and Steve Eldridge.





LEFT & ABOVE
*Working hard to harvest topped
sugarbeets on Lewis Farms LLC
during fall 2016.*



BUILDING STRONGER FOUNDATIONS

Restructuring Our Ag Department

by James Ruhlman, Executive Vice President

As we look at the future of our Agriculture Department, we have decided to make changes in the way we are structured in order to best serve our shareholders and to be more focused and effective in our areas of responsibility. We have identified four Pillars for Progress and each pillar will have identified goals and dedicated resources.

THE FOUR PILLARS OF PROGRESS:

Agronomy/Crop Consulting, Beet Delivery and Storage, Research, and Shareholder Engagement.

AGRONOMY/CROP CONSULTING

With the recent hiring of Dr. Corey Guza as our Director of Agronomy, we have a tremendously talented and highly respected leader who will guide our agronomy group which will include all agronomists and field consultants (formerly titled agriculturists). The field staff will no longer report to the agricultural managers as in the past. They will all report to Dr. Guza and get the same direction, guidance, and advice, which will allow for more focus and a more consistent message to our shareholders.

BEET DELIVERY AND STORAGE

This Pillar of Progress will be led by two key players in our department — Ag Operations Manager Keith Kalso and Ag Maintenance Manager Jon Zuzga. Keith will be responsible for all trucking contracts, execution of early delivery, management of Maus contracts, the beet diversion schedule, and many other miscellaneous duties. Jon Zuzga will oversee maintenance at all piling grounds, piling ground operations, and beet storage. Reporting to Jon will be a newly-created position which replaces the former ag manager position; ag maintenance and piling ground supervisor. Robert Bucholtz has filled this position in Sebawaing and currently an opening for this same position exists in Croswell.

RESEARCH

Jim Stewart, our Director of Research will continue to lead this Pillar as in the past. Along with Brian Groulx, he will continue to expand and improve our Official Variety Trials (OVTs) and foster the important relationships with our partner universities, Sugarbeet Advancement and our Seed Committee. Immediate focus areas for this group include leafspot management, seed approval with Cercospora resistance and nitrogen management.

SHAREHOLDER ENGAGEMENT

This Pillar will be led by Becky Wark. She is the voice for the Ag Department when it comes to answering questions on technical support, shareholder concerns, and harvest delivery information. She is also responsible for leading the Young Farmers Program and our Youth Project. I look for much continued growth and progress in this Pillar during the years to come.

We look to the future with optimism, hope and promise as we embrace our new direction and our new structure. ■



James Ruhlman, Executive Vice President, oversees the agriculture, information technology and packaging/warehouse operations areas of the company. He began working at Michigan Sugar Company in 1983.

AG DEPARTMENT

AGRONOMY/CROP
CONSULTING

BEEF DELIVERY
AND STORAGE

RESEARCH

SHAREHOLDER
ENGAGEMENT



PICTURED ABOVE, CLOCKWISE FROM TOP LEFT

*Dr. Corey Guza, Director of Agronomy; Keith Kalso, Ag Operations Manager;
Becky Wark, Shareholder Engagement; Jon Zuzga, Ag Maintenance Manager.*

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continued on page 20



GETTING READY FOR LARGER HARVESTS: CROSWELL FACTORY RECEIVES UPGRADES

By Kenneth Bennett, Michigan Sugar Company Factory Manager

This past summer, Michigan Sugar Company's Croswell, Michigan, facility underwent the first phase of an ambitious five-year plan to upgrade the factory's slicing capabilities from 4,000 tons per day to 6,000 tons per day rate. It was decided that the best course of action was to strengthen the sugar-end capacity of the factory first, and the initial projects reflected that aim.

Michigan Sugar already owned a 1600 ft³ white pan from the closure of the Carrollton facility. That pan had recently been re-tubed when it was used during the last few years of Carrollton's operations so it was in good condition to re-use immediately. The old bank of Western States-G-8 white centrifugals from the 1960s was removed and salvaged for parts. Three new Western States 1700 kg white centrifugals were purchased and the installation began.

The day after the campaign ended, work started immediately. The entire north end of the sugar factory was removed and new columns, structural steel, concrete floors, and galvanized upper decking was constructed. Carrollton's white pan was hung in place next to the two existing white pans, with new piping, condenser, agitator and control systems added. Plus the new bank of white machines was installed with a completely new motor control center and new PLC-control room for the entire sugar end.

It took over 90,000 feet of wiring to completely rewire the sugar-end equipment and add in the third white pan, along with three new white centrifugals. At first, it seemed like an insurmountable task, but with a lot of effort and patience, the project was completed close to the projected end-date with very little rework of the wiring needed.

In addition to the major sugar-end project, Michigan Sugar purchased two new Western States continuous high-raw machines to increase the capacity of the raw side of the sugar end. Croswell's maintenance department decided to take on the task of installing the machines instead of contracting the work out. They took advantage of the opportunity to replace the 30-year-old structural steel under the old machines. All of the structural steel, concrete flooring, piping and wiring of the new machines was done in-house. Work was completed a couple of weeks early, allowing plenty of time for test-out.

One key beet-end project tackled in the first year was a new Putsch First Carbonation tank for juice purification sized for the future capacity. This design employs

more efficient gas distributors and internal juice mixing to create a better treated and stable juice. This project was also on track for an early completion until the trucking company bringing the completed tank base to Croswell tried to fit a 14'6" load under a 14' bridge, wedging the tank base into the bridge! Thankfully, the tank manufacturer quickly built another tank base, so the first carb tank project could be kept on schedule. The construction crew finished up the pipework with a couple of days to spare before slice startup. Due to the sheer scale of work across the five months, final insulation on the new tank, white pan and extensive piping was completed while the factory was operating.

After a slower start to the new campaign while all of the new equipment was commissioned, the factory has run very well at a much higher slice rate than in previous years. The second phase of the Croswell upgrade is already underway with orders placed for a new juice softening system plus a new 17-piece segmented bull-gear with an extra fifth drive for the tower diffuser. These two improvements will make the factory more reliable from the diffusion extraction tower system all the way through the evaporation station. The juice softening system will essentially eliminate the need to slow the factory down and boil out evaporators.

Separately, the warehouse operation is already breaking ground for a new high speed, industrial granulated packaging line that will double the volume of product produced at Croswell. This new line will include a new packaging machine, robotic palletizing machine, metal detection, check-weighing capabilities and stretch wrapper, all built into one line! The last project for next summer will be to install a Solex vertical sugar cooler and a new dust collection system to help condition and cool the increased sugar throughput to a better storage temperature! ■

PICTURED AT RIGHT, TOP TO BOTTOM:

- Outside wall of the sugar-end under demolition
- Wiring the Motor Control Center for the sugar-end
- A portion of the 90,000 feet of wire installed
- New white pan
- New Western States white centrifugals
- Outside of sugar end, ready to go!



Kenneth Bennett is the factory manager at Michigan Sugar Company's Croswell facility. Ken joined the company in 2010 as Croswell's factory superintendent. Before joining Michigan Sugar, Ken was the factory manager at Western Sugar Company (Billings, Montana), and has worked in the sugar industry for 35 years.





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Our Preparations for

by Mark Flegenheimer, President and Chief Executive Officer

“A combination of strategic capital investments, better asset utilization, and acreage reduction programs have allowed Michigan Sugar Company to efficiently receive, store, and process these larger crops.”



Handling a Large Crop

In the last 10 years, we have seen a steady increase in yields of about a three-quarter ton per year. With consistently increasing tonnage, the Cooperative has had to develop a multi-faceted approach to handling this extra volume. A combination of strategic capital investments, better asset utilization, and acreage reduction programs, have allowed Michigan Sugar Company to efficiently receive, store, and process these larger crops.

In 2004, Michigan Sugar Company issued 175,000 acres to be planted. Through a series of acreage buyback programs, retirements, and cutbacks, the Co-op has reduced plantings by 15,000 acres. This acreage reduction, along with extended campaigns, allowed the company to process in excess of 30 tons per acre.

Running the four factories 30 to 45 days longer than the previous norm required a large investment in beet piling and storage equipment. Since 2005, nearly \$20 million has been invested in pile ventilation equipment, which allows over 800,000 tons to be stored at more optimal temperatures. This ventilation allows the Co-op to store and process beets until late March. In addition to extending the "back end" of the campaign, Michigan Sugar Company developed an enhanced early delivery program which compensates growers for delivering beets in late August through mid-October. These programs better utilize the assets while generating more income to be disbursed to the growers. With very high fixed costs in the sugarbeet industry, it is critically important that throughput is maximized.

In order to manage the acreage base at the current 160,000, the Company is increasing daily slice capacity in Croswell to process higher yielding crops. Located in our eastern growing region, where acreage and yields are the highest, the Croswell facility is well situated to handle additional tonnage while minimizing freight costs. A five-year, \$60 million plan has been approved to increase slice by 50 percent. This planned 2,000 ton per day increase will handle an additional 400,000 tons. Currently in year two of the plan, upgrades have been made to the boiler, switching from coal to clean burning natural gas, white centri-fugals, pan floor and carbonation. ■



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Proper Use of Chemicals

MINIMIZING UNINTENDED CROP DAMAGE

Each year, growers have damage to their crops from unintended pesticide applications. These applications can result in yield loss and in some cases the crop may not be harvestable due to a lack of product labeling for the crop. Following are some strategies to help reduce the risk of unintended pesticide applications:

- **ALWAYS READ AND FOLLOW LABEL DIRECTIONS.** Labels contain excellent information related to sprayer tank and boom cleanout. Labels also contain information on how to reduce drift and note setback requirements for sensitive crops.
- **USE A DRIFT-REDUCTION AID.** There are some excellent products available that reduce pesticide drift. They are relatively inexpensive and reduce drift significantly.
- **CLEAN OUT THE ENTIRE SPRAYER.** When cleaning a sprayer, be sure to clean all screens and pumps. Material can harden on screens and slowly release after multiple applications. The spray pump is typically one of the lowest points on a sprayer. Be sure it is free of product as part of the cleaning process.
- **CLEAN OUT THE SPRAYER IMMEDIATELY AFTER APPLICATION.** If a pesticide is left in a tank overnight, product can settle out and absorb into tanks and lines. Quick cleanout helps reduce that risk.
- **ONLY STORE PRODUCTS IN THE ORIGINAL CONTAINERS.**
- **BUY PRODUCTS FROM TRUSTED SOURCES.** Many agribusinesses have safeguards and standards that ensure their products are pure and of high quality. Be sure to ask your agribusiness professional about their standards and processes to reduce the risk of an unintended pesticide reaching your crop. ■





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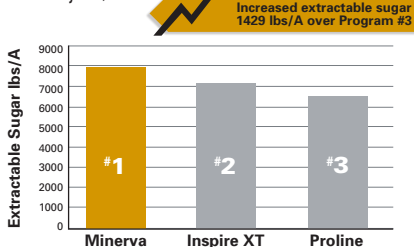
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WISE CHOICE FOR CERCOSPORA LEAF SPOT CONTROL

Minerva Field Report

2015 Southern Minnesota Beet Sugar Cooperative
Sugarbeet Cercospora Leaf Spot Trial
Location: Raymond, MN



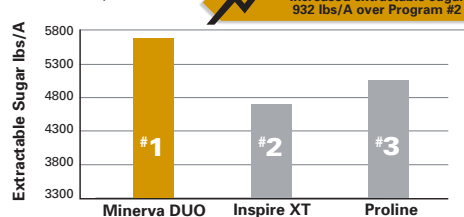
Fungicide Program:

- #1 Minerva™**
1st Application: Minerva (13 oz/A); 2nd Application: Super Tin (8oz/A) + Manzate® (1.5 lb/A); 3rd Application: Headline (9 oz/A)
- #2 Inspire XT®**
1st Application: Inspire XT (7 oz/A); 2nd Application: Super Tin (8oz/A) + Manzate® (1.5 lb/A); 3rd Application: Headline (9 oz/A)
- #3 Proline®**
1st Application: Proline (5.7 oz/A); 2nd Application: Super Tin (8oz/A) + Manzate® (1.5 lb/A); 3rd Application: Headline (9 oz/A)

Minerva contains tetraconazole, the standard for Cercospora Leaf Spot control.

Minerva Duo Field Report

2015 Michigan State University Sugarbeet
Cercospora Leaf Spot Trial
Location: Richville, MI



Fungicide Program:

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1st Application: Minerva Duo (16 oz/A); 2nd Application: Super Tin® (8oz/A) + Manzate® (1.5 lb/A); 3rd Application: Headline® (9 oz/A)
- #2 Inspire XT®**
1st Application: Inspire XT (7 oz/A); 2nd Application: Super Tin (8oz/A) + Manzate (1.5 lb/A); 3rd Application: Headline (9 oz/A)
- #3 Proline®**
1st Application: Proline (5.7 oz/A); 2nd Application: Super Tin (8oz/A) + Manzate (1.5 lb/A); 3rd Application: Headline (9 oz/A)

Minerva Duo combines tetraconazole with TPTH, bringing together two proven fungicides in one easy-to-use solution.



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High Sugar Producers



ABOVE Ron Mossner receiving his award from Central District President, Mike Richmond.

CENTRAL DISTRICT • RON MOSSNER

Ron Mossner is the 2016 award winner for the highest sugar per ton (RWST) in the Central District at 275.36 pounds. Ron's name is on the winning contract, but his brother and partner, Mark, is equally involved in all aspects of their farming operation. Even though these two young farmers claim there was nothing special about their growing practices in 2016, they did win this same award in 2013.

Moldboard plowing of cornstalks is their standard practice on this winning farm in Saginaw County. Ron claims this method of tillage not only conserves soil moisture, it promotes a healthy, thick, stand in 22-inch rows.

Planting as early as the ground will allow is a standard practice with the Mossner Farm and last year was no exception. April 19 was the date they placed American Crystal C-RR059 in the soil at a rate of 68,000 seeds per acre with emergence occurring within ten days, followed by a normal spring growing season. Quadris was placed in-furrow at planting and also sprayed at the eight-leaf stage for effective Rhizoctonia control. Nitrogen and potash were applied in the fall and spring, with liquid row starter at planting. The remaining nitrogen was applied in early May. June and July brought us hot, dry conditions and even though the effectiveness of the fungicide applications were questioned, the Mossners stayed true to a program and applied Inspire, Super Tin, and Topguard plus Super Tin at regular intervals. An EDBC fungicide was added to the first three applications. A 20-20-20 foliar fertilizer was also mixed with the fungicides to help green the leaves and increase fungicide uptake. Insects were never a problem throughout the growing season.

This winning contract was harvested on or about November 9, in normal harvest conditions, and delivered to the Blumfield receiving station.



ABOVE Chad, Todd, and Jeff Holdwick, the East District High Sugar Producers.

EAST DISTRICT • HOLDWICK ACRES, LLC

The East District High Sugar Producer for Crop Year 2016 was Holdwick Acres, LLC, of Harbor Beach, Michigan. Holdwick Acres, LLC, is a partnership consisting of three Holdwick brothers; Todd and his wife, Chrissy; Jeff and his wife, Wendy; and Chad. The 145-acre field grown just south of Harbor Beach, near M-25, had a RWST of 294.97, a 19.41% sugar, and yielded 36.68 tons per acre. It was planted on April 21, 2016, to American Crystal C-RR059 seed variety and harvested on November 12, 2016.

Holdwick Acres, LLC, farms approximately 3,000 acres each year. They plant about 600 acres of sugarbeets on a four-year rotation along with corn, beans, and wheat. Holdwicks plant their sugarbeets in 30-inch rows with a 24-row White planter and harvest with a 6-row Red River harvester. They primarily try to follow wheat with sugarbeets in their planting rotation. Holdwicks also maintain about 800 head of beef cattle on the farm at all times. When asked what they do to get such exceptional results, they credited good variety selection and careful attention to fertilization requirements of the crop. They are firm believers in sidedress nitrogen testing. Some fields require very little or no additional nitrogen application beyond that which is put on with the planter. Cover crops also contribute to overall soil health in their operation, along with manure generated from the beef cattle. Holdwick's Cercospora leafspot control program incorporates the BEETcast® model along with label recommendations. They like to begin spraying when the BEETcast® model reaches approximately 45 DSVs, and then closely monitor the DSVs accumulated as well as follow label directions of the fungicides being applied. Lastly, they added that late harvest also helps in boosting sugar content.

They are also partners in Triple Sweet Loading, LLC, which owns and operates a Maus field-loading operation in the area. All of Holdwick's regular delivery beets are loaded, cleaned, and delivered via the Triple Sweet operation.

Receive Recognition

WEST DISTRICT • REIF FARMS, INC.

To win the high sugar award in the West District in 2016 you had to do some things right, and that is exactly what happened for Gary and Mark Reif of Reif Farms, Inc. Managing 525 acres of sugarbeets and harvesting over 1,000 acres is no easy task. It seems there is a different challenge around every corner. Adding to the fact that the pressure has intensified in terms of fungal and bacterial diseases leaves not much time to relax.

Mark spends many hours in the sprayer, and this year it paid off with healthier beets and an award-winning RWST of 284.38 pounds with an 18.83% sugar.

In the fall of 2015, Reifs disk-ripped cornstalks on the winning Saginaw County farm to make the ground ready for as early a start as possible. The planting date was April 20. Gary planted Beta 149N at a rate of 63,000 seeds per acre in 22-inch rows. Quadris was applied, in furrow, along with a liquid row starter of 28 percent applied 2 by 2. Spring showers were timely, emergence was excellent, and soon after planting, rows were visible and counts were well over 180 beets in 100 feet.

Spraying for Cercospora leafspot began in early July with an EDBC fungicide. Fourteen days later, a regular and consistent spray program followed, even though beet leaves at times were laying rather flat due to very warm and dry conditions. Fungicide tank mixes were applied after the initial EDBC application and where applied as follows: Proline plus EDBC, Inspire plus EDBC, Supertin plus EDBC, and Topguard plus Badge in that order, along with a sticker spreader that was added in all applications. With the fall being unseasonably warm and dry, the Reifs could afford to wait until November 12 to harvest this fine crop.

With the current challenges in the sugar market, paying attention to details makes the difference. ■

Congratulations to all of our high sugar producer award recipients – Ron Mossner, Holdwick Acres, and Reif Farms – for their high sugar achievements in 2016!




BELOW Dean Haubenstricker, West District President, awards the High Sugar Producer Award to David Reif representing Reif Farms.



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Youth Project Award

For those not familiar with the Youth Sugarbeet Project, it is a great program for our youth to focus on fostering education about sugarbeets and the agriculture industry, as well as skill development, meeting new people, and incorporating “fun” into the program. Participants have the opportunity to learn and develop skills while being recognized and awarded for their accomplishments.

To help better educate the participants, this year the program was divided into three age groups:

- Group A – Grades 3-5
- Group B – Grades 6-8
- Group C – Grades 9-12

The Youth Sugarbeet Project had 135 participants in 2016; Central District had 59, West District had 34, and East District with 42 (33 in the U.S. and 9 in Ontario). Participants were required to complete an Ag Report, complete a test and interview, attend and participate in the Youth Field Day, as well as take sugarbeets/poster to the fair or to participate in a scavenger hunt.

The 2016 Annual Youth Sugarbeet Project Trip was held on June 30 at Dow Diamond. The group of 150 watched the Great Lakes Loons take on the Lansing Lugnuts. Despite giving up four runs in the ninth inning, the Loons held on to win. Much appreciation and recognition goes to Andy Bernia and ACH Seeds for a \$2,000 sponsorship to help offset the costs of the trip to watch the Loons. They also provided customized baseballs to all of the participants.

This year’s Field Day was held on July 14 at the Saginaw Valley Research and Extension Center near Frankenmuth. Over 90 participants took part in this year’s event that was organized by age groups. Learning stations included Insects, GMOs, Careers in Ag, Safety, and First Aid, in addition to interviews and a test to round out the day. New this year, we also had a game station where participants were able to play bean bag toss, ladderball, and various Minute-to-Win-It games while they waited to interview or take their test. Also, a huge thank you to Andy Bernia and ACH Seeds for providing all of the Field Day participants with free t-shirts.

The Youth Project Award banquets were held in January in the various district areas to reward the participants for their hard work. Participation in Field Day and local fairs, as well as scoring on testing, interviews, and the Ag Report, determined the winners from each area. By having the participants in age groups, they were able to compete against just their age group. In Group A (3-5 grades), the participant with the highest points earned the Premier Award. In Groups B and C (6-8 grades and 9-12 grades), the top 20% were awarded High Honors while the participant with the highest points was awarded the Prestige Award. All participants received some great gifts for participation, with the Premier, Prestige, and High Honor winners receiving additional special award prizes.

We thank all of the students who participated in this past year’s program, as well as their parents who encourage them to learn more about the importance of our industry. ■



Hannah Leen and Kara Maurer



Alex Smith and Andrew Smith



Jeremy Hecht and Katie Ratajczak

STUDY FOR A CAREER IN AGRICULTURE CLOSE TO HOME.

Delta College and Michigan State University have joined efforts to offer regionally relevant agricultural training programs for careers in some of Michigan’s highest demand industries. Students will benefit from dual enrollment at both institutions with all courses delivered in the Great Lakes Bay Region.

This unique partnership allows students to earn a certificate from the MSU Institute of Agricultural Technology (IAT) while working toward an associate degree from

Delta College. Students will be able to complete the associate degree and certificate in just two years and financial aid is available to help with tuition expenses at both schools.

By working together, Delta College and MSU are able to offer these specialized training programs for high-demand jobs close to home and at a lower overall cost. Graduates will be prepared for rewarding job opportunities in agriculture or transfer to continue their education.

Currently, 50,000 agriculture jobs open up every year, but only 25,000 students graduate from agriculture schools each year. Delta College is partnering with educational, business and industry leaders to help fill the gap in qualified employees.

MSU currently has six other partnerships similar to Delta around the state. ■

FOR MORE INFORMATION CONTACT

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Website: www.iat.msu.edu

Winners



Nathan Flanagan

EAST DISTRICT

Group A Premier: Nathan Flanagan
(Neil & Jessica Flanagan, Deckerville)

Group B Prestige: Hannah Leen
(Mike and Julie Leen, Carsonville)

High Honor: Lindsey Learman and
Abigail Guza

Group C Prestige: Kara Maurer
(Duane and Diane Maurer, Harbor Beach)

High Honor: Matthew Leen and Justine Roggenbuck

CENTRAL DISTRICT

Group A Premier: Braden Richmond
(Mike and Kelly Richmond, Bay Port)

Group B Prestige: Alex Smith
(Jeff and Sandi Smith, Bay Port)

High Honor: Mitchel Karg and TJ Bernia

Group C Prestige: Andrew Smith
(Jeff and Sandi Smith, Bay Port)

High Honor: Hans Bierlein, Eric Mossner,
Aaron Maust, Jennifer Smith and Cassandra Keinath

WEST DISTRICT

Group A Premier: Kendra Ratajczak
(Chris and Karla Ratajczak, Munger)

Group B Prestige: Katie Ratajczak
(Chris and Karla Ratajczak, Munger)

High Honors: Riley Newbold and Adam Spero

Group C Prestige: Jeremy Hecht
(Timothy and Gloria Hecht, Saginaw)

High Honor: Josh Haubenstricker
and Chris Ratajczak, Jr.

CANADA

Group B Prestige: Brady Bustin
(Shawn & Krista, Croton, ON)

Group C Prestige: Lauren McKerrall
(Rob & Maureen McKerrall, Chatham)

High Honor: Emma Richards



Braden Richmond



Kendra Ratajczak



Brady Bustin



Lauren McKerrall

After obtaining input from parents and past participants, we have made some changes and enhancements to the program, maintaining our focus on fostering education about sugarbeets and the agriculture industry, as well as skill development, meeting new people, and incorporating "fun" into the program.

NEW PROGRAM DETAILS

Participants grouped by grade level based on 2017-2018 school year:

- **GROUP A** — Grades 3-5
- **GROUP B** — Grades 6-8
- **GROUP C** — Grades 9-12

Effective for 2017 Project Year: Graduating seniors may not participate the summer after their senior year, but will be encouraged to join the Young Farmer Program.

YOUTH PROJECT REQUIREMENTS (100 POINTS)

- Ag Report (replacing the project book) 30 points
- Test (group appropriate) 25 points
- Interview (group appropriate) 25 points
- Attend and participate in the Youth Field Day 10 points
- Participant's Choice / Complete 1 of 3 options 10 points
 - Participate in the Scavenger Hunt
 - Create a sugarbeet exhibit to present at the fair
 - Poster presentation on sugarbeets/industry at the fair

Since participants will be learning with other participants in their age group, all groups will be recognized and rewarded for their accomplishments. Awards will be distributed on a per district basis as follows:

- **GROUP A:** The top 20% wins High Honor; The participant with the highest points will receive a Premier Award
- **GROUP B:** The top 20% wins High Honor; The participant with the highest points receives the Prestige Award
- **GROUP C:** The top 20% wins High Honor; The participant with the highest points will receive the Prestige Award

YOUTH PROJECT EVENTS

- Annual Summer Trip
- Youth Field Day, Saginaw Valley Research and Extension Center
- Awards Banquet in January 2018

LOOKING FOR

Kids who Love Agriculture. Join the Youth Sugarbeet Project!




Have fun, learn about agriculture, sugarbeets,
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Kids in grades 3-12 can join!

Participate in a summer trip, field day,
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RIGHT, TOP TO BOTTOM

Families were able to check out farm equipment and explore the farm; Farm owners/partners, Dave Rupprecht, Jeff Schluckbier, and Marty Zwerk, were hosts of the special event; The turnout and support was fabulous!

BREAKFAST ON THE FARM

by Landon Zwerk, Zwerk and Sons Farms

On August 13, 2016, we here at Zwerk and Sons Farms had the unique opportunity of hosting the Breakfast on the Farm (BOTF) event. This event, headed by the Michigan State University Extension Office, was one of two BOTF events held in 2016. Whereas the majority of these events have previously focused on the livestock industry, our event was geared toward the crop production side of agriculture. The purpose of this event was to provide members of the community an opportunity to learn about agriculture and see what Zwerk and Sons Farms is all about. There are numerous misconceptions surrounding modern agriculture, so it was our mission to show people some of the practices, technology, and equipment that we use to safely, efficiently, and effectively grow the food that they see in the supermarket and, in some shape or form, on their dinner plates.

With monthly meetings beginning in January 2016, we collaborated with the Michigan State University Extension team and a few members of local agriculture businesses to begin planning for the event. MSU Extension BOTF coordinator Ashley Kuschel, led the way in turning an extremely daunting task into a successful event. In the months that followed this first meeting there was a lot to be done. There was constant communication with vendors and businesses, a steady flow of people coming in and out of the shop, deliveries of supplies, washing equipment to put on display, and cleaning the shop (lots of cleaning). Additionally, we still had farming and trucking matters to tend to. Although, with everyone's hard work, coordination, and a little help from God, we were ready; or so we thought.

On the morning of August 13, Mother Nature threw us a twist. We had planted wheat in the field surrounding our shop the previous year with plans for it to serve as a parking lot on the day of the Breakfast; however, the night before the big event, it started to rain. This rain made the field too sloppy to use as a parking lot, forcing us to resort to Plan B. Luckily, we secured the use of four buses to transport people to and from the parking lots at Vassar Public Schools and St. Michael's Lutheran Church. Despite this setback, the event was a great success. A wonderful breakfast provided by Bavarian Inn fed 2,490 people who poured in from 48 different counties across eight different states. After eating breakfast, people were sent through a maze of vendors and business representatives designed to educate them on all different facets of agriculture. There were vendors representing nearly every local commodity group, chemical and seed companies, implement dealers, agricultural service providers, along with many more. The educational experience continued outside. We had six crop plots (sugarbeets, corn, soybeans, white wheat, navy beans, and a cover crop mix) prepared to allow people to physically see and touch the crops that they may see growing in the fields throughout their communities. All of these plots were surrounded by farm equipment, showing people what machinery is associated with which crops. There was also a kid's tent that included games and activities to get them interested in agriculture.

After taking a step back, we began to realize what a neat experience this was for our farm to be a part of. It was unbelievable the way our community came together to make this event possible. We had over 275 volunteers helping out, doing everything from directing traffic and serving food to handing out flyers and taking out the trash. The entire Vassar High School football team came out to support us, as well as countless volunteers from community businesses, numerous farmers throughout the area, and neighbors just hoping to lend a hand. Aside



from the manpower required to undertake an event like this, there was also a financial aspect to consider. Thanks to the 79 businesses who sponsored the Breakfast in some form or another, we were able to raise enough money to fully cover the cost of the event. While it was certainly a considerable amount of work for us as a farm, we could not have done it without the help and support of the MSU Extension Office, our surrounding communities, and countless individuals and businesses in the agriculture industry. We hope everyone enjoyed their Breakfast on the Farm experience as much as we enjoyed hosting it! ■

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CONGRATULATIONS 2016 ACH SEEDS SUGAR BOUNTY WINNERS!

**2016 MSC EAST DISTRICT
HIGH SUGAR PRODUCER**
Holdwick Acres LLC
294.97 RWST
Crystal RR059

**2016 MSC CENTRAL DISTRICT
HIGH SUGAR PRODUCER**
Ron and Mark Mossner
275.36 RWST
Crystal RR059



To learn how to participate in the 2017 Sugar Bounty Program, contact your ACH Seeds independent sales agent or Andy Bernia, Region Manager, at 989-751-2744 or abernia@achseeds.com.





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