

MICHIGAN SUGAR COMPANY • SUMMER 2014



THE NEWSBEET

A Glimpse into the Future of Agriculture

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of high-tech innovations



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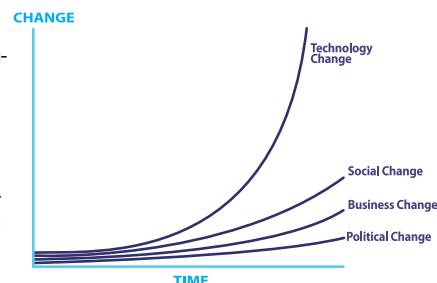
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Moving Fast Toward the Future

Nothing is changing at a faster pace than technology. The chart at right shows how rapidly technology is changing relative to other aspects of our lives. It is scary at times. It is also awe inspiring. The power, speed, accuracy and reliability that technology provides is something Michigan Sugar must exploit in order to move our Co-op forward. Its use throughout our Co-op, from factory operations to tracking warehouse inventories, has already had a profound impact on our ability to maximize efficiencies while allowing us to remain competitive.



One area of our business that has seen a major amount of technological advancement is agriculture, whose explosive growth is likely to continue at an even more rapid pace. Commonplace now are variable rate fertilizer programs, biotech enhanced seeds and GPS guided auto-steer tractors. What will the future bring? How long will it take?

The next wave of high-tech innovations will be thrust upon us more quickly than the previous advancements. While we do not want to be on the bleeding edge of technology at Michigan Sugar, we must be open to and embrace these developments. Our Crop Record system, GPS mapped fields and online contracting have provided us with a strong foundation upon which we can leverage new innovations. In the near future, it is conceivable that our agriculturalists will be scouting fields with Unmanned Aerial Vehicles (UAV) and uploading those images to growers' crop records shortly after the drone returns to earth. UAV technology will allow for faster and more precise recommendations to be made to our growers which will improve yields and profitability.

As growers and the Co-op try to squeeze out cost saving improvements on the farm and in our factories, having a solid understanding and open mind to technology is essential.

As we sit here today and look back at how weeds used to be managed with micro rates and hand labor, we cannot imagine how we could grow a profitable crop without biotechnology. In 10 years from now, we will again look back and say "I can't believe we used to _____" — the possibilities are endless when you think about how to fill in that blank. Technology is going to create opportunities and efficiencies we cannot imagine today. This issue of *The Newsbeet* explores some of those possibilities.

Technology can be intimidating, but when you harness its power, it can be an amazing tool with enormous benefits. ■

THE NEWSBEET

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Crop Update

A Promising Growing Season

By Paul Pfenninger, Vice President of Agriculture

It will take a little luck and some good fortune to reach our five-year average yield of 26.03 tons per acre and reach our 4,000,000 ton goal, but with the genetics we have today and the technology and knowledge of how to produce a good quality crop, we are still very hopeful and excited about the summer growing season.

Wow! What a long, drawn out and challenging 2014 planting season. If we only knew then what we know now, we may have pushed a little harder under the more marginal conditions back in late April and early May. Below is a summary of progress starting with the first field planted on Friday, April 11, 2014.

Planting Period	Acres Planted During Date	% of Total
April 11 – April 20	1,394	0.09%
April 21 – April 27	17,016	10.6%
April 28 – May 4	53,256	33.2%
May 5 – May 11	94,135	58.7%
May 12 – May 18	109,749	68.3%
May 19 – May 25	122,748	76.0%
May 26 – June 2	155,992	97.0%
June 3 – June 8	160,639	100.0%

As a good point of reference, Mother's Day was celebrated on Sunday, May 11. There were many fields being planted on that particular day. The same was true for Memorial Day weekend — it was a very busy planting time as well. In summary, the planting season was as follows:

Planting Period	Acres Planted	% of Total
Month of April	51,572 Acres	32%
1st week of May	12,240 Acres	8%
2nd week of May	45,199 Acres	28%
3rd week of May	8,598 Acres	5%
4th week of May	35,971 Acres	23%
Month of June	6,321 Acres	4%


Persistent and occasionally substantial daily rains provided a challenge this planting season. For most of our beet growing area, we experienced 11-13 days of rainfall in April and another 9-12 days of rain in the first 20 days of May! We measured 3.99" – 4.63" of rain in April and another 2.36" – 3.62" in early May.

It was not until May 23 that we experienced our first prolonged period of dry weather and growers took advantage of this period to finish planting the last 42,000 acres for the 2014 season. After this ten-day dry period, we received our first "welcomed rain" on June 2. This rain helped the emergence of beets that were previously planted.

The beets planted in April are in excellent shape, followed by very good beets that were planted before mid-May. It is the last 25% (40,000 acres) of this year's crop that will either make or break our 2014 season. If we get the right rainfall and ample sunshine, we still have the potential to reach our 4,000,000 ton goal. It will take a little luck and some good fortune to reach our five-year average yield of 26.03 tons per acre, but with the genetics we have today and the technology and knowledge of how to produce a good quality crop, we are still very hopeful and excited about the upcoming summer growing season. ■



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Update: Washington

We are All Part of the Political Process

By Ray VanDriessche,
Director of Community
and Government Relations

Industry Focus is on Stopping Excessive Mexican Imports

With the Farm Bill challenge past us, the sugar industry has turned its focus on getting the U.S. sugar market back in balance. Excessive imports of sugar from Mexico in recent years has caused a significant drop in prices and lost revenues to U.S. producers and processors. As a result, members of the U.S. sugar industry filed anti-dumping/countervailing trade cases against Mexico with the United States International Trade Commission (ITC) and the Department of Commerce on March 28. The petitions stated that by selling dumped and heavily subsidized sugar on to the U.S. market, Mexico has harmed U.S. producers and violated U.S. trade laws. On June 9, in a public release of the preliminary determination of the trade cases, the ITC found merit to the petitions filed by members of the U.S. industry and is actively investigating the claims. The industry anxiously awaits a final ruling on the trade cases by the ITC and Department of Commerce.

Labeling Legislation

Proposed legislation to require labeling of GMO products continues to be debated and voted on in a number of states with Vermont being the first to pass the legislation. Although it will not be implemented immediately, the Vermont labeling law is already having a negative impact across the food chain with large users of biotech products claiming the end user is requiring them to switch to non-GMO products. With the momentum building for required labeling of GMO products across the country there is great concern by many in the agriculture industry about the far-reaching impact of this legislation. Consumers who do not understand the science behind biotechnology traits in agricultural commodities will very possibly be misinformed or misled by the required labeling. GMO technology providers, the Grocery Manufacturers Association, and commodity organizations are working feverishly to keep individual states from passing their own labeling requirements. If labeling is going to be required, it should be one standard across the U.S. with input from both sides of the issue working together to develop acceptable criteria for labeling requirements. Although GMO products in our food chain have been around for over 25 years, much time and effort is now being dedicated to educate the public about the years of testing by the FDA to address health and food safety before the products can be released to the market. The general public does not seem to realize the ability to feed an ever-growing world population can only be possible through the use of biotechnology-advanced agriculture.

The Elections Are Coming! The Elections Are Coming!

The August Primary elections are right around the corner and shortly thereafter the November general elections will determine who will be representing you and voting on legislation that will determine the profitability of your operation. Primary elections which have already been held in a number of states have shown some stunning defeats of very high profile politicians who have been unwilling to work with other legislators in their own party or across party lines to pass much needed legislation. Voters who are tired of the road blocking and lack of compromise by party extremists have shown that their vote can and does make a difference!

You have the same ability and I can't say it enough — **Get out and vote!** ■



Scenes from Legislative Day in Lansing



Growers and employees of the Michigan Sugar Company and the 2013 Michigan Sugar Queen, Victoria Hudgins, visited the Capitol this past January for Legislative Day.



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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Dry: Because the Joker is a minimum tillage tool, it only affects the top layer of soil, which helps retain moisture. Plus, the Roll-Flex finishing system consolidates the soil to help prevent moisture loss and erosion.

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Online Contracting Yields Wealth of Data

By Paul Pfenninger, Vice President of Agriculture

In 2014, we rolled out our first year of online contracting which required everyone to sign a Designated Electronic Signature (DES) and contract online. The "rollout" is now part of our history, and, with the few tweaks that have been made, we will have a smooth transition from 2014 to 2015 contracting.

Along with the contracting online, we also asked growers to fill out information regarding various aspects of this year's crop, and we have pulled some historical information from previous years' Crop Records to provide the information (see tables at right) about our practices and our potential.

This is just a sampling of the power grower information has if we can get good and complete information from our Crop Records. Historically, we can watch trends as they occur and use the information to drive better production numbers.

There is so much information to be gleaned from Crop Records, but we first need to increase our participation rate to add value to the numbers we produce. As our confidence builds in our recordkeeping system, we can track tons per acre and beet quality and reinforce the practices that are working on the farm and move away, as much as possible, from the practices that historically take away from over-all sugarbeet production.

As technology improves, we need to take advantage of all the information that is available to us. We do not have a crystal ball to know what farming will be like in 10, 20 or 30 years, but it is a safe bet new technology will lead the way. Capturing data today will help us track and reach new heights in the years to come. ■



Field Tile:

No tile	2,207 Acres	1.5%
20' tile or less	8,761 Acres	5.5%
30' tile	41,618 Acres	26.0%
40' tile	50,449 Acres	31.0%
50' tile	40,567 Acres	26.0%
60' tile	6,346 Acres	4.0%
Over 60' tile	9,475 Acres	6.0%

Row Width:

	2014	2013	2012	2011
Narrow 20" - 22"	40%	40%	39%	24%
Wide 28" - 30"	60%	60%	71%	76%

Previous Crop:

Corn	36%
Soybeans	17%
Dry Beans	10%
Alfalfa	1%
Wheat	18%
Wheat & Oilseed Radish	3%
Wheat & Clover	10%
Cucumbers	2%
Other	3%

Self-Propelled Harvesters 2014:

Agrifac	2
Grimme	1
Holmer	9
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TOTAL	49



Paul Pfenninger, Vice President of Agriculture, has been with Michigan Sugar Company for 32 years.



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Planning for Retirement? Don't Bet the Farm!

By Keith Harder, CFP, Rehmann

It's hard to pick up a newspaper these days without reading about the dismal state of retirement planning in the U.S. Studies show that a majority of American households risk having insufficient income to maintain their standard of living in retirement.

Farm owners are not immune from the impending retirement crisis, but they do have a bit of a head start: Typically, they own substantial income-producing assets — farmland — which can act as sort of a “built-in” retirement plan. After they retire, many farm owners are able to live off the rental income from their farmland.

This can be an effective strategy, but farmers who rely primarily on their land to finance their retirement may be taking on excessive risk. They may also be missing out on the potentially significant benefits associated with traditional financial and retirement planning tools.

Have a Plan

No matter what your current situation, it's critical to have a financial plan. Without one, you'll be in the dark about your chances of achieving your retirement goals. Many people are shocked, when they first consult a financial advisor, to learn that they're in danger of outliving their assets.

By projecting your income and expenses and putting together a budget, you can get an idea of where you stand. Armed with this information, you can take

actions — such as cutting expenses or shifting your assets into investments that can provide a greater return — to improve your odds of living a comfortable retirement.

Diversify

Farm owners may want to heed the old adage, “don't put all your eggs in one basket.” Although the rental market for agricultural land may be relatively stable, tying up your wealth in one type of asset leaves you vulnerable in the event of a downturn. Also, real estate is an illiquid asset, making it difficult to tap your wealth for short-term needs or emergencies.

A better approach may be to develop a comprehensive financial plan that incorporates basic investment, tax-planning, and risk management principles. Chief among these is diversification. By spreading your investments across a variety of asset classes (including land), you can enhance your returns with the goal to reduce risk and volatility in your portfolio. (Keep in mind, however, that diversification doesn't guarantee a profit or eliminate the risk of loss.)

It may be appropriate for your plan to include asset allocation among stocks, bonds, and cash. The right asset allocation strategy depends on the returns you'll need to achieve your goals; your time horizon — that is, when you'll need the funds for short- and long-term needs; and your tolerance for risk.

Invest in Tax-Advantaged Retirement Plans

Farmland can be a good investment. But by reinvesting all of your excess income in land you not only increase your risk, but you also miss out on potential opportunities to slash your tax bill by stashing money in tax-advantaged retirement-saving vehicles.

This year, for example, you can deduct up to \$5,500 in IRA contributions (\$6,500 if you're 50 or older). A qualified retirement plan, such as a SEP-IRA or 401(k) plan, allows you to set aside as much as \$52,000 in tax-deductible contributions (\$57,500 if you're 50 or older). Deductible contributions to pension plans can be even higher.

Keep in mind, however, that if you set up a qualified retirement plan and you have full-time employees (other than your spouse) you'll have to make contributions on their behalf as well.

Start Early

It's never too late to plan for retirement, but the earlier you start, the greater your chances of success. A financial advisor can help you put together a well-balanced plan designed to generate the returns you need to achieve your goals with an acceptable level of risk. ■



Keith Harder, CFP, is a Financial Advisor with Rehmann and has extensive experience in the field of financial planning. Since 1996, he has worked with individuals in creatively building financial strategies that strive to help them fulfill their financial goals. He is a graduate of St. Olaf College in Northfield, Minnesota, with a Bachelor of Arts degree in economics and religion.

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Traveling Down the Road of Change

Looking at the Transformations in Sugarbeet Production Technology

*By Steve Poindexter, Senior Sugarbeet Educator
Sugarbeet Advancement, MSU Extension*

With the opportunity to work in production agriculture for over 34 years, it has been exciting to watch the technological changes that have occurred. In the last 15 years, changes in sugarbeet production have been very dramatic. The new technological advancements have added incremental improvements in efficiency, yield, and quality. Michigan Sugar Company growers have rapidly incorporated the new technologies. Results from the last seven years show that Michigan growers have upped their sugar content to more than 18% and, in the last 15 years, have averaged a half ton per acre yearly increase in yield.

Sugarbeet seed improvements have occurred, including: genetics, processing, treatments, and priming. Certainly the most remembered change was the introduction of RoundUp Ready® seed, which revolutionized sugarbeet weed control. Genetic improvements in yield, sugar content, and disease/pest resistance, including nematode tolerance, have also been dramatic. The ability of seed companies to identify and process high quality seed has also improved. All seed is now pelletized and primed, which allows better seed spacing, rapid emergence and more consistent stands. Multiple new seed treatments have been introduced that include systemic insecticides and fungicides that offer better control of seedling diseases.

Fertilizer applications have been fine-tuned allowing producers to apply variable rate fertilizer and lime. Many nitrogen fertilizer products are now available that offer slow release or other means to prevent loss. The importance of fertilizer placement has been shown and most growers are using a 2 by 2 placement of starter fertilizer. Years ago, dry granular fertilizers were mostly used and liquids have now become predominate.

Tillage practices and crop rotations have also changed greatly. Fall moldboard plowing was the normal practice and sugarbeets were planted following a low residue crop such as dry beans. This has been replaced with some form of fall chisel plowing/ripping with about 40% of the crop following corn. Advancements made in planting equipment have allowed us to plant sugarbeets successfully in high residue cornstalks or cover crops. Not only is this good soil conservation practice, but makes sugarbeet blowouts much less frequent. Stale seed bed planting, reduced secondary tillage, and no cultivation are now normal practices.

Disease/pest management in sugarbeets has also changed dramatically. Growers are now able to use BeetCast computer modeling to better time spray applications for control of Cercospora leafspot. Rhizoctonia can now be managed through variety selection and applications of Quadris in-furrow and/or foliar. Sugarbeet cyst nematodes used to be only managed by long rotations. Today, nematode tolerant varieties, along with planting of oilseed radish as a trap crop, have brought poor producing fields back to profitability.

RTK, smartphones, and harvesting equipment all have been relatively recent technological changes. RTK technology has allowed growers to precisely yield map fields, apply fertilizer, and operate equipment through auto-steer. The internet and its availability by smartphones and tablets have made information available at your fingertips at any time of the day or night. This technology has revolutionized agriculture and will continue for the foreseeable future. Significant improvements have been made to all sugarbeet harvesting equipment by reducing tare and increasing harvest efficiency. Self-propelled beet harvesters are now commonplace and sugarbeets are commonly placed in clamps on the end of the fields.

In the future, technological improvements in production and equipment are expected to continue to arrive at a steady pace. Often these improvements may only benefit sugarbeet production in small increments; however, implementing a number of small changes in combination will result in significant impacts that will improve productivity, profitability, and efficiency. ■



Steve Poindexter is the Senior Sugarbeet Educator with Sugarbeet Advancement, MSU Extension. Steve has been the Director of Sugarbeet Advancement for 15 years.



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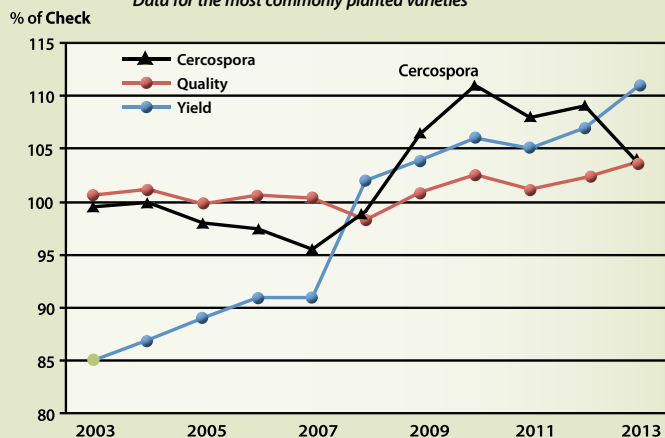
Tapping into Technology

By Jim Stewart, Director of Research

Sugarbeet yields have increased significantly over the past ten years. In recent years, we have focused more on improving sugarbeet quality and disease tolerance. Cercospora leafspot became more of a problem when Roundup Ready® varieties were adopted, however, Cercospora tolerance is now improving as new varieties are approved. Figure 1 illustrates the long-term trends for sugarbeet yield, quality and Cercospora tolerance.

The research program also focuses on agronomic research, including nitrogen management, pest control, emergence, plant populations, planting date and row spacing. Developing and implementing best management practices for Agronomic production challenges is essential to producing a profitable crop.

Figure 1. Michigan Sugar Company Official Variety Trials Yield, Quality and Cercospora Trends, 2003 to 2013
Data for the most commonly planted varieties



In order to maintain a viable research program, up-to-date research equipment and procedures are essential. Conducting research trials is time consuming, expensive and specialized equipment is often needed. The Cooperative has been generous in providing the Research Department with equipment and manpower to conduct these trials. This article will discuss technological advances being utilized by the research program.

We purchased a new Monosem 12-row research planter a few years ago. This planter is computer controlled and much more efficient than the previous research planter. With this new planter, workers pour seed into small hoppers when prompted. The seeds go through a splitter (1 packet for a 2 row plot) and into the planting units. The seed plates are advanced and the plots are planted. Six plots (12 rows) are planted at one time. At the end of the plots, leftover seeds are vacuumed out. However, before the seeds are sucked out, workers have poured seed in the hopper for the next six plots. This automated planting cycle is repeated as the planter moves through the field. The planter does not stop until it is at the end of the trial. Workers wear voice activated radios to reduce the chance of mistakes. The tractor for the planter is equipped with RTK auto steer so that when turning around the planter will be in the correct spot to start planting again. An OVT trial can be planted in one to two hours. With the previous planter, it took all day to plant an OVT.

Agronomic trials are planted with a Monosem six-row research planter. This older planter has been completely rebuilt and modified for research. It vacuums out seed boxes and advances the seed plate like a research planter. We can also apply in-furrow treatments, 2x2 fertilizer treatments, dry pesticide treatments and inoculum for disease trials. The controls for changing seed varieties, spray pressure, band width (T-Band) and spray treatments are shared by several workers and are easy to use. This planter does,

The purpose of the Research Department is to improve sugarbeet yield, quality, disease tolerance and production practices on a continual basis with an ultimate goal of increasing income to growers and to the Cooperative. Without ongoing research, sugarbeet production would stagnate as production costs increase. On average we work on about 20 different farms and conduct around 75 research trials each year.

however, need to stop after each plot while seed, settings and/or chemicals are changed. The tractor used with this planter is equipped with an RTK guidance system.

Because of the efficiency of our new planters, we can plant more trials than we can harvest with our two-row plot harvesters. This fall, we will harvest with a new six-row sugarbeet plot harvester that was built by Ike's Welding. This harvester is designed for speed and accuracy and will harvest three times faster than the two-row harvesters. As plots are weighed, the data is printed and stored to a database. A detailed description of the six-row harvester can be seen on page 16 in this issue of *The Newsbeet*.

A tractor mounted test plot sprayer is used for agronomic spray trials. Spray trials are typically six rows wide and 35 to 40 feet long, with four to six replications. The center four rows of each plot are used for data collection while the outside rows provide a buffer area between plots. The sprayer is mounted on a 35 horsepower JD tractor. The tractor drives down the rows in the buffer area between plots. The sprayer has two separate spray booms and applies treatments to two plots at one time. Chemical treatments are mixed at the trailer and poured into one liter spray bottles (one bottle for each individual plot). The bottles are lined up on the sprayer in the order to be sprayed. The worker shakes the bottles then pours them into one gallon stainless steel spray tanks and sprays the plots. The sprayer is powered by compressed air. Controls for operating the sprayer are shared by the tractor driver and the sprayer operator. Most test plot sprayers have issues with chemical treatments settling out before they are applied, however, with this design the treatments are sprayed immediately after being poured into the spray tanks and settling out does not occur. Trials can be sprayed quickly with this plot sprayer and the chance for mistakes is reduced, because of the overall design. Workers use the proper protective clothing, including respirators, while operating this sprayer.

Our laboratory equipment has also been upgraded. We normally test around 40 varieties for the seed companies and fill approximately 15,000 seed packets each year. A seed counter and gram scales are used to fill the seed packets. Small bottles of pesticides for weed, disease and insect trials are pre-measured in the lab to improve accuracy and reduce exposure. A chemical hood with an exhaust fan is used as a work station while measuring chemicals. This system limits exposure to workers and has a built in spill containment system. We use GPS and surveying equipment to lay out plots so that they will be square to the field and easy for our workers to locate. Smart phones are utilized by the research staff to keep track of weather conditions while out working and iPad tablets are used to download protocols and other information to ensure the accuracy of our work.

To analyze test plot data, we utilize a computer program called ARM (Agricultural Research Manager). ARM is a commonly used statistical program utilized in agricultural research. The program analyzes plot data for treatment means and calculates LSDs, CVs, and other parameters. The program also creates plot plans and spray sheets which ensures proper randomization and accurate spray applications. Most chemical companies use ARM and we frequently exchange trial protocols and data electronically. Greg Clark, the company Agronomist, has access to the ARM program which helps him stay current with our research activities. All trials conducted by Michigan Sugar Company are in the ARM database and trial reports can be generated quickly and easily.

Technological advancements are coming quickly and we need to utilize new processes and equipment that improve our research capabilities and efficiencies. Whether genetically modified varieties, computer applications, or automated test plot equipment, we need to keep abreast of new technology that makes sense for us and helps to improve yields, quality and income to the growers and to the Cooperative. ■



Jim Stewart, Director of Research, coordinates the agricultural research activities at Michigan Sugar Company and specializes in weed, disease and pest control, soil fertility, and other sugarbeet production practices. He has been employed with the company for 15 years.



1) 12-row variety planter with drop trailer for transporting; 2) 12-row variety planter with employees at workstations;
3) Workstation pouring seed; 4) Close up of worker pouring seed.

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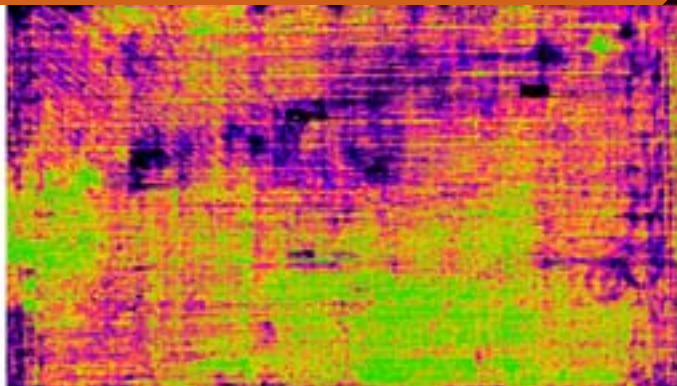
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RESEARCH HARVEST: Moving into the 21st Century

By Brian Groulx, Research Technician

To quote Bill Gates, "I believe in innovation and the way you get innovation is you fund research and you learn the basic facts." The basic facts are what the research department at Michigan Sugar Company is trying to provide for the growers with their funding and cooperation. The research department has been very fortunate over the past few years in receiving new equipment to provide better, faster, and more precise information to our growers. Among those additions, the research department has acquired two new planters, RTK auto steer, and now a new six-row research plot harvester.

Currently, harvests consist of roughly 100 acres of test plots with a pair of two-row Farmhand harvesters that were cutting edge technology circa 1955. These machines have gone through numerous updates including grab-roll cleaning beds, hydraulically driven components, and digital scales over their approximate 15 years of use. They have been maintained and work very well, but their slow pace creates the need to begin harvest as soon as the first week of September just to be done by the first week of November. It became apparent that more trials could be planted and maintained than could be harvested, so it was decided it was time for a new harvesting process.

The trials are planted with a six-row and a 12-row planter, so a six-row harvesting machine made the most sense. We considered modifying current harvesting machines, similar to what was done when the two-row machines were built, but it quickly became apparent that no existing harvester would work. One of the largest obstacles to deal with is keeping each row separate throughout the harvesting and weighing process. This is done to account for rows that are deemed unusable for data due to thin stands, disease, or other issues. The weights for those rows will not be used, allowing us to keep them separate. Current harvest-

ers using ferris wheels or scrubber chains would not allow this. Another obstacle in the process is having to empty the bulk hopper at each end of the pass. We are unable to drive trucks in the field because of the way we harvest, so this new harvester will drop beets in a windrow to be picked up by a WIC beet harvester that our employees modified in our own shop.

Our research team met with fabricators in the area to work through some of the details. The construction of this harvester resulted in a collaboration between Richmond Brothers Fabrication in Bay Port, Ike's Welding and Manufacturing in Munger, and Cech Corporation in Saginaw. Richmond's supplied the common harvester parts (e.g. lifter wheels, struts, etc.) and grabroll assembly; Ike's designed and fabricated the frame, hydraulic circuit, and weigh hoppers; and Cech created the weighing program and supplied the electronics to record weights. The harvester will lift beets much like any existing harvester, but that is where the similarities end. Once clear of the lifting wheels, the beets will travel up an incline scrubber chain where they fall onto grabrolls for additional cleaning. These grabrolls then dump into the six separate baskets, each with a hydraulic trap door on the bottom. These baskets are suspended on load cells which communicate through a wireless Bluetooth connection with an Android tablet that will record and document the weights as the plots are harvested. Once the weight and tare sample are collected, the trapdoors in the baskets will be opened and the beets will fall onto a cross conveyor chain to be windrowed. The tare samples will be stored on a platform behind the work area that has a hydraulic scissor lift to facilitate unloading of the nearly 9,000 samples we will bag in one year.

LEFT: The new six-row harvester is a product of great collaboration.
BELOW, TOP TO BOTTOM: A two-row harvester and a modified cleaner-loader.



There are many things that set this harvester apart from the current two-row machines as well as many other harvesters. This six-row harvester is supported by a set of Camoplast Tracks. These were chosen for their load bearing capability as well as their weight distribution. The current two-row harvesters are on pneumatic tires with walking beams, and when conditions are wet, they tend to sink in creating uneven harvesting depths and delays in harvest. The hydraulic system is completely adjustable for speed with the simple touch of a button. With this the speed of the grabrolls, paddleshaft, and two scrubber chains can be changed independently to compensate for harvest speeds and soil conditions. Also, the weighing program will allow templates to be uploaded from Microsoft Excel for each individual plot reducing the amount of paperwork on the front end, while reducing the time to compile the data on the back end.

This new harvester will be a welcome addition to the research department. It will allow for plots to be harvested in a more timely manner and when conditions are more favorable. It will also allow results to be compiled quicker after harvest, thus reducing the amount of time and labor it takes to enter hand collected data. The research department appreciates the support of the growers and hopes to use this new harvester and technology to provide accurate and timely information to maximize the profits on their farms. ■



Brian Groulx is a Research Technician with Michigan Sugar Company. He has worked in research since 2009.

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Are Seed Treatments the Future for Sugarbeet Production?

By Greg Clark, Agronomist

The notion of seed treatments in sugarbeet production is moderately new, except for Thiram and Tachigaren®; however, seed treatments are a growing technology across a wide region of agricultural commodities (e.g., corn, soybeans, vegetables, etc.).

Seed treatments are the utilization and application of pesticides that control primary soil infestation of diseases and insects which have devastating effects on sugarbeet production, thus improving crop safety and good establishment of vigorous sugarbeet seedlings, resulting in better yields (Image 1). Seed rots and damping-off seedling diseases will reduce germination and affect emergence of sugarbeets. Exercising a suitable fungicide treatment on primed sugarbeet seeds will escalate the likelihood of achieving an acceptable stand and will improve early-season vigor of established sugarbeet seedlings.

The environment in which fungicide seed treatments provide an advantage is early plantings in cool, wet soils, especially in stale seed beds or minimum-till systems with fields having high amounts of surface residue.

Benefits of seed treatment:

- Protection from pests with lower environmental impact
- Often pays for itself
- Protection against diseases and insects
- A smarter way to apply anti-pest products
- Applying the product completely on the object, not the soil, air, or mature plant
- Minimizing the exposure to wildlife and beneficial organisms
- Greatly lowers on- and off-farm transportation and handling of chemicals

Pythium, Aphanomyces, Rhizoctonia (Image 2), and Fusarium are fungi that cause the majority of stand losses and seedling diseases in sugarbeets in Michigan. These fungi occur in most sugarbeet soils, thereby causing seed rot, pre-emergence damping-off, and post-emergence damping-off diseases. See the list at the right for some of the common and "newer" seed treatments available, depending on what seed treatment packages are available through the sugarbeet seed companies.

Seed treatments are a convenient, economic, and effective method of reducing seed rot and damping-off diseases, and managing early season insect pests. All commercial sugarbeet seeds are pretreated with fungicides, and the products used are listed on the seed package. Some fungicides have action against one pathogen while other products have activity against two or more pathogens. The average longevity of seed treatments is from four to six weeks, and is not a miracle product that will last all season, so properly scouting fields and timely spraying when pests are active is still highly recommended for an effective Integrated Pest Management program. ■



Image 1. Penthiopyrad seed treatment for *Rhizoctonia solani*.

Image 2. Healthy sugarbeet seedling (1, far left) and varying levels of severity of *Rhizoctonia solani* Seedling Disease with no seed treatment (2-4).



Greg Clark is an Agronomist with Michigan Sugar Company. He has 16 years of experience in agronomy. He specializes in entomology, plant physiology, and plant pathology. Greg joined Michigan Sugar Company in October 2010.

Available Seed Treatments:

- **Allegiance®** (metalaxyl) is a seed treatment fungicide that provides systemic protection for the seed, roots and emerging plants against diseases such as Pythium, systemic downy mildew and Phytophthora.
- **Apron® XL** (mefenoxam) is a seed delivered fungicide that provides effective protection against Pythium sp and damping-off.
- **CruiserMaxx®** (thiamethoxam + mefenoxam + fludioxonil) for sugarbeets is a combination of Cruiser, Apron XL, and Maxim that provides safeguard against both early-season insects and diseases. Insect safeguard includes sugarbeet leafhopper, sugarbeet root maggot, springtails and wireworms, while fungicide activity guards against seedling diseases such as Pythium and Rhizoctonia.
- **DYNASTY®** (azoxystrobin) is a broad spectrum, pre-emptive seed treatment fungicide with systemic attributes recommended for the control of seed rot/pre-emergence damping-off caused by *Rhizoctonia solani*.
- **Kabina ST™** (penthiopyrad) a seed treatment fungicide with a helpful mode of action against *Rhizoctonia* seedling disease.
- **Maxim® 4FS** (fludioxonil) is a seed delivered fungicide that provides defense against early-season diseases while increasing plant stand, vigor and yield potential. Fludioxonil is effective against *Rhizoctonia*.
- **Metlock® Suite** (metconazole) provides contact and systemic control, with "inside-out" protection against sugarbeet diseases, including *Rhizoctonia* and *Fusarium*.
- **NipsIt SUITE® Sugarbeets** (clothianidin + metconazole, + metalaxyl) combines three super-systemic active ingredients. Clothianidin provides protection against sugarbeet root maggot, springtail and wireworm, while metconazole and metalaxyl provides a safeguard against *Rhizoctonia*, *Fusarium* and *Pythium*.
- **Poncho® Beta** (clothianidin + beta-cyfluthrin) is a systemic insecticide seed treatment intended to control a variety of sugarbeet pests. Poncho® Beta delivers early season safeguard against cutworms (black), sugarbeet leafhopper, sugarbeet root maggot, sugarbeet leafminers, springtails and wireworms.
- **Rizolex™** (tolclofos-methyl) is a seed fungicide for continuous and unrivaled safeguards against *Rhizoctonia* damping-off plus *Fusarium* and other soil-borne and seed-borne diseases.
- **Tachigaren®** (hymexazol) is a fungicide that is functional for a few weeks after planting, contingent on the rate applied to seed, soil moisture and ambient temperature, and microbial action. Tachigaren® is the only registered fungicide that controls *Aphanomyces* and *Pythium*. Tachigaren® is available in 20 or 45 grams.
- **Thiram** (tetramethylthiuram disulfide) is an industry standard with contact activity against multiple seedborne and soilborne fungi. Key pests that Thiram controls are decay-seed rot, damping-off disease, and blight-seedling disease.

Seed Variety: Approval and Selection System

By Lee Hubbell, Agronomist

Point System for variety approval

There have been over 40 seed varieties tested every year in our Official Variety Trial. How are the best varieties selected for approval and sale? The results of Michigan Sugar Company's Official Variety Trials and nurseries are used to select the best varieties. Recoverable Sugar per Ton (RWST), Recoverable Sugar per Acre (RWSA) and tolerance to Cercospora leafspot have been the required factors for approval in the past, but there are many other traits needed to produce the best sugarbeet crop, such as emergence and tolerance to other diseases and pests. As a way to include other factors for variety approval, the Point System was introduced in 2010 to be used through 2014. New approval factors that were included in the Point System were emergence, tolerance to Rhizoctonia, root aphids, and Rhizomania. Points were established using RWSA as the base, plus points for RWST, emergence, and tolerance to Cercospora, Rhizoctonia, root aphids, and Rhizomania. There are a minimum number of points needed for approval, but the Point System is also a way to emphasize to the seed companies the traits we need in our varieties. In evaluating the Point System for use for 2014 and beyond, two traits needed to be added; Aphanomyces and Cyst Nematode tolerance. The Point System will continue to be a variety approval factor for 2014 and beyond. All the traits are not needed in every field, but all these traits can cause problems for some growers.

Point System for variety selection

Tons per acre are very important and a source of bragging, but we believe growers know the importance of other factors in variety selection as well. Selecting the best variety for each field, considering diseases and pests, will increase profit margins nicely. Part of the problem in variety selection is the number of traits to choose from over the numerous varieties available. The Point System provides all this information, in an easy to use form, to help with variety selection (Table 1). There are also points for RWSA and RWST and total points listed in the actual Point System Table. There are two different ways to use this table for variety selection.

One way to use the Point System Table is to find the best variety for a trait you need. If a variety was being planted in a hot area for Cercospora leafspot and the grower wanted more tolerance, Variety #3 is the best of these varieties, having 8 points for Cercospora tolerance. Another example: Variety #2 and #3 are poorer on emergence while two varieties are good on Rhizoctonia; Variety #1 and #2.

The second way to use the Point System Table is to see all the traits for a variety. If a friend had his best production with Variety #4, you could evaluate it for your conditions.

Table 1. Example points, higher number is better

Variety	Cercospora	Rhizoctonia	Root Aphid	Rhizomania	Aphanomyces	Cyst Nematode	Emergence
#1	4	9	5	5	4	1	1
#2	2	9.5	5	4	3	4	-3
#3	8	6.5	5	4	1	1	-2
#4	0	4	2	4	2	1	5

Your friend probably is in an area with less pressure from Cercospora and Rhizoctonia, because Variety #4 rates low for points in these traits. If you have high pressure from Cercospora and Rhizoctonia, this variety may not be the best for you, even if it has the highest RWSA in our trials. Use the information on RWSA, RWST, and other traits in the Point System Table to help select the best variety for each of your fields.

Summary

Varieties have not missed approval due to low points, but the system has been valuable in directing the breeding efforts of the seed companies. The Point System also helps to stress the importance of other factors besides tons in variety selection and provides all the information in one table. It is our goal to have every grower use the Point System when selecting their variety of choice and improve their overall production year in, year out. ■

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Lee Hubbell, Research Agronomist, is a specialist in sugarbeet variety and agronomic testing and has been with Michigan Sugar Company for 29 years.

Future of Drones in Agriculture



By Rudy Schlatter, Agriculturist



Above:
Representatives from Ag Eagle, a drone manufacturer from Kansas, recently demonstrated their version of an agricultural unmanned aerial vehicle (UAV).

You can pick up almost any agricultural magazine today and there is a really good chance that there will be an article on drones. "Drone" seems to be the buzz word of the year — but it's not just for the military anymore. It is finding its place in agriculture and in a big way. North America seems to be on top of the game, with Canada leading the way applying the capabilities of the drone to everyday life. There are two main styles of drones that are used for agriculture. One being a "copter," which is the smaller version typically weigh in at less than 5 pounds. This type of drone can be used on a small scale for things like scouting research plots, flying piles to check for hot spots or investigating fields on a farm level. It is

flown manually with a remote that can be either a controller style or your phone/tablet. You can also use a controller with your smartphone so you can view the flight live. The other type of drone is a larger fixed-wing version. With wing spans of six feet, these are used

to cover a lot of ground at once. You pre-program a flight path for these and let them fly, no controller needed. Once the path is flown, it will fly to its pre-determined location for landing. This type of drone could be used to fly over several thousand acres a day while snapping thermal or regular images of the growing crop. Problem spots could then be found and inspected by someone on the ground.

The drones are only as good as the programs that are being made to analyze the data. Right now they are mainly equipped with thermal or regular cameras to inspect fields, but there are a lot of programs and upgrades being created to take the drone to the next level. For example, Precision Hawk is working on a camera that will allow you to see a plant's subcellular level. With this technology, you would be able to detect a disease before the plant shows any signs of having one. We believe that with the advancements in technology the possibilities could be endless. Could we possibly have the ability to determine sugars and tonnage on a field or farm level prior to harvest? ■

SOME WAYS TO EMPLOY A DRONE ON YOUR FARM

- Tile and drainage inspections
- Barn roof and silo inspections
- Inspect overall crop health
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Rudy Schlatter is an Agriculturist with Michigan Sugar Company. He obtained his Program of Study Certificate in Agriculture from Northwest Iowa Community College.

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Digging Deeper into Soil Quality

By Kurt Steinke, Assistant Professor, Soil Fertility & Nutrient Management, Michigan State University

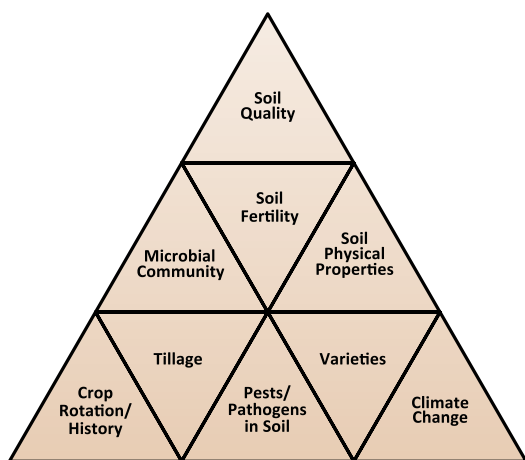


Figure 1. Soil quality integrates biological, physical, and chemical soil properties along with management practices in order to sustain optimal yield and crop quality. This diagram is one example illustrating the many factors influencing soil quality.

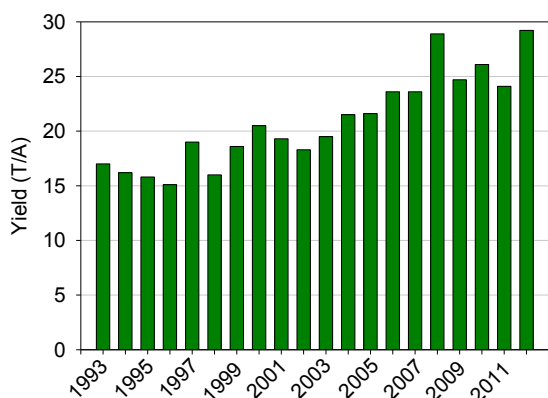


Figure 2. Michigan's average sugarbeet yields have increased from near 17 T/A in 1993 to near 25 T/A or more in 2012 due in part to changes in management practices.

Soil and plant relationships have been the focus of agricultural research for centuries yet emphasis has been primarily placed upon plant improvements for increased productivity with little attention paid to the soil that lies beneath. This lack of attention may be one factor explaining some of the degradation or reduction in soil quality we hear discussed from time to time. If one were to ask a dozen producers on what makes a quality soil, you are bound to receive at least a dozen different answers. While the complexity of this issue may be surprising to some, the real dilemma lies in determining where to begin in order to make incremental improvements to soil quality.

Soil quality includes but is not limited to organic matter.

Although several definitions of soil quality exist, a commonly used definition has been "the capacity of soil to function, within ecosystems and land-use boundaries, to sustain productivity, maintain environmental quality, and promote plant and animal health." Whichever definition one chooses, the end-goal is simple: healthy, quality soils are more productive due to the increased ability to tolerate stress thus requiring fewer external inputs, retaining more soil moisture, and ultimately increasing the resilience within a cropping system.

Soil quality involves an entire suite of biological, physical, and chemical factors that when balanced serve to promote a healthy soil environment for plant growth (Figure 1). While organic matter is often the first subject that may come to mind when discussing soil quality, it is not the only factor to consider. For example, a 3% organic matter soil does not automatically produce greater yield than a 1 or 2% organic matter soil so other influential factors are definitely at play. In fact inherent levels of organic matter may often be dependent upon soil parent material with few opportunities in the short-term to adjust upwards. This is where the combination of biological (i.e., microbial activity, root health), physical (i.e., aggregation, hardness, organic matter, structure), and chemical (i.e., soil fertility, pH) soil factors, in combination with management, come together to influence crop production (Figure 2).

Looking into the black box of soil quality — microbial activity.

A healthy soil may depend upon a healthy soil microbial community. Every day we hear of new research confirming how plants, soils, and soil microbes function simultaneously to influence each other and plant productivity. Yet what may be the most influential factor, we may know the least amount of information about, that being the influence of soil and cultural management factors on microbial community composition and abundance under field conditions (Figure 3). Microbes are the drivers within the soil ecosystem digesting nutrients to allow these substances to become plant-available. Soil microbes are also highly sensitive to minor changes in environmental conditions and soil disturbance. Hence changes in microbial diversity or activity may often precede changes in soil physical or chemical properties. Drs. Willie Kirk, Noah Rosenzweig, and myself are all presently collaborating on several projects to measure and characterize some of the short- and long-term changes in rhizosphere microbial communities and any impacts on beneficial versus pathogenic soil bacterial as influenced by land management, crop rotations, cover crops, and fertilizer inputs (Figure 4). Microbial diversity within a system may allow for

TIME TO LIME!



Figure 3. Measuring soil respiration in the laboratory to estimate nitrogen mineralization and microbial biomass.



Figure 4. Oilseed radish planted prior to soybean likely impacted soil tilth and later plant development by promoting earlier germination and earlier maturation as evidenced by the yellow striping (plant necrosis) in the field where radish had previously grown.

quicker recovery during short-term periods of stress and may offer protection against soil-borne diseases through a balanced microbial community allowing soil pathogens to remain “in-check”.

One size may not fit all.

As much as we try to focus on one individual component to improve soil quality, we need to remember that soil quality is a summation of many individual components working simultaneously. However not all components may be achievable across all production systems. As an example, soil disturbance (e.g., tillage) can weaken soil structure and negatively impact mycorrhizal fungal communities which could be viewed as the weakening of the soil microbial habitat. Simply suggesting a switch to no-till or conservation tillage may not be an option with rooting crops (i.e., sugarbeet, potato) as the harvest process alone may be considered a form of tillage or disturbance and simply cannot be avoided.

As the environment around us continues to evolve, greater attention to the soil beneath us may allow growers to better adapt to some of the wild weather swings that we now commonly experience every spring and may even allow growers the ability to extend the growing season. ■

Kurt Steinke, Ph.D., is the Assistant Professor of Soil Fertility and Nutrient Management in the Department of Plant, Soil, and Microbial Sciences of Michigan State University in East Lansing. He received both his Masters in Horticulture and his Ph.D. Soil Science and Horticulture from the University of Wisconsin. General areas of expertise include sugarbeet, corn, soybean, wheat, potato, and turfgrass.

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Service Awards 2014

In Recognition of Service

By James Ruhlman, Vice President, Administration

Recognition and gratitude can be the most desired and craved feedback in any human being, yet all too often we don't take the time to express it, or even consider it. If we look around, we can see or feel something amazingly good every day, but human nature can pull us into a negative state where we dwell on the petty inconveniences in our lives; failing to recognize those genuine souls who provide those moments of excitement, words of comfort, or acts of kindness. During our annual employee service awards banquet, we take a day to reflect on the human element that creates the character and forms the fiber of the organization that we call Michigan Sugar Company. It is a day to say "thank you" to our dedicated and devoted employees in appreciation for all the "goodness" they bring to our daily lives.

When you get everyone under the same roof for an event like this, it is an incredible experience to put your eyes on a theater full of our greatest assets; the hearts, minds and spirits of our workforce. It is a melting pot of sorts when you blend so many beautiful cultures, diverse races, generations, and different personalities. The makeup of our group is what makes us so strong and so brilliantly effective. There is a feeling of acceptance, pride and humbleness in the human beings attending this event. We have learned that everyone in the room brings value through their education, life experiences, and varied upbringings. When you consider and accept the number of personal experiences among those present, you realize that our potential is powerful beyond measure.

The Ernest Flegenheimer Award

While we all play a huge role in the success of our company, every year we pay special tribute to one employee through the presentation of the Ernest Flegenheimer Award. This award serves two purposes. First, it reminds us of the man for whom the award was named, and, secondly, it recognizes someone in our company, today, who possesses the same qualities that Ernest Flegenheimer did when he led our company during the early 1960s through the early 1990s; the qualities of wisdom, character and integrity. Ernest was recognized throughout the company and the industry for his core values and consistent principles. He earned the respect of everyone around him through his sincere thoughts and his careful actions. Ernest listened more than he spoke, but when he spoke, it was eloquent, meaningful, and accurate! His quiet humbleness made him even more impressive to those of us who knew

him. This year's recipient of the award was Rick List. For those of you who know Rick, you know of his character, his expertise in his trade, and that he embodies the word integrity. He fits what the award stands for perfectly. Congratulations Rick!

Speaker Presentation Hits Key Notes

As is customary with our banquet, we treat our guests to a message from a keynote speaker. Often the talk is inspirational, sometimes it is thought provoking, and in the case of this year, it was both! Our guest speaker, Ms. Terry Hawkins, gave a remarkable talk about empathy and "life stories." She talked about how our "story" shapes our being and how the feedback from our life experiences can propel us to greatness. Everyone's story is unique and everyone's story should be shared.

Our event is filled with life stories; the story of the gray-bearded father who spent 42 years in the factory, missing Christmas or Thanksgiving with his family, but still has that twinkle in his eye when he comes to work every day. There's the 20-year-old mother who works third shift in the packing room, so she can be with her two young children in the daytime. There's the 70-year-old lady, who can't bring herself to retire because work is where her family is. There's the 52-year-old executive who lays awake at night, planning where to take the company next. There's the 25-year-old man who works two jobs so he can provide for his family and pay medical bills for his father who has no insurance. There's the couple who lost their house in a blazing fire and are still recovering from the devastation, and there's the lady battling cancer still finding time to bring a joyous visit to her granddaughter. These are all real stories about real people, and for some reason, at an event like this, it allows us to be more empathetic. We take the time to envision ourselves walking and living in someone else's shoes. We can better share in the joy of one's happiness or be a support person for those going through troubling times. We become immersed in the stories and better understand the depth of the characters that call this place home. At this event, we give gratitude to our employees for their time and their talents, but it is their "stories" that create the culture that we cherish most. ■



SERVICE AWARDS RECIPIENTS

5 YEARS of SERVICE

Glaza, Paul	Beet Receiving Mechanic	Agriculture	Bay City
Melchi, Mark	Beet Receiving Mechanic	Agriculture	Bay City
Chase, Michael	Mechanic	Operations	Bay City
DeBats, Kenneth	Maintenance Assistant	Operations	Bay City
Gilbert, George	Maintenance Asst.	Operations	Bay City
Greyerbiehl, Nicole	Factory Chemist	Operations	Bay City
Henning, Gary	Control Room Operator	Operations	Bay City
Jacobs, Jeffrey	Sugar End Foreman	Operations	Bay City
Janke, Matthew	Asst. Sugar Boiler	Operations	Bay City
King, James	Asst Master Mechanic	Operations	Bay City
Klein, Nicholas	Factory Superintendent	Operations	Bay City
Kunkel, Keith	Mechanic	Operations	Bay City
Leavitt, David	Bench Chemist	Operations	Bay City
Pfau, Clifford	Heavy Loader Operator	Operations	Bay City
Ramos, David	Maintenance Asst.	Operations	Bay City
Sexton, Jeremy	Electrician	Operations	Bay City
Wilkins, Laymon	Diesel Mechanic	Operations	Bay City
Zimmerman, Todd	Process Trainee	Operations	Bay City
Aikens, Thomas	Industrial Cleaner	P&W	Bay City
Almaguer, Noe	Lead Mechanic	P&W	Bay City
Baczkiwicz, David	Industrial Cleaner	P&W	Bay City
Baur, Jeffery	Industrial Cleaner	P&W	Bay City
Beaver, Joseph	Industrial Cleaner	P&W	Bay City
Blohm, Kenneth	Lead Mechanic	P&W	Bay City
Ciesielski, Timothy	Maintenance Technician	P&W	Bay City
Elbers, Edward	Maintenance Technician	P&W	Bay City
Escobedo, Jerry	Team Leader	P&W	Bay City
Gaeth, Brian	Maintenance Technician	P&W	Bay City
Gorney, Tacie	Dock Operator	P&W	Bay City
Houghtaling, Jennifer	Industrial Cleaner	P&W	Bay City
Maida, Bryant	Specialty Operator	P&W	Bay City
Manyen, Greg	Specialty Operator	P&W	Bay City
Mero, Paul	Industrial Cleaner	P&W	Bay City
Musiak, John	Specialty Operator	P&W	Bay City
Rohleder, Paul	Lead Mechanic	P&W	Bay City
Willette, Joseph	Industrial Cleaner	P&W	Bay City
Wyzkiewicz, James	Lead Mechanic	P&W	Bay City
Radick, Richard	Yard Leader	Agriculture	Caro
Walker, George	Yard Leader	Agriculture	Caro
Bergman, Scott	Sugar End Leader	Operations	Caro
Gage, Mearreal	Shift Superintendent	Operations	Caro
Romezek, Kevin	Maintenance Manager	Operations	Caro
Groulx, Brian	Research Technician	Agriculture	Corporate
Haller, Christian	Network Assistant	IS	Corporate
Weiss, Michael	Programmer/Analyst	IS	Corporate
Junga, Andrew	Yard Trucker	Agriculture	Croswell
Emerson, Marion	Boiler House Operator	Operations	Croswell
Franzel, Lyle	Crane Helper	Operations	Croswell
Frostick, Thomas	Evap./Carbonator Operator	Operations	Croswell
Hill, Joseph	House Mechanic	Operations	Croswell

We need to take time to reflect on the human element that creates the character and forms the fiber of the organization that we call Michigan Sugar Company — to say “thank you” to our dedicated and devoted employees in appreciation for all the “goodness” they bring to our daily lives.

Jolley, Brian	Diffuser Operator	Operations	Croswell
Kerbyson, Patrick	Pellet Mill Operator	Operations	Croswell
Utter, Joshua	Elect/Instrument Apprentice	Operations	Croswell
Junga, Joseph	Lift Truck Operator	P&W	Croswell
Soulliere, Kevin	Lift Truck Operator	P&W	Croswell
Greene, Patrick	Maintenance Engineer	Operations	Sebewaing
Hoppe, Zachary	Welder	Operations	Sebewaing
Krueger, Kenneth	Shift Mechanic	Operations	Sebewaing
Prichard, Ricky	Beet End Operator	Operations	Sebewaing
Dinsmoore, Joseph	Industrial Cleaner	P&W	Sebewaing
Richardson, Michael	Specialties	P&W	Sebewaing

10 YEARS of SERVICE

Doyle, Linda	Control Room Operator	Operations	Bay City
Toth, Randolph	Asst. Sugar End Foreman	Operations	Bay City
Canute, Jr., David	Quality Control Tech	P&W	Bay City
Francis, Linell	General Sugar Packer	P&W	Bay City
Rodriguez, John	General Foreman	P&W	Bay City
Graves, James	House Leader	Operations	Caro
Hebert, Jeffry	Factory Chemist	Operations	Caro
Lounsbury, Elenora	Heavy Loader Specialist	Operations	Caro
Morse, Kathleen	Inventory Clerk	Accounting	Corporate
Emerson, Brian	Boiler House Operator	Operations	Croswell
Sheufelt, Arthur	Heavy Loader Operator	Agriculture	Sebewaing
Nizzola, Carl	House Mechanic	Operations	Sebewaing
O'Hare, James	Welder	Operations	Sebewaing
Schweitzer, Dale	Boiler House Operator	Operations	Sebewaing

15 YEARS of SERVICE

Bailey, David	Agriculturist	Agriculture	Bay City
Hubble, Patrick	Asst. Master Mechanic	Operations	Bay City
Kolbiaz, Bradley	Instrument Technician	Operations	Bay City
McFarland, Michael	Asst. Sugar End Foreman	Operations	Bay City
Middleton, Lance	Electrician	Operations	Bay City
Monville, Joseph	Asst. Sugar End Foreman	Operations	Bay City
Strandberg, Robert	Control Room Operator	Operations	Bay City
Burnell, III, Herschell	Specialty Operator	P&W	Bay City
Cooper, Keith	General Sugar Packer	P&W	Bay City
Copeland, Kimberly	General Sugar Packer	P&W	Bay City
Garwick, Cindy	General Sugar Packer	P&W	Bay City
Grauherr, Linda	General Sugar Packer	P&W	Bay City
Makovics, Marlene	P&W Supervisor	P&W	Bay City
Marko, John	General Sugar Packer	P&W	Bay City
O'Dell, Daniel	Dock Operator	P&W	Bay City
Williams, Jr., Benjamin	Specialty Operator	P&W	Bay City
Stoick, Jeffery	Ag Mechanic	Agriculture	Caro
Czapla, David	Instrument Technician	Operations	Caro
Hercliff, Michael	House Mechanic	Operations	Caro
Matuszak, Richard	Sugar Boiler	Operations	Caro

Noah, Charles	Shift Superintendent	Operations	Caro
Stewart, James	Director of Research	Agriculture	Corporate
Brocke, Rodney	Project Engineer	Operations	Corporate
Choate, Johnnie	Elect/Instrument Technician	Operations	Croswell
Torrez, John	Shift Maintenance & Crew	Operations	Croswell
Binder, Mark	Beet Dump Oilier Mechanic	Agriculture	Sebewaing
Reige, Michael	Heavy Loader Specialist	Agriculture	Sebewaing
Dressler, Terry	Elect/Instrument Tech	Operations	Sebewaing
Volz, John	Crane Operator	Operations	Sebewaing
Lutz, Sofia	General Packaging	P&W	Sebewaing

20 YEARS of SERVICE

Wiesenauer, Mark	General Sugar Packer	P&W	Bay City
Sorenson, Gerald	Electrical & Instrument	Operations	Caro
Flegenheimer, Mark	President & CEO	Administration	Corporate

25 YEARS of SERVICE

Ganton, David	Agriculturist	Agriculture	Bay City
Delarosa, Paul	Silo Attendant	P&W	Bay City
VanMullekom, Barbara	General Sugar Packer	P&W	Bay City
Church, William	Sugar Boiler	Operations	Croswell
Kerbyson, Kelly	Relief Person	Operations	Croswell
Aguilara, Jesse	Shift Maint. & Crew Leader	Operations	Sebewaing
Prich, Alan	Control Room Operator	Operations	Sebewaing

30 YEARS of SERVICE

Ruediger, Carl	Electrician	Operations	Bay City
Shufelt, Michael	Welder	Operations	Bay City
Talaga, Randall	Sugar Boiler	Operations	Bay City
Martin, Sally	Executive Assistant	Agriculture	Corporate
Junga, Daniel	Machinist	Operations	Croswell
Parker, Kent	House Mechanic	Operations	Croswell
Todd, James	Asst. Maintenance Manager	Operations	Croswell

35 YEARS of SERVICE

Dominowski, Judy	Quality Control Tech	P&W	Bay City
Groulx, Rick	Dock Operator	P&W	Bay City

40 YEARS of SERVICE

Hardy, Robert	Agriculturist	Agriculture	Bay City
Putnam, Dennis	Ag Mechanic	Agriculture	Caro
Hallead, Roger	Heavy Loader Specialist	Operations	Caro
Wright, John	Weibull Silo Attendant	P&W	Caro
Dinsmoore, Jerry	Mobile Mechanic	Agriculture	Carrollton
Kasper, Robert	General Maintenance	Operations	Carrollton
Schulte, Jeffrey	Utility Maintenance	Operations	Carrollton
Sauer, Gary	Ag Maintenance Manager	Agriculture	Corporate
Bombyk, Gregory	Shift Superintendent	Operations	Croswell
Kirk, Leroy	Sugar Silo Attendant	P&W	Croswell
Engelhardt, Roger	Sugar End Leader	Operations	Sebewaing
Gremel, Kenneth	Gen. Packing Room Leader	Operations	Sebewaing

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Jim Ruhlman, Vice President of Administration, is responsible for Packaging & Warehousing Operations, in addition to overseeing the Safety, Human Resources and IS Departments, and has been with Michigan Sugar Company for 31 years.



Beet Storage European-

By Mark Flegenheimer, President & CEO

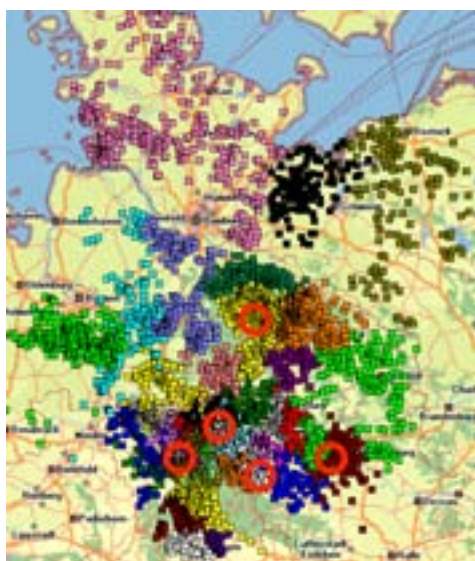
In Michigan and Ontario, field-piled beets and Maus loaders have been utilized over the last few years to help improve efficiencies and relieve congestion at various receiving stations. This past season, 27% of our crop was harvested via this relatively new practice. In Europe, nearly 100% of their sugarbeet crop is lifted with self-propelled harvesters and delivered through field piles or clamps.

As Michigan Sugar Company looks to expand this harvesting practice, which is unique to the North American sugarbeet industry, a group of employees traveled to Germany and England in the fall of 2013 to see firsthand how this technique is deployed in Europe.

German Ingenuity

Nordzucker, based in Braunschweig, Germany, was the first location visited. They are the second largest sugar producer in Europe, with 13 beet sugar factories and two cane refineries spread throughout Central, Eastern, and Northern Europe. In total, Nordzucker produces more than 3 million tons of sugar annually from approximately 650,000 acres. Over 15,000 growers across Germany, Sweden, Denmark, Finland, Lithuania, Poland and Slovakia raise sugarbeets for this publicly-traded company.

In Northern Germany they operate five factories, which slice 82,000 tons per day. Since Nordzucker does not have any beet receiving stations or pile grounds, the required slice is delivered to the factories directly from the fields via nearly 3,000 truckloads per day. This massive logistical exercise is highly coordinated, utilizing



ABOVE: 20,000 sugarbeet field locations in Germany, color-coded by Maus pick-up groups. Factory locations indicated by large red circles.

specialized contractors and a high degree of automation. Beets are cleaned and loaded with approximately 60 Maus units run by independent contractors. These contractors pick up beets from almost 20,000 distinctive fields (see map, above) during their 100-120 day campaign.

Growers are responsible for the quality of the beets while in the field piles, and all beets that will be delivered to the factories, beginning in early December, must be covered. Starting in late November until the end of campaign (usually mid-January), growers receive a small "late delivery" premium to compensate them for the loss in tonnage ("shrink") which is slightly offset by an increase in sugar content ("dehydration").

Nordzucker and their various suppliers have perfected the art of covering field piles. They cover 30% to 40% of the field piles (+/-7,000 fields) each year in a relatively short period of time, utilizing some simple, but specialized equipment (see photos). The material they use to shield the piles has been tested extensively and been proven to protect the beets from both frost and rain. This same material is also used in their Nordic growing regions where snow is quite common.

Great Ideas from Great Britain

British Sugar hosted the group during the second part of the European trip. Meetings were held at their Wigginton factory, which is the most efficient sugar beet factory in the world. In addition to annually producing 460,000 tons of refined sugar at this location, they also make 60,000 tons of bioethanol, grow 140 million tomatoes in greenhouses (utilizing waste heat and CO₂), and generate enough electricity to export 50 MW to the local grid. British Sugar also operates three other factories in England. Their 3,600 growers raise beets on 300,000 acres while averaging about 27.5 tons per acre. In total, they process 8.2 million tons of beets each year.

See page 28 for details on how Michigan Sugar Company is implementing these storage techniques in our region.



THREE PHOTOS, RIGHT:
Covering field piles in Germany.





Techniques, Style

The agronomy team at British Sugar emphatically stated, "The more you touch the beet the worse it gets." Much emphasis is placed on building a proper clamp or field pile.

During their harvest, which can run through December and January due to the more temperate weather, growers utilize both field piles (large windrows) as well as clamps (bunker-style piles, at right). Like Nordzucker, British Sugar does not have any pilers or receiving stations. All sugarbeets are delivered directly to the factory with an average hauling distance of 30 miles.

The agronomy team at British Sugar emphatically stated, "The more you touch the beet the worse it gets." Much emphasis is placed on building a proper clamp or field pile. The field piled beets are then cleaned and loaded with Maus-type cleaners, while the clamps are loaded with a small front-end loader and a small mobile cleaner (similar to a chain cart). Once loaded on the trucks, nearly 100% of the beets are dumped directly into the flumes. This requires a high degree of planning and scheduling the massive flow of trucks in and out of the factory.

After four days of extremely informative field visits, factory tours and research reviews in Germany and England, the team headed back to the U.S. to see if some of the practices and procedures utilized in Europe could be of benefit to growers in Michigan and Ontario. Testing of these techniques will be required before rolling out a full blown program. The relationships that were developed and the knowledge gained during this visit to Europe will be of tremendous value to Michigan Sugar Company for many years to come. ■



ABOVE: Bunker-style clamps in Great Britain.



Mark Flegenheimer is the President and Chief Executive Officer of Michigan Sugar Company and has been with the Company for over 20 years.





Covered Beet Piles

Putting Field Storage Ideas to the Test in Michigan

By Richard List, Ag Operations Manager

The testing of covered field piles in Michigan was started two years ago and the results were excellent. Sugars and purities in the covered piles showed little change from the rest of the harvested field. However, the amount of labor required to cover and uncover the piles and keeping the wind from prematurely uncovering the pile needed to be resolved.

This fall, approximately 25,000 tons of beets will be left in numerous field piles for delivery in December. We have ordered 144 rolls of fabric and two specialized machines to apply, remove and "tuck" in the fabric. Each roll is 114' long, 40' wide and will cover about 180 tons of beets. Snow removal from the coverings could also cause concerns so we have ordered a special attachment for the machines to "fluff up" the fabric and allow the snow to slide off.

Each grower who creates a field pile will harvest and deliver about one-half of the field to acquire sugars, purities and tare for payment. The rest of the field will be harvested and field piled for future covering. The field piles should be covered the first couple weeks of November and within three to four days of pile formation. Field piles will be left until the first weeks of December when we will schedule the uncovering and delivery to our factory locations.

Research will test for shrinkage by placing weighed bags of beets in the field piles and reweighing each bag at the time of pile recovery. Sugar and purities will also be checked to see if there are any variations. ■



ABOVE: Richard List (second from right), Michigan Sugar Company Ag Operations Manager, and Paul Pfenniger (far left), Vice President of Agriculture, discusses sugar-beet storage practices with a British Sugar grower and the Company's agronomy team.



Richard List, Ag Operations Manager for Michigan Sugar Company, has been with the company for 18 years.



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Gaining Ground

By Ned Stoller,
Agricultural Engineer
Michigan AgrAbility

Increasing Mobility on the Farm

The Check

"My accountant suggested I start getting a disability check."

Receiving this advice is Dennis Johnston, a full-time farm worker for Oak Lea Farms in Carson City, and operator of his own personal beef farm. Johnston has chronic arthritis and degenerating discs in his lower back. His condition was diagnosed in June 2005. He suffers from chronic pain all the time, but changes in weather intensify the pain. Heavy lifting, long duration tasks and strenuous activities aggravate the pain, as well as twisting and sitting stationary for too long.

Johnston has no business or interest in lounging on the couch waiting for a check.

"Why don't you just sit at home and get your monthly check?"

Gesturing out his tractor window at the broad field of newly planted sugarbeets, Mike McCormack answers this question for himself, and hundreds of other Michigan farmers with physical disabilities. "It is so much more rewarding! Why should I sit on the couch and do nothing, when I can be out doing this?"

Mike has been paralyzed from the waist down since March 20, 1985. He and his brother operate a dairy farm and raise sugarbeets, pickles and grain. They have several full and part-time employees in addition to family. Just like any other Michigan farmer, Mike works intense 20-hour days during planting and harvest. He is an active player in the Michigan economy and loves the outdoors.

Like Johnston, McCormack has no business or interest in lounging on a couch waiting for a check.

AgrAbility

AgrAbility is an Easter Seals Michigan charitable program that provides direct on-farm services to farmers, like Johnston and McCormack, who deal with amputation, paralysis, arthritis, MS, and other conditions. An agricultural engineer consults with individual farmers to research and develop useful farming tools, methods and equipment that enable them to work longer and feel better. The need for AgrAbility is great. The National Agricultural Statistics Service estimates up to 2,200 Michigan farm-related injuries occur every year. This figure doesn't include car accidents or the effects from aging (the average Michigan farmer is 57 years old) and other common diseases such as arthritis, cancer, and stroke.

Disabilities create challenges in life. For Michigan's farmers and farm workers, disabilities and chronic health problems can transform an active, independent lifestyle to one of uncertainty and dependence. In addition to the emotional and physical challenges of adapting to a disability or serious health condition, farm families also face financial challenges. Many ask, "How can we continue farming?" They expect that they will have to give up their lifestyles and farming operation.

Assistive Technology

AgrAbility was able to help Dennis Johnston get funding to purchase special tools for his farm shop that reduces the strain on his arthritic back. The tools included an adjustable height lift table and shop stool, a wheel jack for changing heavy truck tires, and a pallet rack system for storing chemicals, reducing the need for manual lifting and stacking. In addition, Johnston has modified his tasks by trading some jobs with



ABOVE: Mike McCormack is amazed by how a wheelchair carrier cart, like this one, saves him time and energy when travelling between buildings on the farm. His wife also appreciates how clean it keeps the wheelchair wheels when he rolls into the house on a rainy day! **TOP RIGHT:** Mike McCormack loves the rewarding work of planting sugarbeets on his farm. **BOTTOM RIGHT:** Dennis Johnston uses a wheel dolly to move heavy truck wheels without straining his back. AgrAbility helped Johnson acquire this and several other special tools so he could continue his farming occupation.

other workers on the farm. Dennis' employer at Oak Lea Farms, Theron Eicher, has also invested in a newer



model sprayer with an air-ride seat to reduce the back pain that Dennis suffers. A year later, Dennis stated, "This is the best I've felt in 10 years! A year ago, I was ready to quit. My treatments, new sprayer and these special tools have made a huge difference."

After 29 years with a disability, Mike McCormack has developed numerous ways to deal with his limited mobility around the farm. He constructed more than 20 man-lifts for tractors so he could access the cab. He also uses leg braces and crutches for mobility around areas a wheelchair cannot travel. AgrAbility recently helped Mike locate a pickup-mounted manlift and Ventrac wheelchair cart to help him maneuver around the farm and equipment with less stress on his upper body.

How can you help?

In 2013, Michigan Sugar sponsored Easter Seals Michigan AgrAbility to help cover some of the cost of serving farmers with disabilities. Engineering and rehabilitation services, research/development and assistive technology costs are very high and beyond the ability of many farmers to self-pay. The net result is that Michigan farmers continue working in severe pain, overstress their bodies, and endanger their future health by using unsuitable tools and equipment. It would be difficult, if not impossible, for a farmer with a disability to be retrained or find alternative employment in a rural community. The natural progression is that the farmer's health continues to degrade until he is forced to retire or become unemployed.

AgrAbility provides critical services to help in these situations.

Ways to support AgrAbility in this mission include:

- Referrals of farmers who could benefit from AgrAbility services.
- Financial sponsorships or donations to help purchase adaptive equipment.
- Social media to spread the AgrAbility word to the ag community.
- Technical expertise on tool and equipment modification/designs that have worked well on your operation.

According to McCormack, "When it comes to injury, no one plans on it. When it happens, you enter an unknown world. AgrAbility helps you see that the imagination is the only limiting factor!" With new tools and farming methods being constantly developed, there is no need for a farmer or worker with a disability to quit doing the work they love. It takes different tools in the toolbox, and new ways of accomplishing tasks, but in spite of pain, there is still gain. ■



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Ned Stoller began his engineering career serving farmers with disabilities throughout the state of Indiana as the Rural Assistive Technology Specialist for Purdue University. He then moved to Lowell, Michigan, and became a full-time dairy farmer. When his dairy herd was sold out in 2003, Ned re-entered the rehabilitation field as the agricultural engineer for Michigan AgrAbility, helping farmers with disabilities continue working. As the current director of Easter Seals Michigan AgrAbility, he now has over 13 years of experience adapting farms for workers with disabilities.

Grower In the News



Kreger Farms

Kurt Kreger, Kreger Farms

Snover, Michigan

By Kevin Messing, Agriculturist

Working Hard to Keep the Family Farm Strong

With one semester of college to go, Kurt Kreger was begging his mother, Connie, to let him quit. It was January 1997, and Kurt's father, Mike, had just tragically passed, leaving Kurt and his mother to run their 1,600-acre Snover, Michigan, farm. He came home from college every weekend to work on the farm and bought one of his own in 1996. He knew it was what he wanted to do. Knowing the value in education, Connie persisted and Kurt graduated with an Associate's Degree in Heavy Equipment Technology from Ferris State University; however, he skipped the graduation ceremony because he was home planting corn. Kurt's uncle, Dennis Alexander, sold his cattle in October 1996 to take an off-farm job, but that lasted only until Connie called with a job offer a few short months later. The three of them, with the help from some neighboring farmers along the way, were able to keep things going. Kreger Farms planted their first beets in 2000 in what was a three-farm partnership that involved harvesting and hauling their beets from Snover to the nearest beet receiving stations. Today, Kurt, along with his mother, Connie, and Uncle Dennis, have Kreger Farms running strong and looking well into the future.

Kurt Kreger is the fourth generation on Kreger Farms so he understands the value of taking care of the land, which is why they employ a strict five-year rotation of wheat, corn, soybeans, and dry beans to go with their 320 acres of sugarbeets. As if their own acres don't keep them busy enough, they also custom plant and spray 900 acres of corn for a neighboring dairy farm, clean and treat 30,000 bushels of seed every year, and custom plant 500 acres of wheat as well.

When Kurt was asked what he is doing to ensure his family will be farming long into the future, he said rather than get caught up in high land prices, they are focusing on tilling the ground they do have. He believes aggressively tilling will set Kreger Farms further ahead for the future than trying to farm more acres at a high cost. With most of their ground tilled at 25 feet or less, they are able to get in the fields sooner in the spring and give their sugarbeets a head start. The dryer soil conditions result in less compaction, further benefiting the crop. Manure is applied before both corn and sugarbeets, and Kurt believes these two things are vital to getting top yields year after year.

Never one to shy away from technology, Kurt quickly saw the benefit of a guidance system on his equipment and jumped at the chance to use it. All their equipment uses Real Time Kinematic, or RTK technology for guidance, allowing them to plant in the same spot every year without the stress of following a mark or track on every pass through the field. RTK eliminates overlap when spraying while also allowing the growing crop to catch any immobile nutrients not consumed the previous season. This results in less product used and, in return, has a real effect on the farm's bottom line. Three years ago, Kreger Farms made the decision to go to 20-inch rows. Research showed the potential of what narrow rows could do for sugarbeets and



the other crops in the rotation; using the same planter for all row crops was an added benefit. Because narrow rows also offer yield benefits for corn silage, Kurt saw an increase in his custom corn planting, which allowed him to more easily justify the large equipment expense. With the transition to narrow rows, Kreger Farms had the opportunity to step into a Holmer self-propelled harvester and join a field loading operation. Kurt has been very happy with the decision, saying reduced labor efforts were a big reason a self-propelled harvester made sense. Fewer people required for harvesting and hauling beets has allowed Kreger Farms to have an extra person free to work ground or harvest other crops in the busy fall season. Piling beets in clamps has also allowed Kurt to dig beets when conditions are best and leave them in a clamp instead of tearing up a wet field while digging, leaving his fields in better condition post-harvest. As the only one left in what started as a three-farm group growing beets together, Kurt said they probably would not be growing beets if it was not for the self-propelled harvester and field loading. With the large move to self-propelled harvesters and the research being done on field clamps, it truly is the future of the sugarbeet industry.

Kreger Farms really is a family farm in every sense of the word and wouldn't be here today if it weren't for that family. Connie and Mike Kreger had three children; Kurt, Amy and Kelly. Connie, while being a big part of the farm, has also been heavily involved in the local agricultural community where she is currently serving as the Farm Service Agency County Committee Vice-Chairperson in Sanilac County. She also served on the Sanilac County Farm Bureau board for 12 years in the past. Kurt and his wife, Shannon, have four children; Evanna (16), Michael (12), Karli (10) and Makenzie (7). Like his mother, Kurt has been involved in the community as well as being a founding member of the Goodtimers Club. The balance between work and family is tough to manage sometimes, but the Kregers have found a way to do it with the use of a lot of technology and a little outside help. Because of that, this family farm has a very bright future. ■



Kevin Messing, an Agriculturist in Sandusky for Michigan Sugar Company, joined our staff in 2013. He received his Bachelor of Science degree in Bio Systems and Agricultural Engineering from Michigan State University in 2012.

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2014 Scholarships

Albert Flegenheimer Memorial Scholarship

Erica Gremel, of Sebewaing, Michigan, is this year's recipient of the Albert Flegenheimer Memorial Scholarship. She is the daughter of proud parents, Joel and Lyndsay Gremel. Erica has participated in the Sugarbeet Project for eight years and earned the Prestige Award four times and the Premier Award three times.

Erica graduated from Unionville-Sebewaing High School with a 3.8 GPA. She is attending Michigan State University where she is pursuing a degree in Crop and Soil Sciences with a minor in Agribusiness Management and hopes to enter the field of Agronomy. She was very active in school and community activities including 4-H, FFA, National Honor Society, volleyball, softball, USA People Helping People, the MSU Agronomy Club, Project RED, church activities, and a volunteer at the community fair. She has also won numerous awards in school, FFA and 4-H.

Erica grew up on a 2,000-acre cash crop farm and rented her own acres from her father last year. She is interning at the Cooperative Elevator Company this summer.

Guy Beals Memorial Scholarship

This year's recipient of the Guy Beals Memorial Scholarship is Krista Roggenbuck, daughter of Doug and Debbie Roggenbuck of Harbor Beach. Krista has been actively involved in the Youth Sugarbeet Project since she was eight years old. She is the youngest of three children.

Krista earned the Youth Program's Premier Award in 2009 and 2010. She was awarded with the high honor Prestige Award in 2011 and 2013. Krista was the Mistress of Ceremonies at the 2013 Youth Project Awards Banquet held in Sandusky in January 2014.

Krista graduated from Harbor Beach High School on June 1, 2014. Her 3.976 grade point average earned her cum laude honors. She was involved in the National Honor Society and was an active student council member each year she was in high school. Other school activities included varsity soccer (four years), and four years of hockey. Krista enjoyed working as a co-op student at Tri-County Equipment while attending school.

Krista's future interests will be focused on the family farm, Helena Valley Farms. The farm works some 5,500 acres of tillable land and grows 1,500 acres of sugarbeets. Helena Valley is owned and operated by Krista's grandparents, Mike and Pat; her parents, Doug and Debbie; and her uncle and aunt, Jim and Stacey. Krista enjoys taking care of the feeder cattle (over 1,200 head), several of which she owns herself. During beet harvest, she really likes running the Big Bear beet cart and has operated the Tiger self-propelled harvester several times.

Krista will be staying close to home since she is now employed full time by the farm operation. She will continue to help out wherever needed on the busy farm of Helena Valley. The \$500 Guy Beals Memorial Scholarship is given in memory of a local grower from Brown City, Guy Beals, who passed away in 2003.

Michigan Sugar Company Next Generation Scholarship

Amber Brown of St. Louis, Michigan, is this year's recipient of the Michigan Sugar Next Generation Scholarship. She is the daughter of proud parents, Matt and Nanette Brown.

Amber is a very outstanding student and individual, both with her educational accomplishments and her social activities. Amber has participated in the Sugarbeet Project for nine years and earned the Premier Award in 2009, 2010, and 2011. Amber graduated from Breckenridge High School with a 4.0 GPA. She was co-valedictorian for this year's class. While in high school, she was very active in many activities. She participated in the Beebe Beef 4-H Club where she served as junior president. She also was in FFA as the junior president as well as vice president. While in FFA, she competed on the Parliamentary Procedure team at both districts and regionals, placed first at States for environmental skills, received a State FFA Degree 2014 and much more. Amber has held the offices of class senator and class officer, was on the student council as vice president, and in the National Honor Society.

Amber is very involved in activities in the community and was involved in Food for America Day, Meals on Wheels Card Making, Study Table, blood drives, Laurenz Farm Day and many more. She was the DAR Good Citizen for Breckenridge 2014. Amber also competed in volleyball and softball in high school where she was team captain for both sports. Amber will be attending Saginaw Valley State University this next year and plans to become an occupational therapist. ■

BRIAN FOX MEMORIAL AGRICULTURE SCHOLARSHIPS AWARDED

Grace E. Mullen and Paige L. Handsor were selected as the first annual recipients of the Brian Fox Memorial Agriculture Scholarship. Paige and Grace present youthful, intelligent faces for the future of agriculture. Both candidates will be attending the University of Guelph, Guelph Campus, in the Fall of 2014.

The Brian Fox Memorial Agriculture Scholarship Fund is administered by the Ontario Sugarbeet Growers' Association. These scholarships are awarded to students from Lambton-Kent, entering an agricultural post-secondary program in the fall.

2014 Scholarship Recipients, l to r:

Erica Gremel, Albert Flegenheimer Memorial Scholarship; Krista Roggenbuck, Guy Beals Memorial Scholarship; and Amber Brown, Michigan Sugar Company's Next Generation Scholarship.



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50th Michigan Sugar Queen Crowned

By Barb Wallace, Michigan Sugar Queen Activities Coordinator

**... and the Sweetest Girl in Michigan is ...
Isabella Krolikowski of Midland!**

Isabella was crowned the 50th Michigan Sugar Queen at the Annual Michigan Sugar Festival in Sebewaing on June 13. Crowned first runner-up was Erica Gremel of Sebewaing, and second runner-up, Megan Keen of Essexville.

Isabella, daughter of Marty and Shannon Krolikowski, is a recent graduate of Bullock Creek High School. She will be attending Central Michigan University in the fall with plans to become a dentist.

First runner-up Erica, is the daughter of Joel and Lyndsay Gremel. Erica graduated from Unionville-Sebewaing Area High School in 2013 and currently attends Michigan State University. Erica will be majoring in crop and soil sciences with a minor in agribusiness management.

Megan, second runner-up, is the daughter of Chet and Bonnie Keen. Megan graduated from Essexville-Hampton Garber High School in 2013 and currently

attends Central Michigan University. Megan's major is in athletic training and aspires to become an athletic trainer for a professional sports team.

The Royal Court will be touring the state on the Pioneer Sugar float while making appearances in many local parades. Beginning with the Michigan Sugar Festival Grand Parade on June 14, 2014, they will also appear in two national parades; National Cherry Festival Parade and National Baby Food Festival Parade in July. They will also attend the ever popular Cheeseburger Festival in Caseville in August and the Richmond Good Old Days parade in Richmond in September.

The Sugar Festival in Sebewaing celebrated its 50-year milestone with many extra activities, including a special float to carry past sugar queens attending the annual parade. They were also honored with special recognition on the main stage on Saturday evening. At right is a list of all 50 Michigan Sugar Queens. These past queens have been, and continue to be, great representatives of our company, growers and industry.

Be sure to check the Pioneer Sugar Facebook page for upcoming dates and times of appearances of this year's Sugar Queen and Court.

Michigan Sugar Company solely sponsors the Michigan Sugar Queen competition. As the sponsor, the company and grower-owners provide the queen with a \$2,000 scholarship for use at the university of her choice. The first and second runners-up are each awarded a \$1,000 scholarship. ■



Above, l to r: The 2014 Queen and Court ... Queen Isabella Krolikowski, second runner-up Megan Keen, and first runner-up Erica Gremel, following crowning ceremonies held at the Michigan Sugar Festival on June 13. **Right:** Michigan Sugar Queen Isabella will make dozens of personal appearances.



The Michigan Sugar Queen: A Sweet Tradition for 50 Years!

1965	Mary Ann Hornbacher	Sebewaing
1966	Judy Dressler	Sebewaing
1967	Connine Kundering	Sebewaing
1968	Becky Good	Gagetown
1969	Karen Krauss	Sebewaing
1970	Karen Gremel	Sebewaing
1971	Renee Roller	Unionville
1972	Laura Shelter	Pigeon
1973	Debbie Richmond	Pigeon
1974	Janet Gettel	Sebewaing
1975	Connie Tambllyn	Elkton
1976	Kathy Gremel	Sebewaing
1977	Sharon Rase	Essexville
1978	Betsy Heinman	Sebewaing
1979	Wanda Rase	Sebewaing
1980	Lori Rase	Essexville
1981	Deadra Lynn Ballard	Fairgrove
1982	Jill Leipprandt	Pigeon
1983	Deann Balash	Bay City
1984	Debbie Smith	Caro
1985	Bernadette Voelker	Owendale
1986	Angela Heckroth	Unionville
1987	Barb Merchant	Cass City
1988	Shelly Sieman	Harbor Beach
1989	Kelly Williams	Sebewaing
1990	Amy Horst	Sebewaing
1991	Vickie Holland	Unionville
1992	Kristy Adam	Unknown
1993	Janna Kundering	Sebewaing
1994	Nicole Longhini	Chesaning
1995	Rhonda Garza	Sebewaing
1996	Leslie Siefka	St. Louis
1997	Sarah Zagata	Sebewaing
1998	Julie Tolles	Pinconning
1999	Angela Roestel	Pigeon
2000	Kerri Dyhse	Harbor Beach
2001	Amanda Trischler	Unionville
2002	Jelanie Schnettler	Munger
2003	Jackie Puvalowski	Ruth
2004	Brittney Maurer	Harbor Beach
2005	Stephanie Gremel	Bay Port
2006	Erica Hoffman	Lennon
2007	Samantha Bishop	Kenockee
2008	Rebecca Doerr	Cass City
2009	Elizabeth Krivosky	Corunna
2010	Dana Davidson	Fairgrove
2011	Kelsey Prohaska	Standish
2012	Taylor Janicek	Corunna
2013	Victoria Hudgins	Lapeer
2014	Isabella Krolikowski	Midland



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Looking into the Future

“Technological advancement in production agriculture has progressed quickly and changed the world of farming dramatically for those of us who are known as “baby boomers.””

By Ray VanDriessche, Director of Community and Government Relations

This spring, as we put in our first field of sugarbeets, my sons took the time to show Dad how to set up the GPS positioning auto steer system and save the individual field data in the computer on the planting and ground working tractors. Although we have had the technology on our farm for a couple of years, us “old dogs” need a refresher course each year to help clear out the winter cobwebs. I think I am getting the hang of it, and I am sure after they show me at least ten more times, some of it just might stick! Maybe you can teach “an old dog” new tricks!

Technological advancement in production agriculture has progressed quickly and changed the world of farming dramatically for those of us who are known as “baby boomers.” Almost immediately I started thinking about how much easier this technology would make harvesting sugarbeets again this fall when we lock onto the GPS positioning data saved from spring planting, keeping the digging wheels of the beet harvester directly over the top of the rows being harvested. There goes the stiff neck that my brother, Gene, has at the end of the day from looking behind to make sure that the harvester is staying right on the row.

As a result of GPS-based grid sampling of fields and variable rate application of fertilizer, we are now using only what is needed to achieve our desired yield goal for each crop. Through this site-specific agriculture, as it is now commonly termed, we are achieving the environmental stewardship goals of reduced fuel, fertilizer, and chemical usage that is so important to many in agriculture, while at the same time reducing costs for our operation.

It is hard to find a meeting connected with agriculture that does not focus on the desire for technology that will significantly increase yields, which will meet the demands of an ever increasing population. This “Need to Feed” is the reason that the U.S. Department of Agriculture, Agriculture Research Service (USDA-ARS) scientists based in Beltsville, MD, are developing a sophisticated new modeling tool known as the Geospatial Agricultural Management and Crop Assessment Framework (GAMCAF). The tool combines crop models that estimate plant growth and crop yield at scales as fine as 90 feet, derived from spatial sources of information on soils, water, and land use. GAMCAF

sounds like a video game to me that should have a superhero called TECHNO-MAN who saves the day when he figures out how to feed the expected population of 9 billion people in 2050!

With smart phones clipped to our belts, we have immediate access to: weather reports, the latest market prices, the ability to order another load of fertilizer or seed when we unexpectedly run short, or send a picture of a repair part we need to the local dealer — all while never leaving the field. We can also make notes or enter individual crop record information as we finish each production practice throughout the growing and harvesting season from our smart phone as the tractor or combine steers itself down the field. We communicate by way of phone, emails, texts or phone-blasts saving us precious time and extra trips running down the road with our vehicles. I have heard many on the farm say that with the new technology that they can put in more hours and feel less tired and stressed at the end of the day.

With the quick acceptance and implementation of GPS based auto-steer, nutrient grid sampling, Geospatial AG Management tools and Drones flying over fields scanning for crop health and deficiencies, there is no doubt in my mind that technology based agriculture will continue to advance in leaps and bounds as “The Need to Feed” becomes more and more evident. As there are fewer and fewer in production agriculture to fulfill the “Need to Feed” of an ever-increasing population, those who are committed to the lifestyle are very anxious to see what the future of agriculture has in store. Thank goodness for our young sons and daughters who can absorb this new technology so efficiently and guide our multi-generational farm operations into the future.

As I said earlier — I guess you can teach “an old dog” new tricks! Now if I could only remember where I buried that last bone! ■



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Looking to the Future of Sugarbeet Farming



Now, more than ever, it is imperative that we encourage and develop the next generation of sugarbeet growers to sustain our industry for the future. Michigan Sugar Company's **Young Farmer Program** provides a forum for young sugarbeet growers between the ages of 18-35 who are interested in learning more about the sugar industry and Michigan Sugar Company while developing leadership skills. The **Young Farmer Program** gives growers of a similar age the opportunity to network and discuss issues common to the next generation of farmers.

This program is open to all Michigan Sugar Company sugarbeet shareholders, or individuals (son, daughter, niece, nephew, hired help), sponsored by a shareholder. This group of next generation sugarbeet farmers have the opportunity to participate in activities specifically designed to help them gain an enhanced understanding of our cooperative. The young farmers also learn how to become more successful sugarbeet growers and future leaders in our industry.

If you are interested in becoming part of Michigan Sugar Company's **Young Farmer Program**, you can apply online at www.michigansugar.com.



If you have any questions, please contact Ray VanDriessche, Director of Community and Government Relations, Michigan Sugar Company by calling (989) 686-1549, ext. 203, or by email at Ray.VanDriessche@MichiganSugar.com.

Young Farmer Program
2600 S. Euclid Ave.
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