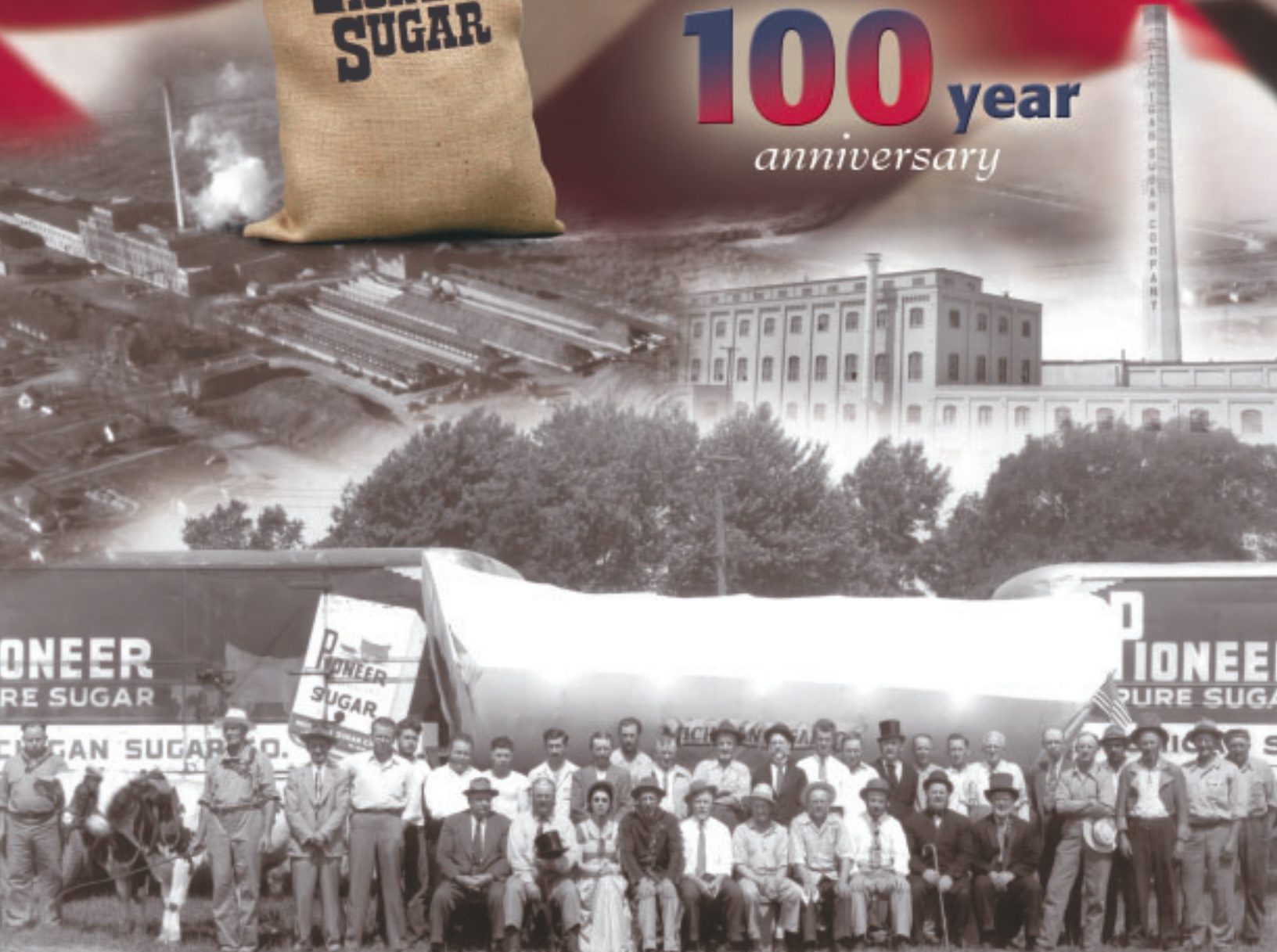


PIONEER NEWSBEET

Spring 2003



Factories
celebrate
100 year
anniversary





*by Mark Flegenheimer,
President and CEO*

Our first crop grown under cooperative ownership has set a very high standard for us to meet in the future. Total sugar produced this year was over 6.3 million cwt.—an all time record for Michigan Sugar Company. Yield was just under 19 tons/acre, grower sugar 18.5% and purity 93.2%. All very good numbers, but we should not be satisfied with setting a record. Is this the best we can do? I think not. I believe we can raise the bar even higher.

Growing the highest quality crop without giving up yield has to be the goal of our grower-owners. The cost of making sugar is dramatically reduced as sugarbeet quality increases, as demonstrated in the article by Herb Wilson **“Higher Beet Quality Saves on Sugar Production Costs”** on page 28 of this issue. As a cooperative, those cost savings accrue to you, the owners of Michigan Sugar.

In an effort to improve quality, the Company conducts field research and provides funding for research through both Sugarbeet Advancement and Michigan State University. We also continue to work with the seed companies in developing new, improved varieties. This spring, I encourage each and every grower-owner to utilize this research when planning and planting the upcoming sugarbeet crop.

Our first full year as a cooperative has been a good one. This past campaign the growers delivered a wonderful crop, which stored extremely well and the factories ran at top capacity. Let us use this first crop as a building block for the future.

By working together and utilizing the best agricultural practices available, we can surpass this record-breaking 2002 crop. 🍷

ABOUT THE COVER

Michigan Sugar’s factories have a heritage of more than 100 years. This past year three of the factories celebrated their 100 year anniversary while one had already passed that mark. See the cover story and time-line on pages 20 through 23 for details.

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*by Robert Braem,
Vice President of
Agriculture*

The 2002 campaign has ended, marking the successful completion of our Cooperative's first crop year. The 125,000 shares purchased by the growers last year became planted acres in the spring. From those acres, a very good quality crop was grown and delivered to the Company. This first crop was the second largest ever received by Michigan Sugar, totaling 2.37 million tons. Sugar content averaged 18.5%, exceeding our five-year average by .8 of a point. Clear Juice Purity (CJP) (a measure of the sugar purity in sugarbeets) was 93.2%, slightly below average. The remainder being impurities, which must be removed in the factory process. Amino nitrogen compounds averaged 14.3 meq/100g sugar, which is a measure of the major impurities.

Our crop was put into long-term storage (piled) under near ideal conditions. Dry soil conditions held tare down to 3.7% and allowed weeds to be separated more easily. Dry conditions generally make good harvesting conditions in the field and fast efficient unloading at the piling station. Air temperatures during regular harvest were below normal resulting in piled beet temperatures in the mid 30° to mid 40° F range. Several interruptions late in harvest were caused by freeze-warning delays. When temperatures were forecasted to

dip into the 20's, warnings were issued not to begin harvest the following morning. Piling frozen beets for long-term storage will lead to significant spoilage and large sugar losses. Growers in all areas cooperated well by not leaving defoliated beets in the field overnight and starting harvest only when beet conditions and temperatures were "right" the following day. Patience and cooperation paid-off. Storable beets were delivered during this cold period.

Campaign went very well. A very good quality beet crop set the stage and the factories performed extremely well. All factories quickly came up to full capacity and sliced at levels above normal for most of the campaign year. Average daily slice equaled last year in a campaign that ran nearly 20 days longer. Sugar produced per ton of beets sliced (pack) has increased significantly from last year. Grower sugar content increased by 1.6% from a year ago and storage conditions were good throughout most of the campaign. As a result, pack was high and did not fall significantly at the end of campaign. Michigan Sugar has achieved record total sugar production in its first year of grower ownership.

As growers and as an Ag department, our goal must be to improve on the quality crop grown in 2002. Weather and growing conditions play a large part in our success, but performing good production practices throughout the year will ensure the best quality crop possible. Many of the keys to

success are not new to us, including: early planting, high plant populations, good weed control, correct (in most instances lower and earlier) nitrogen application, good disease control and delivery of a clean, well defoliated crop. Most growers are utilizing these key components. We must then focus on those areas of beet production needing improvement. Through crop record information, field observation, research and experience, the Ag staff can track these production keys and give growers information and recommendations to adjust their practices. Growers should utilize their agriculturists and the resources available through the whole agricultural staff as needed to help them throughout the year.

Research is very important to continuously improve our crop. Both in refining current production practices and assessing the effectiveness of new products and practices. Our goal in research will be to improve quality by focusing on areas needing improvement by numerous growers, significant production problems and new technologies. A combined effort from company research, Sugarbeet Advancement and University/USDA will provide useful information to growers and Ag staff.

The 2002 crop provided a great start for a successful cooperative. Together we must work hard to continuously improve our practices and techniques to achieve even better quality crops in the years to come. 🍷



*by Jim Stewart,
Manager of
Research*

1. New Sugarbeet Varieties:

Several new varieties are progressing through our approval system which brings an expectation of increased yields and better disease tolerance. Beta 5310 (tested as BK 1086) and Hilleshog 2761rz ("rz" denotes a Rhizomania tolerant variety) were advanced to Limited Approval and can be grown on 5% of the acreage in 2003. Beta 5310 has been a top yielder and has excellent tolerance to root aphids and Cercospora leafspot. HM 2761rz is also a high yielder and is the first of a new group of varieties with tolerance to Rhizomania. HM 2761rz also has good root aphid tolerance and acceptable leafspot ratings. Crystal 963 and Beta 5451 are approved as "Specialty Varieties" and can be grown on a limited basis in 2002. Both of these varieties have been top yielders in our Official Variety Trials and performed well in Sugarbeet Advancement Trials. Three varieties (HM 2763rz, HM 2421rz and HM 7172rz) are approved on a very limited basis as Rhizomania Specialty Varieties for growers who feel they need to plant a Rhizomania tolerant variety. HM 2763rz is similar to HM2761rz and appears to be on track to receive full approval. HM 7172rz appears to have good yields, root aphid tolerance and acceptable leafspot tolerance. HM 2421rz should have

high yields, but leafspot tolerance is expected to be poor. These three varieties are approved for one year only and seed is limited to 500 units each.

2. Fungicides

New fungicides have been evaluated for Cercospora leafspot control for several years. After three years of testing, Eminent, Headline and Gem provide excellent leafspot control while Quadris and Super Tin are somewhat less effective but still provide fair to good leafspot control (Table 1). Topsin + Penncozeb continues to provide

very good leafspot control where resistance is not present. Headline, Gem and Quadris are all strobilurin chemistry and have the same mode of action. We strongly recommend growers make only one strobilurin application per year for leafspot control. A Section 18 registration will be applied for Eminent again this year (the EPA granted MDA Section 18's in 2000, 2001 and 2002). If it is approved, Eminent use will be one time per year rotated with a strobilurin or Topsin, + EBDC or Super Tin. Cercospora resistance to Topsin, Super Tin and Eminent has been detected in

TABLE 1

**Cercospora Leafspot Control in Sugarbeets with Experimental Fungicides:
Average of 2000, 2001, and 2002 Trials**

Treatment	Rate/Acre	3 Year Averages				
		CLS Rate	RWSA	TON/A	RWST	%Suc
Headline	9.2 fl oz					
Topsin M + Penncozeb	8 oz + 2 lb	1.38 c	6379 a	25.2 a	253 a	17.6 a
Headline	9.2 fl oz					
Gem	6.5 oz					
Topsin M + Penncozeb	8 oz + 2 lb	1.41 c	6261 ab	25.1 a	249 a	17.6 a
Gem	6.5 oz					
Eminent	13 fl oz					
Topsin M + Penncozeb	8 oz + 2 lb	1.43 c	6167 b	24.5 b	252 a	17.7 a
Eminent	13 fl oz					
Quadris	9 fl oz					
Topsin M + Penncozeb	8 oz + 2 lb	1.92 b	5978 c	24.0 c	249 a	17.5 a
Quadris	9 fl oz					
Super Tin	5 oz					
Topsin M + Penncozeb	8 oz + 2 lb	2.03 b	5821 c	23.2 d	250 a	17.6 a
Super Tin	5 oz					
Untreated		4.59 a	4876 d	20.5 e	235 b	16.7 b
LSD 0.05		0.181	169	0.6	6.1	0.28
CV		7.2	2.4	2	2.1	1.3
Mean		2.13	5913	23.7	248	17.4
Trt. Prob (F)		0.0001	0.0001	0.0001	0.0001	0.0001

Averages followed by the same letter do not significantly differ (P = .05, Duncan's New MRT)

Treatments applied with a Cub Tractor Small Plot Sprayer at 100 psi and 22.5 gpa.

Plot size: 6 rows X 30 ft (spray 4) Reps: 6 CLS Rate: 0 = no disease, 9 = plants completely defoliated

Michigan, consequently, these should always be mixed with another fungicide such as an EBDC and should be applied only once per year. If growers alternate their fungicides properly, they will be able to delay or prevent disease resistance to these new fungicides in our growing region.

The BeetCast fungal disease prediction model was tested this year in Michigan. Results were encouraging. Fungicide application timings based on the model gave better leafspot control and returned more dollars per acre than the standard method of starting the spray programs at the first sign of disease and reapplying every 18 days. We will be doing more work with BeetCast in 2003 to further refine the system with Sugarbeet Advancement. Further information is available on the Internet at www.michiganbeets.com.

3. Herbicide

Two "generic" formulations of Topsin M® (T-Methyl and Thiophanate Methyl) were sold in Michigan last year. These fungicides were evaluated in a replicated trial and both products provided results similar to Topsin M and Benlate. Additional research will be conducted in 2003 to confirm these results.

A series of trials in 2002 looked at tank-mixing Headline, Gem, Topsin M, Quadris and Super Tin with various surfactants, Assure II + COC and with micro-rate and standard split herbicides. The addition of Induce to the fungicides did not cause any crop injury.


However, Quadris gave better leafspot control with the addition of Induce. Mixing the fungicides with Assure II + COC did not cause any significant sugarbeet injury. We did, however, find Quadris and Gem tank mixed with micro-rates and standard splits caused severe sugarbeet injury when MSO was included in the tank mix. When other surfactants were substituted for the MSO in these mixes, the injury was reduced but was still significant. Quadris and Gem did not cause sugarbeet injury in these herbicide tank mixes when surfactants and MSO were left out of the tank mix.

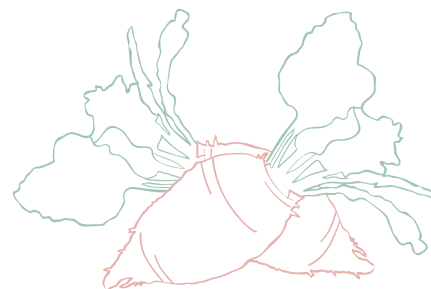
It appears generic formulations of Betamix and Nortron will be available from United Phosphorus and AgValue for use on the 2003 sugarbeet crop. Generic formulations of Nortron, Betamix and Stinger from AgValue were tested and found to be essentially equivalent to Nortron, Betamix and Stinger. Etho SC (generic Nortron) from AgValue is registered in Michigan and they expect registrations for their generic Betamix and Stinger early in 2003. The United Phosphorus generic Betamix will be called Phen-Des 8+8 and the generic Nortron will be called Ethotron SC. United Phosphorus products have not been tested.

Talk continues in the countryside about a Dual registration and a Section 18 registration for Outlook this year. At this time these products are not registered for use on sugarbeets. Your Co-op **WILL NOT** accept beets treated with any

unregistered pesticide. We will discuss the recommendations for using these products if and when EPA registers them. **DO NOT USE ANY UNREGISTERED PESTICIDE. SUCH USE IS A VIOLATION OF LAW ACCOMPANIED BY SEVERE PENALTIES.**

4. Rhizoctonia

Additional trials were conducted in 2002 by Michigan Sugar Company and Sugarbeet Advancement evaluating Quadris for Rhizoctonia crown rot control in sugarbeets. Quadris will control Rhizoctonia when applied at the 6-8 leaf stage; Quadris applied at row closure also provides some control of Rhizoctonia but will not "cure" sugarbeets already showing symptoms. Row closure applications may not pay unless it also serves as the first Cercospora spray. In-furrow applications of Quadris have also given fair to good control of Rhizoctonia, but have not improved germination or emergence. Utilizing disease tolerant sugarbeet varieties will also provide effective control of Rhizoctonia crown rot. More research will be conducted in 2003 looking at reduced Quadris rates and other timings including early postemergence (2-4 leaf stage). 



TIMING MICRO-RATE HERBICIDE APPLICATIONS BY GROWING DEGREE DAYS



by Trevor Dale
and Karen
Renner, Graduate
Research Assistant
and Professor,
Department of
Crop and Soil
Sciences, Michigan
State University



Weeds emerge every year in sugarbeet fields. Weed emergence timing and the rate of weed growth

are dependent on temperature and soil moisture. Weeds must be controlled in sugarbeets when they are very small (less than one inch). Usually growers apply postemergence herbicides twice, each time when the weeds are less than one inch tall. Micro-rates were registered for use in Michigan in 2000. In 2002 the micro-rate program was applied to more than 60% of Michigan's sugarbeet acres. With the postemergence micro-rate program, growers apply

reduced rates of herbicides + methylated seed oil (MSO) each time weeds reach $\frac{1}{4}$ to $\frac{1}{2}$ inch in height. According to the herbicide labels, the timing of micro-rate herbicide applications in sugarbeets should be every 5 to 7 days following the first application. This spray schedule does not account for cool weather conditions when weeds and sugarbeets are either not growing or are growing very slowly. During these cool periods, the time required for weeds to reach the cotyledon growth stage may be two weeks or longer. Therefore, when growers are spraying under these cool conditions on a seven day schedule some application(s) are not needed, sugarbeets can be injured, and unnecessary dollars are spent. Furthermore, if the timing of micro-rates is not optimized, weeds can escape and cause future problems.

For the reasons previously mentioned, we set out to find more appropriate guidelines for

postemergence herbicide applications in sugarbeets. We decided to follow a spray schedule using growing degree days (GDD). We chose air temperature because many growers already use air temperatures and GDD for other crop protection practices. Air temperatures are readily available within certain geographical areas.

"An economic advantage exists applying micro-rates using GDD."

In 2001 and 2002 we planted 'Hilleshog E-17' and 'Beta 5400' in 30-inch rows in early April, mid-April, and early May to determine if planting date influenced the effectiveness of postemergence herbicide applications based on

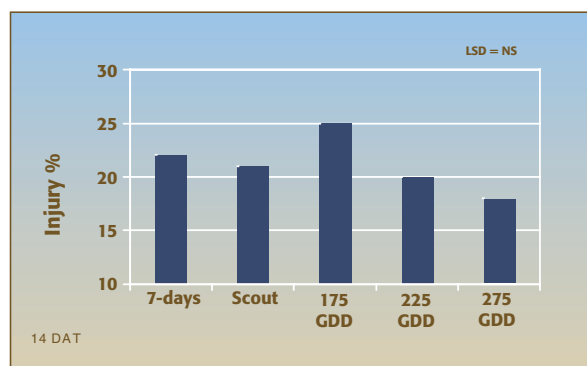
TABLE 1

Growing Degree Day Formula Used in Micro-Rate Timing Study

- Growing degree rate formula
- $(\text{High temp} + \text{Low temp}) / 2 - 34 \text{ F}$
- Example high of 80 and low of 60 F
- $(80 + 60) / 2 - 34 \text{ F} = 36 \text{ GDD}$

TABLE 2

Table 2. Sugarbeet injury combined over plantings in 2002.



GDD. These planting dates represented an early planting, a normal planting, and a late planting date. In both years, the first planting was just when growers had started to plant, the mid-April planting was when the majority of the sugarbeets were planted, and the early May date was when the last few acres were planted. We applied the micro-rate every: 1) 7 days, 2) 175 GDD, 3) 225 GDD, 4) 275 GDD, and 5) scout and apply when needed. We calculated GDD based on air temperature (Table 1). The number of broadcast micro-rate applications in these field plots ranged from 4 to 9, depending on the planting date and micro-rate strategy. Spraying every 7 days or every 175 GDD resulted in excellent weed control. Stunting of sugarbeets from these repeated applications was evident in May, but by mid-June these differences were no longer evident. The 225 and 275 GDD treatment provided excellent control of common lambsquarters at all planting dates in both years, and sugarbeet injury was less in these treatments than where micro-rates were applied every 7 days or every 175 GDD. However, redroot pigweed and Powell amaranth were not controlled as well with the 275 GDD treatment compared to applying micro-rates every 7 days, 175, or 225 GDD. Redroot pigweed and Powell amaranth emerge later in the season compared to common lambsquarters. This information suggests we could lengthen the time between herbicide applications early in the season to 275 GDD when lambsquarters is our predominant weed and then shorten our time between micro-rate applications to 175 to 225 GDD in mid May through June when redroot pigweed and Powell amaranth emerge.

An economic advantage exists applying micro-rates using GDD. One broadcast micro-rate application carries an estimated herbicide cost of approximately \$20.00/acre. Reducing one micro-rate herbicide application would therefore save the farmer time and herbicide cost and

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TABLE 3

Micro-Rate Timing Schedule for the Early April Planting Date in 2002. The X denotes the date of planting and each arrow signifies a micro-rate application

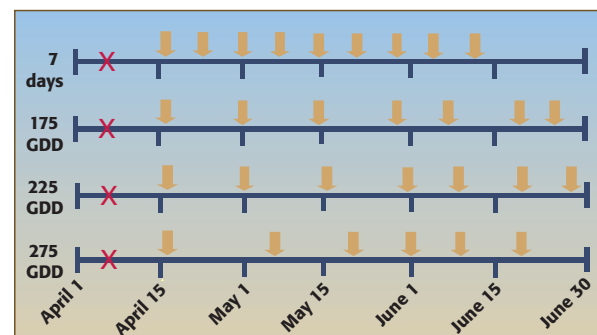


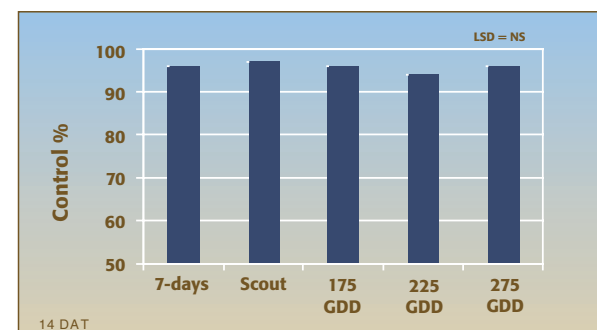
TABLE 4

Total Micro-Rate Applications for all Treatments at the Various Planting Dates in 2001 NS 2002. Sugarbeets were planted in 30" rows and were not cultivated.

	Treatment	2001	2002
Early April	7 days	7	9
	175 GDD	7	7
	225 GDD	--	7
	275 GDD	7	6
Mid April	7 days	7	8
	175 GDD	8	6
	225 GDD	--	6
	275 GDD	5	5
Early May	7 days	7	7
	175 GDD	7	5
	225 GDD	--	5
	275 GDD	5	5

TABLE 5

Common lambsquarters control combined over plantings in 2002.



reduce the potential for sugarbeet injury. Sugarbeet yield trended upward when micro-rates were applied on a 225 or 275 GDD schedule. However, pigweed species may escape the 275 GDD treatment. Therefore, this research suggests following a 225 GDD schedule for fields with low to moderate weed pressure. For fields with high organic matter (black soils) and high weed pressure we suggest checking fields

at 150 GDD and timing applications for 175 GDD. For growers wanting to adjust the timing of micro-rates relative to weed emergence, we suggest lengthening out the spray interval early in the season (April) to 275 GDD, timing for 225 GDD in May until the time of pigweed emergence, and then applying every 175–200 GDD for redroot pigweed and Powell amaranth. 🌱

TABLE 6

Redroot Pigweed and Powell Amaranth Control Combined over plantings in 2002.

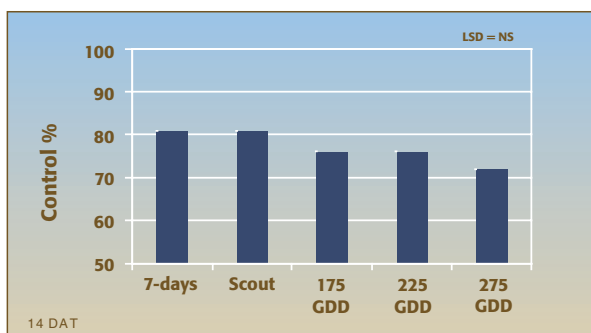
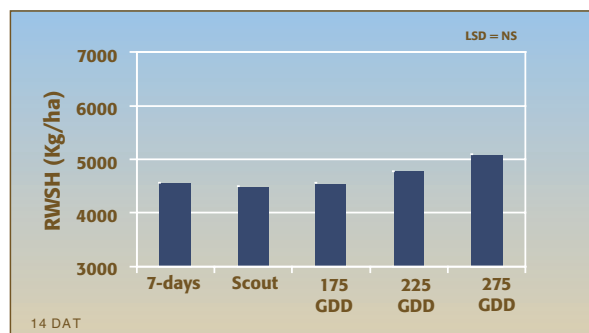


TABLE 7

Sugarbeet Yield Combined over Planting in 2002.



Pigweed Note: for more detailed information on differentiating pigweed species the following resources are available on Iowa State's Web Site: <http://www.weeds.iastate.edu/weed-id/waterhemp/default.htm> OR <http://www.extension.iastate.edu/Publications/PM1786.pdf>

OR on Ontario's Web Site:

<http://www.gov.on.ca/OMAFRA/english/crops/facts/01-009.htm> (they call Powell pigweed, green pigweed)

OR an excellent resource on pigweed identification, consult a bulletin developed jointly by Kansas State University and the University of Illinois: Pigweed Identification:

A Pictorial Guide to the Common Pigweeds of the Great Plains. It is available from the Kansas State University Cooperative Extension Service Production Services/ Distribution, 28 Umberger Hall, Kansas State University, Manhattan, KS 66506-3406.

NITROGEN MANAGEMENT FOR SUGARBEETS



by Steve Poindexter, Extension Sugarbeet Agent

The next hurdle for Michigan growers to accomplish will be the management of nitrogen on sugarbeets. Nitrogen is typically the most important nutrient in sugarbeet production. With too little nitrogen, sugarbeet yields will suffer; with too much nitrogen the quality will decline.

No other nutrient related to sugarbeet production has been as widely researched as nitrogen. In all sugarbeet growing areas, optimum beet production requires between 6 to 8 lbs of nitrogen per ton. This nitrogen is supplied by residual nitrate in the soil, mineralization of organic matter and fertilizers. How much you get from each source has always been the question and is field specific. Current research is being conducted by Dr. Carrie Laboski, MSU Soil Fertility Specialist, to develop a more accurate nitrogen prediction test. Our current nitrogen soil test only reports residual nitrate and makes no prediction on mineralization.

Often, I am asked "Why do Michigan growers apply what seems to be excessive amounts of nitrogen compared to other areas of the U.S.?" The reason may be two-fold. The first reason is the difficulty in developing as good a soil nitrogen prediction test for Michigan as compared to drier beet areas in the U.S. The second reason is because over application stems back to the 90's when beet yields were in decline. Growers tended to respond by increasing nitrogen rates.

We must remember sugarbeet yield response to nitrogen is limited. Sugarbeets are a pre-programmed crop. As a biennial, they need to store sugar in the roots to supply the subsequent year's seed crop. We can trick the sugarbeet into growing more leaves than needed by excessive nitrogen application. Ideally, sugarbeets should be storing sugar in roots in the fall not growing more leaves, which utilizes sugar. By September, we would like beets to focus energy into sucrose storage in the roots. A general off-color of the foliage should occur if nitrogen rates are correct. This off-color indicates increasing sugar content and a reduction of nitrogen based impurities while not affecting

tonnage, thus improving recoverable sugar per acre and grower profitability.

Sugarbeet Advancement research at two locations in 2002 showed the effect nitrogen has on RWSA, Tons, RWST, % Sugar and Clear Juice Purity (See Table 1). Every 45–50 lbs. of nitrogen over optimum rates (90–100 lbs.) reduced RWSA by 219 pounds (estimated value of \$28.00) and increased nitrogen cost by \$10.00 per acre thus actually costing the grower a decrease in net revenue by \$ 38.00 per acre. These trials mimic very closely three other trials conducted in 2000 and 2001. If every Michigan grower over-supplied 50 lbs. of nitrogen per acre, the net industry loss would be over \$ 7,000,000.

We know, from previous research in the U.S., we do not want to under-supply the sugarbeets of early season nitrogen. It is critical beets canopy as soon as possible for optimum capture of sunlight. Ideally, we would recommend 50 lbs of nitrogen applied at planting. Additional nitrogen should be applied to an optimum level as soon as plants are established. Always remember, a half stand of beets does not require a full application of nitrogen.

In general, without a soil nitrogen test, the current recommendation following dry beans and soybeans would be 90–125 lbs. per acre. Following a high

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TABLE 1

On-farm research and demonstration combined nitrogen trials—2002

Treatment Name	RWSA	Actual Yield T/A	RWST	% Sugar	CJP %
90-100# N	7792	27.95	279	19.5	93.3
45-50# N	7725	26.88	288	19.9	93.8
135-150# N	7593	27.7	275	19.3	92.8
180-200# N	7355	27.55	267	18.7	92.7
Average	7615	27.52	277	19.3	93.1
LSD (5%)	340	0.62	13	0.4	0.8
C.V. (%)	4	2	4	2	1

residue crop such as corn, an additional 25 lbs may be beneficial. Research is currently being conducted to evaluate nitrogen recommendations further. Sugarbeet Advancement work has never shown a positive effect on RWSA from nitrogen applications over 150 lbs. per acre. Growers are encouraged to experiment with strips to convince themselves what nitrogen is doing to/for them. The financial risk of under applying nitrogen is small compared to the costs of over applications. The goal is to maximize recoverable sugar per acre. 🍷



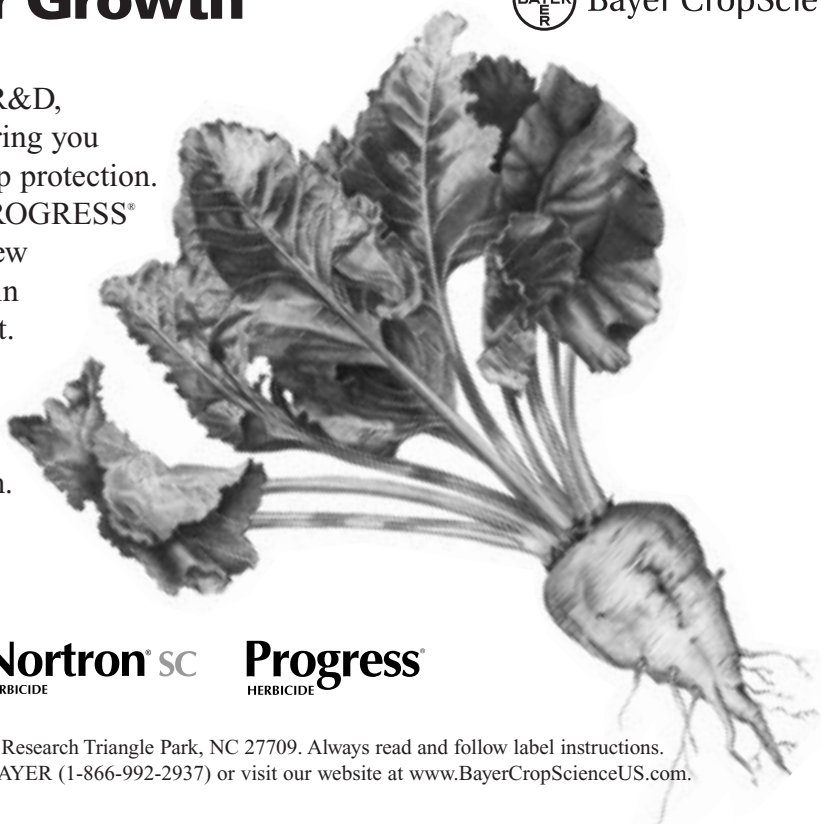
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*by Jeff Karst, Agriculturist,
Caro District*

In today's Agricultural Industry, you do not see many new farms forming, but for Paul Dost and his family it is a new venture. Operating a farm is something Paul has wanted to do ever since he grew up driving a sugarbeet truck. About three years ago, he made his dream a reality when he purchased 200 acres and formed Paul Dost Farms, LLC. He has increased his operation to about 1,100 acres. His crop rotation includes 500 acres of corn, 100 acres of wheat, 25 acres of potatoes and 300 acres of sugarbeets.

Paul, 43, and his wife, Joyce, have three children. They are Nicole (22), Joe (18), and Mark (14). For the last 14 years, Paul and Joyce have operated a trucking company called "Blue Line Trucking" out of Reese, Michigan. Paul has been involved in the trucking business for 24 years and holds a position on the Board of Governors for the Michigan Trucking Association. Blue Line Trucking Company's main focus is transporting sugar from Michigan Sugar Company to their customers. Paul has been a huge supporter of the Cooperative formation and activities. He currently holds the Secretary position for the Caro Grower District.

In the three years Paul has been raising sugarbeets, he has learned a great deal. He begins with one pass in the spring with a field cultivator on either fall disk ripped or fall plowed ground. He plants with a 12-row 7240 John Deere Planter in 22-inch rows. Paul feels a high plant population is important. Thirty pounds of nitrogen are applied using 10-34-0 in a 2 X 2 band. The remaining nitrogen is cultivated in during the summer using urea, which he prefers. No preemergence is used at planting and the microrate program is used for weed control.

Paul receives a lot of help throughout the growing season from his two sons. They are also interested in the Dost farming operation. Paul's dad joins them for the fall sugarbeet harvest. They harvest with an Artsway 690, 6 x 22 inch row, sugarbeet harvester and deliver them to Caro, Gilford, Carrollton and Sebawaing.




Above: Standing next to the sign at their trucking business location are (l to r): Joe, Mark, Joyce and Paul Dost. Below (l to r): Joe, Mark and Paul Dost.



Paul feels the key to a successful sugarbeet crop starts with early planting. He also feels 22-inch rows have an advantage for higher tonnage and sugar over wider spaced rows. Timely weed and insect control are also major roles in keeping the plants healthy.

In addition to operating a farm and trucking business, Paul enjoys snowmobiling, deer hunting, and fishing. The Dosts belong to "Lady of the Lakes" Church in Houghton Lake where they own a cottage.

Paul also enjoys and is active in sports. He plays in a minor league professional football league. His sons are also big sports fanatics. When Paul retires he wants to give his sons the opportunity to take over their "new" farming operation.

Building a viable farming operation from scratch is a challenge. This is a challenge that Paul Dost is meeting head-on. He is meeting his goals and setting his sights even higher as he continues his journey into the sugarbeet industry. 



*by Bob Wight, Agriculturist,
Carrolton District*

Albee Township farmer Bruce Albosta is a man who enjoys a challenge and raising quality sugarbeets is one he really enjoys. Bruce has been involved in farming since 1978 and the growing of sugarbeets since 1987. His father, Jim, would let him use a few acres of their family farm in the Prairie area South of Saginaw to earn a few extra dollars. He did this in his spare time when his other chores were complete.

"Raising sugarbeets is fun," says Bruce. "You have to pay attention to details. Everything from fall tillage and variety selections, nutrient and disease management, to harvesting operations."

Bruce lives on his farm with wife, Lori, and their two daughters, Dana (12) and Jackie (10). While the children attend Chesaning Schools, mom works as an accountant and tax preparation professional in the Saginaw and Merrill areas. Bruce provides the expertise to operate the farm and Lori provides the expertise to track the farm's financials. Complete and accurate financials are a major part of today's successful farming operations. Bruce receives great satisfaction from finding ways to make his farming operation more efficient and competitive.

Bruce supplements his income and uses his farming skills to assist his uncle and cousin with their farming operation, Misteguay Creek. He helps perform planting operations, especially the sugarbeet planting, and much of the harvesting. In return he gets the use of additional equipment and can concentrate on the details that provide a solid foundation for the crop season at hand. Bruce makes sure field preparation is correct for proper seed placement. The seed needs good soil contact for proper germination. "The quick establishment of a good stand makes the rest of the season a lot easier."

How successful is Bruce at paying attention to detail? Lets take a look at a few statistics. Over the past three years the sugar content of Bruce's sugarbeets has been 0.20% over the Albee district, clear juice purity has been 0.10% over district and tons per acre have been



From left to right: Bruce, Dana, Lori and Jackie Albosta.

7.6 over district average. Carry these numbers through to RWST and RWSA, his crop has 4.5 more pounds per ton and a whopping 2,020 pounds per acre more sugar than his district's average! If three years is not enough, averaging his statistics from his very first contract, the numbers remain significantly over average. Paying attention to details has paid off over time.

So, what are the details? Let's follow Bruce through a growing season for one of his typical sugarbeet fields. Field preparation starts in the fall with an application of the required amount of fertilizer. Fertilizer is worked into the soil with a moldboard plow and once over with secondary tillage to level the surface. In those areas prone to wind erosion, he will leave previous crop stubble exposed to reduce wind velocities. Bruce's beets follow soybeans, wheat or corn, although he likes following corn the best. In the spring, the field will receive a once over with a Triple-K type implement, if it needs it. Otherwise he likes to utilize a stale seedbed. When he feels he must work the field, he uses smaller equipment with no ballast in the tires to keep soil compaction to a minimum. He plants the beet seed no less than 1" deep and spaced 4.8" apart on 28" row spacings. He uses a little "pop-up" fertilizer on the planter and after the beets emerge he decides how much nitrogen to side dress, which will never be over 120 pounds per acre total. He says, "Any more than that is a waste" of scarce resources, dollars, and ultimately "reduces the quality of the crop."

For weed control, Bruce likes the tried and true split-rate applications of post-emerge herbicides. After

emergence he can see what his weed targets are and he does not use more than he needs. He believes in not exposing the environment to any more chemicals than he needs to, no matter what the crop. "You must remove the weeds," says Bruce. The weeds will keep nutrients, water and sunlight from being utilized by the beets and "weed seeds never disappear, they just wait in the soil to be plowed back to the surface where they will germinate 20 or 30 years later." Keeping weeds out every year is very important.

Next is disease control. "One year my beets burned down from Cercospora. They lost two to four weeks of prime growing just putting on new leaves." Bruce will not let this happen again. He sprays for leafspot at the very first sightings and usually figures on at least two applications per year.

At harvest, he utilizes an all rubber beet topper to remove all the green leaf material without dam-

aging beet crowns. The harvester is where he controls harvest losses. "You do not miss any beets with the harvester, you watch your ground speed (keep it down) and do not let any beets fall off the truck." In other words, you harvest and deliver all the beets you've raised through the growing season.

For recreation, Bruce is an avid snowmobiler and loves to spend time in Michigan's Upper Peninsula every chance he gets. And you can bet he knows lots of trails. It is not unusual for him to put more than 2,000 miles per year on his snowmobile. He also likes to play a round of golf when he can find the time!

To summarize Bruce's philosophy for growing sugarbeets, "That's all there is to it! No secrets. Just pay attention to the details, spend the time and contact your sugar company Agriculturist when you have questions (mine is Bob Wight). It will pay!" 🍷

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president's REPORT

Editor's Note: The following two articles (President's Report and Chairman's Report) are condensed from presentations given at the Michigan Sugar Company's Annual Meeting in Caro on January 18, 2003. These reports will be included each year in the Spring Pioneer Newsbeet issue.



*by Mark
Flegenheimer,
President and
CEO*

One of the things people have asked as we have developed in our first year as a co-op is, "What is the Co-op's mission?" In October, senior management and the Board of Directors created our

mission statement—"As a grower-owned cooperative, our mission is to maximize shareholder value by efficiently producing quality Pioneer Sugar while enhancing our employees' future." This mission can be broken down into several main elements as follows: maximizing shareholder value; efficiently producing; quality Pioneer Sugar; enhancing our employees' future.

MAXIMIZING SHAREHOLDER VALUE

"Shareholder value" has two main components:

- The first component is short-term. Short-term is the yearly beet payment. How much do grower-owners get paid this year?

- The second component is long-term. Is the value of the Co-op's shares increasing over time?

Balancing short-term and long-term value is challenging. Do we make a larger payment? Do we improve our balance sheet? As we go forward we will have to continually balance short-term and long-term value.

Looking at the short-term side of it—what can we do to increase the beet payment? Quality beets will help the pack (the amount of sugar per ton recovered). We can attempt to minimize shrink (how many sugarbeets we lose in the piles). Can we reduce the amount of pile loss? In addition, we can reduce the operating costs in the factory. All would contribute to a larger payment.

At the Annual Meeting (l to r): Julie Perry—Executive Assistant; Wayne Hecht—Secretary, Board of Directors; Mark Flegenheimer—President & CEO; Tom Zimmer—Chairman, Board of Directors; David VanDerHaagen—Co-op Attorney.



Another part is the marketing partnerships with Imperial Sugar and Midwest Agri. We need to work with them to maximize value through new products or new markets. We need to get the most out of our partners who market our products.

On the long-term side of things, how are we going to increase shareholder value? We need to strengthen our balance sheet—possibly with unit retains. It is a vital tool at our disposal. Share value will increase as the balance sheet strengthens.

Secondly, we need to make prudent capital investments. This year, energy costs are at the top of our list for capital projects. Economizers and new boiler burners are being installed to improve fuel efficiency and offer flexibility between natural gas and oil. We also have about \$500,000 in regulatory-type items such as chemical handling and safety in our factories. Also, we need to be looking at what our factory capacity utilization is going to be down the road.

Thirdly, politics of the Farm Bill and trade agreements are important.

EFFICIENTLY PRODUCING

Webster's dictionary defines "efficient" as "productive without waste." Therefore, "efficient operation as measured by a comparison of production with cost (as in energy, time and money)," or doing more with less. All the costs in the supply chain from sugarbeets to harvesting, manufacturing

and administration, need to be examined.

Before the Co-op was created, the Company was concerned with manufacturing and administrative costs. We were concerned about "us"—what costs we could control. And then there was "them"—the growers. We were less concerned about the production costs in the field. Now we need to create a "we." We need to worry about those costs from the beginning all the way to the end—from the field all the way through

"...for every one-tenth percent sugar content increase, the bottom line increases approximately \$1 million!"

the factory to the warehouse and our customers. We have many opportunities to reduce costs throughout the supply chain and become more efficient.

We need to continuously strive to improve; constant improvement. We cannot become complacent. We need to try new things. To be successful, we must be willing to change and adopt and adapt. We need to be open-minded and be willing to think "out-of-the-box."

We need to look from creative angles—try new things. We need to look at every step in our costs. We need to look at each of those steps, including the raw material, sugarbeets. We can increase sugar-

beet quality by increased plant population per acre, reduced nitrogen, and reduced disease. We need to conduct research. Research is critically important. I think we need to find new ways to increase quality, whether it is new varieties or new ways to produce our crops.

We need to utilize our Agricultural staff. We have a trained Ag staff at your disposal; experts in sugarbeet cultivation. Utilize them. Get together and brainstorm. We are all in this together. For instance, for every one-tenth percent sugar content increase, the bottom line increases approximately \$1 million! On the harvest side, does 24-hour delivery fit into our mix in Michigan?

The next step is manufacturing. We are doing real-time measurements; measuring throughput, extraction, temperatures, energy use, etc. I believe what is measured is managed. We look at how much down time we have had and compare to other years and other factories. We look at lost-time accidents. Workers compensation costs are evaluated. We need to look at how much overtime we are using. We need to measure these examples, plus more! We need to take those values and compare them to the best practices in the industry and see how we stack up.

In the long-term we have to be efficient. By increasing throughput, whether it is daily or in total, costs are driven down. Can we lengthen our campaign? Can we utilize storage sheds? Is there room for

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additional juice tanks? All of those things need to be evaluated.

We also need to consistently put money back into our factories. The first year, we put \$1.2 million. This year, we are going to put \$2.7 million back into the factories. We need to continue to stay efficient for the long term!

On the administrative side of things, how can we continue to improve efficiency. Checked costs include:

- Salaried employees no longer receive defined pension benefits only defined pension contributions.
- Sprinklers were installed in a couple of our factories this year to dramatically reduce insurance costs.
- We have employed a safety manager to help reduce our workers compensation expenses.
- Unemployment costs, taxes—we have implemented programs for leasing companies to manage these costs.

Before Imperial acquired Savannah and Michigan Sugar, 64 people were employed in the General Office in Saginaw. After Imperial came along, we were down to 25 people. Now we are "on our own" again, we are carefully assessing those areas where we need personnel. So far, we have added seven people to our staff in our Finance, Management Information Services (MIS) and Human Resources

(HR) departments (total of 32, or half the size of our previous level).

QUALITY PIONEER SUGAR

Quality Pioneer Sugar is measured by the highest food safety standards in the industry. We are measured by the American Institute of Baking (AIB) annually. They conduct an independent survey of all our factories. This year, our average score was 879, which is an excellent rating. Since we have been using AIB, we have increased our score every year. We need to continue this trend. Manufacturing a top quality product is essential to our future.

ENHANCING OUR EMPLOYEES' FUTURE

Employees are the single most important asset of a company. We need to reinvest in those assets. We need to keep our employees motivated, happy and fulfilled in their jobs and utilize competitive wages and benefits. We need to make sure the environment in which they work fosters openness and idea-sharing. We must provide continuing education and training. Overall, we need to create an enjoyable and safe workplace.

RECAP: We have shareholder support and acreage and throughput. We have long-term vision. We have excellent employees. We can make our mission a reality. 🍷



chairman's REPORT

WE ARE THEM AND THEY ARE US

*by Thomas Zimmer,
Chairman of the Board of Directors*

My report is not only on how both the company and growers have changed, but also how they stayed the same. We are beginning a new era in the sugar industry in Michigan. We have turned some possibilities into positives.

We have laid a strong foundation by having 125,000 acres of sugarbeets committed to the Co-op. The driving force in the sugarbeet industry is throughput.

The grower-owners have demonstrated a very good "will do" attitude. The foundation's framework is our strong and determined management team and our dedicated employees.

Your Board is committed to the viability of the Co-op. You have heard some of the items at your district meetings and you will hear them again.

Some examples:

- Shareholders must plant, maintain and deliver a quality sugarbeet.
- Early delivery of sugarbeets needs to start in all districts. With the expected throughput of 2-2½ million tons of sugarbeets with 150 days of slice, all factories need to start early. Our goal is to be finished slicing by mid-February. The more efficient factory operations, the more likely you will receive a higher return on your sugarbeets.

Your Co-op Board and management has discussed our short-term and long-term business plans. Of course, our main task is to pay down debt to strengthen the Co-op's balance sheet. But we just cannot solely focus on debt and not improve the factories. To succeed, we must have a strong business plan. The President and officers provide a plan for each of their departments and report monthly on progress.

Facing page and right: Tom Zimmer—Chairman, Board of Directors delivers his report to the Cooperative's grower-owners in attendance at the annual meeting.

Your Board discusses familiar topics such as early delivery and seed approval in addition to factory performance. We approve or reject factory capital improvements after careful study. We must also take a long-term view of the business ensuring plans are not be too expensive or too lengthy.

We must also explore opportunities as they present themselves. We must consider strategies to offset threats. We discuss farm legislation, trade policy and inform the American Sugar Beet Growers and also U.S. Beet of our concerns.

The Ag sector is changing dramatically. Our planning could be based on asking questions such as:

- What if marketing allotments increase or decrease? Then what do we do?
- What if the Mexico problem is resolved? Or not? Then what would we do?

We must be open to out-of-the-box ideas and thinking. Our management teams focus on time-tested

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performance goals, plus being low cost producers of sugar.

We must be proactive in our planning. The growers must know the directors expect and demand these things from management. We, as directors and growers, must realize this type of planning does not immediately show visible results. Times have changed a great deal in the past few years.

The domestic sugar industry is in transition from stock companies to cooperatives. Only three sugarbeet factories in the U.S. are being operated by stock companies; two in California and one in Michigan.

We must be constantly aware of failure. The Board avoids this with good planning both short-term and long-term. We will keep your best interests as our focus in planning and decisions we make.

It is imperative Michigan Sugar Company's teams work together. By team, I mean the Board, management, employees and foremost you, the grower-owners. Working together we can:

- Move forward – to be the best
- Adopt – to be the best
- Adapt – to be the best
- Change – to be the best
- Innovate – to be the best
- Succeed – We will be the best!

Being the best, in turn, will reflect on your own operations. Your board is committed to have Michigan Sugar be the best sugarbeet co-op yet and with the team we have in place, we will succeed. 🍷



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Since May 2000, SugarNetwork has provided farmers, processors and agricultural risk managers with a reliable source of valuable research, analysis, data and information. In addition to our international clientele, SugarNetwork is used daily by producers in four of the five US cane producing states, by companies and co-ops representing over 70 % of the US beet production, as well as all major US cane refiners and several of the country's largest industrial users.

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WHAT THE SUGAR ASSOCIATION DOES



*By Dick Leach, Director of
Community and Government
Relations*

The Sugar Association Inc., (SAI) is the national trade organization representing United States sugarbeet and sugar cane growers, refiners and processors. Their primary mission is to enhance sugar consumption and educate consumers and the media regarding sugar's role in a healthful diet. All aspects of the Association's activities are based upon peer reviewed science.

SAI also responds to misleading information and attacks on sugar consumption. Recently, the staff responded to inaccurate and biased articles published in the American Dietetic Association's *Journal* and the American Heart Association's journal *Circulation* as well as an outlandish indictment of sugar in an advertisement by the Merck pharmaceutical company for its product Zöcor. Because international events also affect the industry, the staff frequently provides documented position papers to such groups as the World Health Organization and the Food and Agricultural Organization.

Ongoing surveillance and participation in the regulatory process include: revision of the Dietary Guidelines coordinated by Health and Human Services, re-authorization of the school lunch program, revision of USDA's Food Guide Pyramid, updating food product labels for accuracy and consumer-friendly formatting, monitoring relevant legislation, maintaining active and positive collaborations with food and beverage industry representatives and educating congressional staffers for proactive support of sugar industry issues.

SAI Education programs inform consumers through a variety of activities. Exhibits at national conferences allow for positive relationships with health and nutrition professionals as well as consumer groups. New forums included the Parent Teacher Association, 4-H, and Campfire USA. Introducing a pedometer program to promote regular physical activity has enhanced sugar's role as a natural form of human energy. Publications about nutrition, health and physical activity are geared toward parents, educators and children. Working with member companies to

brand sugar as a low calorie, all natural sweetener has become a major priority.

SAI Public Relations programs educated both media and consumers through strategic and innovative approaches. In 2002, media tours included a magazine and radio tour, featuring a highly regarded spokesperson. A TV infomercial was featured on four popular television networks. A radio spot was featured



*Wayne Hecht, Caro area
sugarbeet grower and Co-op
Board of Directors member
explains the finer points of
sugarbeet harvesting to
Evelyn Brewster, SAI Director
of Public Relations and Amy
Housel, SAI Director of
Education.*

on four signature programs on National Public Radio. Sugar consumption was also promoted at a media seminar for food, health and nutrition writers whose readership was over one million. Two positive outcomes as a result of the Association serving as the silver sponsor of the National Dessert Competition included acquiring chefs as industry spokesper-

sons and networking with the industrial users of sugar.

The Sugar Association vigorously pursues the mission for which it was founded in 1943 through vigilant surveillance and rapid response to promote sugar as the all natural sweetener with only 15 calories per teaspoon. 🌱



www.sugar.org

1899

Caro factory built.
Slicing capacity:
500–600 tons/day

1902

Carrollton, Croswell, &
Sebewaing factories
built. Slicing capacities:
600 tons/day

1906

Michigan Sugar
Company
established.

1927

Croswell factory
closed due to
lack of beets.

1929

Carrollton factory
closed due to
lack of beets.

1933

Carrollton and
Croswell factories
reopened and closed
for a second time.

1937

Croswell factory
reopened for a
third time.



1942

Carrollton factory reopened for a third time.

1984

Savannah Foods & Industries purchased Michigan Sugar Co.

1985

Savannah-Michigan Sugar Co. purchased Great Lakes Sugar Company

1997

Imperial Sugar Co. purchased Savannah Foods & Industries

1999

Caro factory centennial. Slicing capacity: 3600 tons/day

2002

Growers purchased Michigan Sugar Co. from Imperial

Carrollton, Croswell, and Sebewaing factory centennials. Slicing capacity: 3100-5550 tons/day



1902 AND 2002: WHAT A DIFFERENCE 100 YEARS HAVE MADE



By Dick Leach, Director of Community and Government Relations

February 12, 2003 marked the first anniversary of Michigan Sugar Company as a grower-owned cooperative. We are well into the next chapter in the history book of Michigan Sugar Company. All of our factories are over 100 years old, with the Caro factory celebrating its centennial in 1999 and the Carrollton, Croswell, and Sebewaing factories celebrating theirs in 2002. For a factory to be running for over 100 years says a lot for the industry.

Looking back at the origin of the four presently operating factories and their capacities as compared to today:

- The Caro factory was built in 1899. Pandemonium had reigned supreme when local banker, Charles Montague, obtained sufficient financing to build the Caro factory. It was called The Peninsular Sugar Refining Company. The new factory's slicing capacity was 500 to 600 tons per day and it packed an average of 158.9 pounds of sugar per ton of beets. Today we find the Caro factory is the oldest operating beet processing factory in the United States. Its present slicing capacity is 3,600 tons per day. It packed an average of 278 pounds of sugar per ton of beets from the 2002 crop.
- The Carrollton factory was built in 1902 when a group of investors joined together to build a sugar refining factory in Sebewaing. When the bids came in from contractors to build the factory, the group couldn't agree on a contractor. The investors from Bay City withdrew from the Sebewaing project and decided to build a factory in Carrollton, close to the river. It was called the Saginaw Valley Sugar Company. This was the second sugar factory in the Saginaw area. There was already an operating sugar factory at the corner of South Jefferson and Washington in Saginaw. The slicing capacity of the Carrollton factory was 600 tons per day.

The first year was poor, due to a wet fall and lack of beets to operate two factories. In 1903, farmers only produced 45,000 tons. Each factory

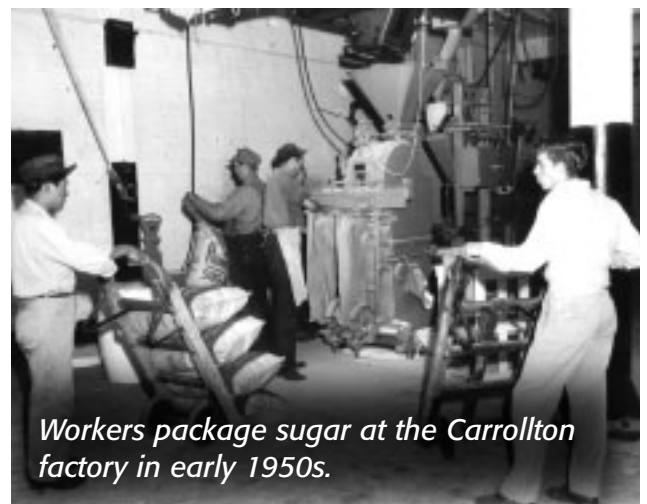
needed 60,000 acres for full operation. The factory at South Jefferson and Washington was moved to Sterling, Colorado. The Carrollton factory did not operate from 1929 to 1933 and was shut down again until 1942, again due to the lack of beets.

Today, the Carrollton factory can slice an average of 3,100 tons per day and it produces over 8,000 cwt./day.

- The Sebewaing factory, under the name of the Sebewaing Sugar Refining Company, was built in 1902 by a group of investors headed by John Liken, who was said to be the "Father of the Village of Sebewaing." The foundations were built of ashlar because the general manager did not like concrete. In February of 1902, 52 Russian families were hired in Nebraska to come to Sebewaing to work the beets. Five hundred showed up. The factory got off to a good start, despite the collapse of the concrete walls of the reservoir used to store syrup.

The Sebewaing factory had a slicing capacity of 600 tons per day and extracted 188 pounds of sugar per ton of beets from the 1902 crop. The average slicing capacity of the Sebewaing factory today is 5,550 tons per day and it packed an average of 276 pounds of sugar per ton of beets from the 2002 crop. The Sebewaing factory has processed beets every year since it was built.

- The Croswell factory was built in 1902 by Charles Bewick of Caro along with other Caro



Workers package sugar at the Carrollton factory in early 1950s.

factory stockholders looking for a Thumb factory site. At the same time, a group of Sandusky area investors felt that the area was well suited for sugarbeets. The two groups together built a 600-ton factory in Croswell. The community of Croswell furnished the site a small water supply dam and a ten-year tax exemption. The company was named the Sanilac Sugar Refining Company.

The first year was a disaster due to too much rain at the wrong time, growers that lacked the knowledge of how to grow beets, and "beet worms." When the beet worms became a problem, an out-of-town huckster sold farmers sure-fire advice on how to exterminate the worms for 10 cents a farmer. The advice was to catch the worms by the tail and smash them between a flat rock and a brick. The company lost \$100,000 in the first two years. The factory closed in 1927, reopened in 1933 and closed again until 1937 for lack of beets. By 1940, a farmer enthused about beets, began recruiting local farmers to grow beets. He turned names and field locations into the factory, then owned by Michigan Sugar Company. It was discovered that some field locations were two or three miles east of Lexington, out in Lake Huron.

Today the Croswell factory is capable of an average daily slice of 3,700 tons and produces nearly 10,000 cwt./day.

As the lumber era came to an end in mid Michigan, the state legislature began to look for other uses for the land that was now stump land. In 1897, the Michigan State Legislature granted a one-cent per pound bounty to beet processors for sugar produced from Michigan plantings above 90% purity; provided the farmer received \$4.00 per ton of beets, with 12% sugar. The bounty ignited a sugar factory boom in Michigan. The Michigan Supreme Court declared the bounty unconstitutional in 1900.

In 1898, Michigan Sugar Company, a forerunner of the present company, agreed to build its first factory in Essexville. The local tax assessor agreed to lower the taxes. He later reneged on the agreement and was fired by the local officials.

In 1906, the American Sugar Refining Company merged with six local companies: Alma Sugar

Company, Peninsular Sugar Refining Company of Caro, Pioneer Michigan Sugar Company of Bay City, Sebewaing Sugar Company, Sanilac Sugar Refining Company of Croswell, and the Saginaw Valley Sugar Company of Carrollton. They were merged into the Michigan Sugar Company on August 20, 1906.

At the height of the sugar boom in Michigan there were 25 sugar refining factories built, but only 23 factories ever operated.

As time went on, the Essexville factory and the Alma factory were closed. Two factories were purchased in 1985 in Ohio (Fremont and Findlay). They were both closed due to lack of beets.

Today, in 2003, Michigan Sugar Company is a cooperative owned by its growers. The company is comprised of:

- 4 operating factories
- 16 receiving stations
- 53 piling machines
- 2 storage and distribution/packaging facilities in Ohio at Fremont and Findlay
- 350 full-time employees and 1,100 campaign workers

For the 2002 crop we:

- Harvested 125,000 acres
- Processed 2,370,000 tons of beets
- Sliced over 15,000 tons per day average
- Produced over 6.3 million cwt. of sugar
- Generated over \$170 million in economic activity

Our first year as a cooperative was a huge success. When we look at today's sugarbeet growing area and remember our beet fields were once stump fields and think about the people who started this industry and all of the people involved throughout the years, it is mind boggling. People throughout Michigan Sugar Company's history have had the vision to position the company for survival and success. Through wars, a depression, bad weather, bankruptcy, government intervention and some very difficult challenges, Michigan Sugar Company is a survivor! It always has been and I predict it always will be. 🍷

SEEDBED TILLAGE EFFECTS ON SUGARBEET EMERGENCE



by T. M. Harrigan, Professor,
Agricultural Engineering Department,
Michigan State University

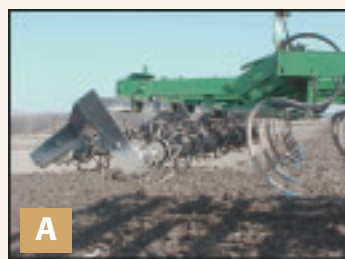
Over the last few years I have been working to determine how tillage can be used to create the best possible seedbed for a sugarbeet crop. I have found, in general, increasing the intensity of seedbed tillage reduces soil moisture, delays plant emergence and reduces final plant stand. Reducing tillage intensity can reduce the risk involved in achieving a top stand. Most growers can improve emergence by reducing the intensity of seedbed tillage.

Tillage objectives vary from farm-to-farm and year-to-year. Common reasons for tillage are to prepare the soil for planting, manage crop residue, alleviate soil compaction, incorporate lime, fertilizer, pesticides and other soil amendments, and to control weeds, insects and disease. While tillage can solve many problems, it does not always create the best possible seedbed.

Alleviating soil compaction is an important objective on most farms. Soil compaction reduces pore space and increases soil bulk density. Some soils are naturally compact, but most compaction problems are caused by heavy and repetitive loads from trucks, combines, manure spreaders and other vehicles. Excessive compaction can restrict root development, increase soil and water runoff and decrease crop yields. Compaction can be both shallow—in the normal tillage zone—or deep, below the normal tillage zone.

A successful plan for managing compaction includes managing all aspects of the crop production system: soils, tillage, crop rotations and machinery. In the short-term, tillage is an effective way to loosen the soil, increase pore space and improve infiltration and drainage. But, excessive or poorly timed tillage can worsen problems. Excessive seedbed tillage can compact the soil; increase bulk density; dry the soil; and greatly reduce the large pore space which is most effective in draining excess water from the soil profile. Soil crusting, a form of shallow soil compaction can be aggravated by excessive seedbed tillage.

Sugarbeet seeds fail to survive for many reasons. A small percentage of seeds do not germinate. Others germinate, but do not emerge, perhaps because it was



A



B



C

A: Danish-tine harrow

B: Spike-tooth/
rolling harrow;

C: Field cultivator

too wet, too dry, too cold, or the seedbed crusted over. Some seeds germinate and emerge, but are taken out by wind blown soil, insects or disease. The key to a top stand is to maximize emergence. The challenge for a grower is to provide the best possible environment for seed germination and emergence. In our seedbed tillage work, the rate of emergence measured as the 10-day, 20-day or 30-day plant population was the best indicator of an optimal seedbed. Soil temperature and moisture are key components of an optimal seedbed. Seedbed tillage affects both.

Tillage warms the soil, but it also dries the soil. And, loosening the soil inhibits moisture movement up to the seed from deeper in the soil profile. When soil over-winters it goes through several freeze-thaw cycles causing the soil volume to expand. This alleviates soil compaction by forcing soil particles apart and breaking down soil clods. In the spring, such a seedbed has a nice seed environment—little compaction and adequate moisture—before it is tilled. The challenge is to accomplish all other tillage objectives without destroying this high-quality seed environment.

A sugarbeet crop was established at the Saginaw Bean and Beet Research Farm in 1999 and in 2001–2002 to evaluate the effects of seedbed tillage on seedling emergence. All plots were fall moldboard plowed. Four seedbed tillage treatments were used: 1) fall disking and leveling, no spring tillage (stale seedbed), 2) fall disking and leveling, spring seedbed tillage with a single, shallow (1 to 2 inch) pass of a

Danish-tine harrow, 3) fall disking and leveling, spring tillage with a spike-tooth/rolling harrow finishing tool (2001-2002 only), and 4) no fall seedbed tillage, spring tillage with a single pass of a field cultivator (4 inches) followed by a single pass with the Danish-tine (1 to 2 inches) to level and firm the seedbed. All spring tillage was performed within a few hours of planting to conserve moisture. The single, shallow pass with the Danish-tine cultivator was at a depth of 1–2 inches to level the surface yet avoid excessive drying of the seedbed. An objective with this tillage system was to till the soil no deeper than the depth of seed placement.

Seedbed and stand establishment goals included good soil tilth, good seed-to-soil contact, rapid emergence and growth, a high plant population and a uniform spacing between plants in the row. Planting was with a John Deere 7300 general purpose vacuum planter and an Accord plate-type sugarbeet planter. The variety E-17 was used with either a fasconated seed treatment (film coated with a fungicide and color dye) or a pelleted PAT treatment. The PAT process initiates the germination process then stops it before the radical ruptures the seed coat. This process has been shown to speed germination early in the season under cool soil conditions. The PAT seed was used with both the John Deere and the Accord planter. The fasconated seed was used only with the John Deere planter. Each of the tillage/planter combinations was replicated six times.

Tillage and planting occurred in the third week of April, except in 2002 when rains delayed field work until May 15. In most cases, decreasing tillage intensity increased the rate of emergence and the final plant stand. In 1999 we planted in an excellent seedbed and it did not rain for approximately ten days after planting. Moisture became the limiting factor. The most rapid emergence and greatest 10-day stand were in the stale seedbed. The slowest emergence and lowest population was the field cultivator and Danish-tine used to level and prepare the seedbed just before planting. A single shallow pass with a Danish-tine cultivator in a stale seedbed was intermediate in stand between the low-intensity tillage of the stale seedbed and the high

TABLE 1

Sugar beet emergence, 1999

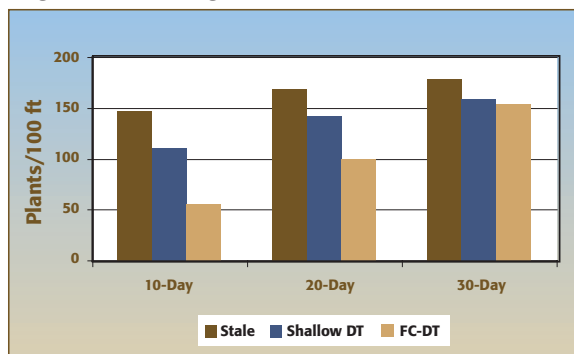


TABLE 2

Sugar beet emergence, 2001

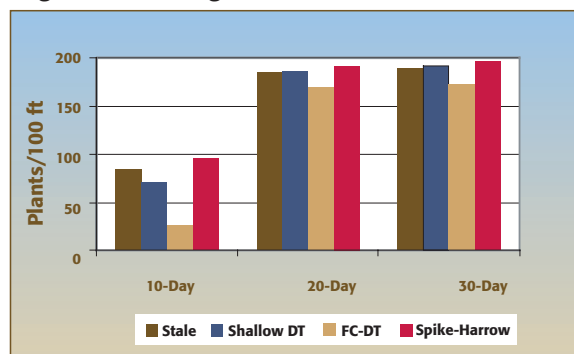
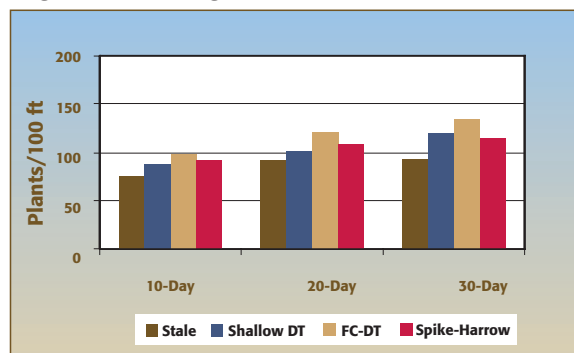


TABLE 3

Sugar beet emergence, 2002



continued, page 30

4-H AND FFA SUGARBEET PROJECT AWARDS FOR 2002

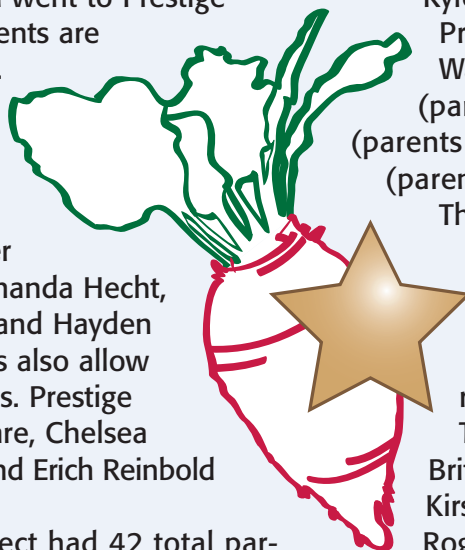
The Breckenridge area 4-H Sugarbeet Project had 12 participants for the 2002 season. The banquet was held at the '300' Bowl in Alma where we honored the participants and award recipients. As usual, all were very good and decisions difficult. After the "dust" settled, three were chosen as Premier recipients; Alyssa Brown, Hunter Hrabal and Kyle Crumbaugh. Our top award went to Prestige recipient Josh Gulick whose parents are Jeff and Denise Gulick of Merrill.

There were 23 participants in this season's Saginaw area 4-H Sugarbeet Project. Up to five of these could be designated as Premier award recipients. Premier recipients are; Dennis Hecht, Amanda Hecht, Daniel Rummel, Lucas Schiefer and Hayden Kunik. By the numbers, the rules also allow for two Prestige Award recipients. Prestige recipients for the 2002 season are, Chelsea Stolz (parents Roy and Cindy) and Erich Reinbold (parents Wesley and Carol).

The Caro 4-H Sugarbeet Project had 42 total participants from three clubs. The Pioneers, led by Roy Knoll, the Tuscola Beetniks led by Viola Bierlein, and the 4-H Achievers, led by Carl Bednarski. There were eight premier award recipients, Kristin Reinbold, Michael Bednarski, Troy Hecht, Ashley Bierlein, Travis Bierlein, Nathan Bednarski, Joseph Bublitz and Carmen Bierlein. The three top Prestige recipients for the 2002 season are Rebecca Bierlein (parents Stuart and Nancy), C.J. Bednarski (parents Carl and Lisa) and Kyle Hecht (parents Bryan and Lynn).

There were 46 participants in the Sebewaing area 4-H/FFA Sugarbeet Project for the 2002 season. At the annual awards banquet on December 2 we honored the award recipients. Ten Premier awards were presented to; Adam Armbruster, Jason Maust, Jonathan Maust, Tara Oeschger, Chris Oeschger, Jeff Schulze, Jason Smith, Sara Stecker, Ben Turschak and Kyle Yackle. Top honors went to four Prestige recipients; Chad Goebel (parents Wayne and Sheree), Cody Leipprandt (parents Philip and Sherry), Matt Sneller (parents Darwin and Kathy) and Kirk Yackle (parents James and Sheila).

The Croswell Factory District held their 4-H/FFA Sugarbeet Project Awards Banquet in Sandusky on January 6. There were 69 participants in this season's project resulting in 14 Premier Award recipients and 5 Prestige Award recipients. Those receiving Premier Awards were; Brittany Maurer, Laura Puvalowski, Jolene Kirsch, Neil Keinath, Jessica Kirsch, Aaron Roggenbuck, Sara Volmering, Crysta Maurer, Bryce Bischer, Kurt Kirkpatrick, Justin Roggenbuck, Ashley Roggenbuck and Bobbi Gentner. Receiving top honors, the Prestige Award recipients are Andrew Volmering (parents Dan and LaDonna), Andrew Kirsch (parents Mike and Kathy), Eric Gentner (parents Allan and Debbie Bischer), Amanda Grekowicz (parents Chris and Michelle) and Jared Puvalowski (parents Claude and Denise).



For more information on the Michigan Sugar 4-H and FFA Sugarbeet Project and the Michigan Sugar Company Scholarships, see page 29.

PRESTIGE SUGARBEET PROJECT AWARD RECIPIENTS



Josh Gulick



Chelsea Stolz



Erich Reinbold



Rebbecca Bierlein



C.J. Bednarski



Kyle Hecht



Chad Goebel



Cody Leipprandt



Matt Sneller



Kirk Yackle



Andrew Volmering



Andrew Kirsch



Eric Gentner



Amanda Grekowicz



Jared Puvalowski



*by Herb Wilson,
Vice-President of
Operations*

In earlier issues we discussed some of the positive effects high quality sugarbeets have on our factory operations. We related how certain costs of operation are fixed on a daily basis; others change with slice rate and the way higher throughput can reduce these costs per ton or hundredweight. Let us expand the discussion to talk about the impact that higher beet quality has on the cost of the sugar produced.


Increasing sugar content in the beet, and higher purity, allows for higher daily sugar production rates for any given slice rate. This can result in a significant improvement in the cost per hundredweight (cwt.) of our final product.

Slicing beets with 16% sugar at the rate of 16,000 tons per day

and 81.5% extraction will produce 41,728 cwt. of sugar per day. If the cossette sugar increases to 17%, the daily production will increase to 44,336 cwt. per day.

To see the effect on just one of our costs, we will use fuel as an example. Fuel is one of our larger expenses and its consumption is tied most closely with the tons of beets sliced each day. Using a fuel cost of \$4.50/mmbtu and a usage of 1.6 mmbtu/ton sliced, the fuel cost will be \$115,200/day at a 16,000 ton slice rate. With 16% sugar (41,728 cwt./day), the cost is \$2.76/cwt produced. However, at 17% sugar (44,336 cwt./day) the cost goes down to \$2.60/cwt. This is a \$0.16/cwt reduction and, for a company producing 6,000,000 cwt per year, would represent an increased return of \$960,000. If we were able to increase cossette sugar from 16% to 20%, the savings would be \$0.55/cwt. or a \$3,300,000 per year increase in return.

Fuel is just one of our costs affected in this way. A few other examples would be the number of people we employ, beet freight cost, insurance, taxes, and most operating supplies. These are either "fixed" or change only with the quantity of beets processed. When we are able to increase the amount of sugar produced per ton processed, there is a significant reduction in the cost of the finished product. This all translates to higher returns for grower-owners. In the factory, we are always looking for ways to improve the amount of sugar extracted from each ton processed, but the most dramatic effect comes with high sugar coupled with high purity in the beets.

When you couple the benefits of increased throughput with the savings per hundredweight from high quality beets, we advance toward our goal of being the lowest cost producer. 

MICHIGAN SUGAR BEGINS PROGRAM OF REINVESTMENT IN ITS OPERATIONS

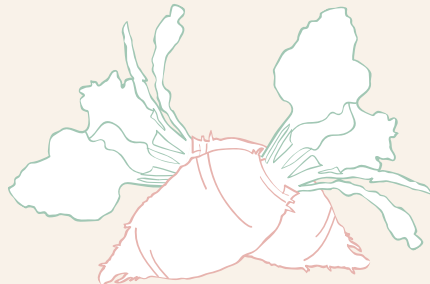
Our Board of Directors has recently approved a \$2.7 million capital projects budget allowing us to maintain the factories, improve operations and lower operating costs. Highlights of some of the areas being addressed include:

- Additional heat transfer equipment to lower fuel costs
- Buyouts of some leased/rented equipment to reduce costs
- A program to continue major building repairs
- Replacement of worn equipment to maintain factory reliability
- Projects to ensure continued compliance with safety and environmental regulations.

4-H SUGARBEET PROJECT AND SCHOLARSHIPS

MICHIGAN SUGAR COMPANY SCHOLARSHIPS

Michigan Sugar Co. offers two scholarships annually; the Albert Flegenheimer Memorial Scholarship (\$2,500) and the Phil Brimhall Memorial Scholarship (\$1,000). High school seniors in public or private schools within our sugarbeet growing area are eligible to compete if they have participated in 4-H or the Future Farmers of America Program and have completed a documented sugarbeet project. All applications must be received before May 1 to be considered for the upcoming school year. For further details and a copy of the official entry form contact your local Michigan Sugar Co. agricultural office.



MICHIGAN SUGAR 4-H AND FFA SUGARBEET PROJECT

Designed specifically for youth in the sugarbeet production areas of Michigan, the 4-H and FFA Sugarbeet Project seeks to promote education and interest in sugarbeets. The program is for all 4-H and FFA members who wish to participate in supervised sugarbeet projects.

Parents should contact their respective Agriculturalist for details on how to have their children admitted into the project. In order to participate, members are required to be enrolled in an organized 4-H club or FFA chapter, make an exhibit at a county fair, complete an accurate record of labor and agronomic practices (including costs and expected receipts) and must be at least eight years old during the calendar year of the project. At the end of the project, participant projects are graded, judged and awards presented based on the number of participants and their participation in the project. Awards are presented at an end of year banquet. 🍷



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intensity tillage of the field cultivator and Danish-tine. At 30 days, the field cultivated sugarbeets had nearly the same stand as the stale seedbed, but they never quite reached the stand count found in the stale seedbed.

In 2001 the planting conditions were excellent and then dry for several days after. The most rapid emergence was seen where the spike-tooth/rolling harrow combination tool was used. The spike-tooth differs from the Danish-tine in the spike-tooth has straight tines stirring and moving the soil horizontally rather than lifting and inverting and exposing moist soil clods to rapid drying. The slowest emergence was the field cultivator and Danish-tine harrow. The field cultivator tilled deep relative to the depth of seed placement. This dried the soil and disrupted the continuity of soil pores stopped upward moisture movement to the seed. Timely rains provided nearly full stands by the 20-day count. At 30 days, plant populations were similar, but field cultivated plots, which were the most intensively tilled, once again never quite caught up to the less intensively tilled seedbed.

In 2002 the planting conditions were very different. Frequent rains prevented planting until May 15, and even then, the soil was a little wetter than we would have liked. Since we planted in moist soil, and it rained hard within a few days of planting, moisture was never a limiting factor. In fact, the heavy rains after planting caused soil crusting which hurt emergence. Under these conditions, the most rapid emergence and greatest stand was in the field cultivated plots. The more intensive tillage likely improved infiltration in the wet conditions and alleviated some of the problems caused by excess water.

How did the sugarbeet crops compare based on RWSA (recoverable white sugar per acre)? In 1999, the stale seedbed provided the most sugar per acre. In 2001 it was the single pass (1 to 2 inches) of the Danish-tine, and in 2002 the spike-tooth/rolling harrow provided the best yields.

Seedbed tillage uproots small weeds and facilitates weed control. If you reduce seedbed tillage, you may need to change your weed control program. If you plant into a stale or lightly tilled seedbed, consider applying glyphosate before the sugarbeets emerge. If

you seek to control common chickweed or other winter annuals, consider a pre-plant application of glyphosate.

In general, our work in evaluating seedbed tillage over the last few years has shown increasing the intensity of seedbed tillage:

- Reduces soil moisture.
- Delays plant emergence.
- Reduces final plant stand.

Since soils and planting conditions vary widely among farms, on-farm experimentation will be the best way to compare tillage systems. If you decide to experiment with alternative seedbed tillage methods, a reasonable approach is to compare your standard tillage system to a challenger system in the same field. Such an approach will provide a fair comparison among the tillage methods of interest and give you time to make other needed adjustments in the farming system. Without comparing your normal tillage to a challenger system you can be misled by quirks in the environment you cannot control. 🌱

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MEET THE AGRICULTURAL STAFF FOR MICHIGAN SUGAR COMPANY

The Agricultural Staff of Michigan Sugar Co. is here to support all of our grower-owners in their efforts to raise the best crop of sugarbeets possible. Their in-the-field and specialized sugarbeet training totals more than 260 years of combined experience. Through this experience and industry resources, these people will be able to find answers and help with your sugarbeet crop challenges. Their phone numbers are listed in your Grower Guide, so you can always obtain the information you need when you need it.



William Gough (20 Years) is and has been Agricultural Manager, Carrollton District since 1989. This position oversees Carrollton, Albee, Blumfield, Breckenridge, Greenville, Blissfield and Fremont. In 1982 he was a Fieldman for the Sebewaing District. Bill operated a farm near Carsonville and a small citrus grove in Florida. He raised sugarbeets for Croswell and was involved with FFA Sugarbeet Projects throughout high school. Bill earned his Bachelor of Science from Michigan Technological University and his M.B.A. from Saginaw Valley State University. He lives near Bay City and is active in the Save Our Shoreline organization. He and his wife, Christine have one son, Wil (32). Wil, his wife, Stacey and their two sons reside near Mayville.



Kent D. Graf, (26 years) Agricultural Manager, Caro District: Kent joined Michigan Sugar Co. as a Fieldman for the Sebewaing District. In 1977 he transferred to the Caro District and in 1985 he accepted the Agricultural Manager position at Caro. Kent graduated from Western Michigan University with a double major in Agriculture and Marketing with a General Business minor. Before Michigan Sugar he worked for several area farmers and one summer at Evans Products in Gagetown. Kent is a member, past President, and now Secretary of the Caro Rotary Club. He also farmed for a number of years. Kent, his wife Lisa and their son Kyle (3) live east of Caro.



Keith Kalso (18 years) is and has been Agricultural Manager for the Croswell District since 1999. Prior to 1999 he was the Agriculturist for the Croswell area. Keith is responsible for the Croswell Agricultural District, beet receiving operations, maintenance and beet transfer. This responsibility stretches across the Verona, Ruth, Sandusky, Croswell stations and the Ontario operations in Lambton County and Dover Station. Keith earned his B.S. degree from MSU. He is treasurer for Buel Township, member Board of Administration for Croswell Wesleyan Church and is a youth sponsor. Keith and his wife Lori reside just outside of Croswell with their three daughters; Emily (16), Alyssa (13) and Amanda (13).



Dennis Monte (16 years) is and has been the Agricultural Manager for the Sebewaing District since 1999. Before joining Michigan Sugar, Dennis was a member of their family cash crop operation, Paul Monte, Inc., in the Fairgrove area. Dennis earned his B.S. from MSU. He also earned his pilot's license while at MSU as a member of the Winged Spartans. He is the assistant manager at the Sebewaing Airport. Dennis and his wife, Barbara enjoy flying their plane for weekend camping trips. They live in Sebewaing and have four children, Heidi (27), Jennifer (23), Katherine (22) and Charles (18).

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MEET THE AGRICULTURAL STAFF FOR MICHIGAN SUGAR COMPANY

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Corey Guza is joining our staff as Chief Agronomist. In this position he will work throughout our growing region assisting growers and the agricultural staff with all agromomic challenges facing our sugarbeet crop. He will be coordinating and conducting research activities at all levels. Corey grew up in Harbor Beach where his family raised sugarbeets and dairy cows. Corey received his BS in Crop and Soil Sciences from MSU. He earned his MS in Crop and Soil Science at Oregon State University. Corey studied in the beet seed-growing region of Oregon and conducted field research on "Weed Control in Herbicide Resistant Sugarbeets." Corey is currently completing his Ph.D. in Crop and Soil Sciences at Michigan State University. Corey is leading the development of WeedSOFT, a computerized weed management decision tool, in Michigan. He is active in many clubs and organizations and enjoys outdoor activities.



James Stewart (4 years) is Manager of Research. His primary responsibility is for Official Variety Trials and Variety Approval. Secondary responsibilities include pesticide evaluations, pest management systems and technical resource person for the agricultural staff. He also functions as liaison between Michigan Sugar, University and Industry Research groups. Jim grew up on a sugarbeet farm in Idaho and worked for Agr-Evo in the Red River Valley, California and Idaho areas developing sugarbeet herbicides and genetic insertion evaluations. Jim earned his MS degree from North Dakota State University where he studied and worked with sugarbeet-weed interactions. Jim and his wife, Pam reside in Saginaw Township and have five children, Kevin (30), Bobby (27), Jeremy (24), Jeff (22) and Stacie (16). They have six grandchildren.



David Bailey (4 years) is Agriculturist responsible for the growing areas and receiving operations at the Breckenridge and Greenville receiving stations in Central and Western Michigan. Before accepting the Agriculturist position, Dave was a sugarbeet grower and farmer for 20 years. He served on the Alma District Sugar Beet Growers Board as Vice President. He is currently Bethany Township Supervisor and serves on several community committees. Dave graduated from St. Louis High School and resides in Bethany Township with his wife, Teresa and three daughters, Sarah (21), Katie (19) and Emily (10).



Bob Corrigan (12 years) is Agriculturist for Croswell in the Ruth and Verona areas as well as beet operations at those stations. Previously he was Agriculturist for the Saginaw/Frankenmuth and Breckenridge/Greenville areas. Bob has additional work and management experience from the timber industry in his home state of Pennsylvania. Bob is a member of the Ugly Fox Hunters and Elks clubs. Bob and his wife, Jennifer reside near Harbor Beach and he has three children, Dawn (16), Chelsea (14), and Shelby (12).



Jeffrey Elston (15 years) is Agriculturist in Sebewaing for the Sebewaing and Owendale areas. He joined Michigan Sugar after graduating from Michigan Technological University with a B.S. Degree in Biochemistry. While being employed with Michigan Sugar he earned an M.B.A. from Saginaw Valley State University. Jeff attends Cross-Lutheran Church where he has been involved with coaching and teaching recreational sports for many years. He lives in Pigeon with wife Beth, and they have two children, Isaac (4) and Greta (1).





Roger Elston (37 years) is Agriculturist for Sebewaing in Northwestern Huron County. Prior to becoming an Agriculturist, Roger worked as an Assistant Fieldman from 1961 until 1964. He graduated from Sebewaing High School. He is a member of the zoning board in Pigeon and a member of Cross-Lutheran Church. He has been actively involved in the Sugarbeet Advancement Committee for four years. Roger and wife Patricia reside in Pigeon, have three children Jeffrey (37), Brian (36) and Tricia (28). They have four grandchildren.



Jeff Karst (5 years) is Agriculturist for the Caro District. He is responsible for beet piling operations at the Gilford Beet Receiving Station and helps with beet receiving at the Caro factory location. Prior to joining Michigan Sugar, Jeff was employed at a local farm machinery dealer and worked on his uncle's farm. Jeff attended Delta College and earned his BS in Crop and Soil Science from MSU. Jeff, his wife Sheri, two daughters, Makenna (3) years and Kadee (1½) live on a farm near Richville and they attend St. Michael's Lutheran Church.



Mike Leen (4 years) is Agriculturist for Croswell in the Port Huron, North Branch, Snover and Croswell areas. Mike has an Agricultural degree from MSU and before joining Michigan Sugar he was involved with various agricultural operations. These included a family farm operation, vegetable farm operation, management and marketing, custom farm chemical applications, grain handling, drying and merchandising. Mike and his wife Julie reside in Carsonville with their children Matthew (2) and Hannah (two months).



Wayne Martin (6 years) is Agriculturist for Croswell working with the Ontario growers and supervising beet piling operations at the Dover station. Before joining Michigan Sugar, Wayne worked as an Inspector for the Ministry of Agriculture and Food, Agriculture Canada in Lambton-Kent and at the Ontario Food Terminal. He earned his degree in Agricultural Production and Management from Ridgetown College of Agricultural Technology. Wayne and his wife, Anne Marie reside in Grande Pointe, Ontario and have three children, Jessalyn (9), Jake (8), Jadeyn (6), and Bowzer the dog.



Timothy Muz (18 years) is Agriculturist for Croswell in the Sandusky and Ruth areas as well as the beet operations at the Sandusky station. Prior to this he worked in the Caro area for 17 years. Before joining Michigan Sugar, Tim worked as a Loan Officer with Farmers Home Administration. Tim earned his BS in Crop and Soil Science from MSU. Tim coaches many youth sport activities and is a member of the American Youth Soccer Organization and the Caro Little League. Tim and his wife, Joyce have three children, Ben (16), Laura (15) and Arron (10).

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MEET THE AGRICULTURAL STAFF FOR MICHIGAN SUGAR COMPANY

continued from page 33

Charles Neuenfeldt (13 years) is Agriculturist responsible for the growing areas North, East and Southeast of Carrollton and beet receiving operations at the Blumfield station. He earned his B.S. degree in Crop and Soil Sciences from MSU. He helped on the family farm, worked for Hemlock Elevator and the Saginaw Soil Conservation District before joining Michigan Sugar. Charlie and his wife, Marilyn, live just outside of Saginaw and are members of the Christ Lutheran Church. They have two sons, Nicholas (7) and Nathan (5).



Lewis Parks (7 years) is Agriculturist for Sebewaing in Northern Huron County and beet operations at the Mead receiving station. Before joining Michigan Sugar, Lew worked in the retail fertilizer business for 20 years. He also managed a crop and hog farm in Ohio and taught vocational agriculture and farming practices. Lewis attended Swartz Creek High School and earned a B.S. Degree from MSU in Agriculture Education, stopping just short of a Masters in Ag Science. Lewis and his wife, Sandy reside in Owendale and have two children, Micheal (28) and Brandy (26). They also have three grandchildren.



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Craig Rieman (3 years) is Agriculturist for Sebewaing in the area stretching from Gagetown to Hampton Township in Bay County. Before joining Michigan Sugar, Craig operated a cash crop farm for 20 years, raising sugarbeets for the Sebewaing factory, worked for Gettel & Co. - John Deere, Gettel Motor Co. and was even a seasonal worker for Michigan Sugar. Craig graduated from USA High School in 1981, and has been involved in local judging of FFA competitions. Craig is a member of Immanuel Lutheran church where he serves on the board of trustees and as an usher. Craig and his wife, Kristin live in Sebewaing with their newborn daughter, Emily.



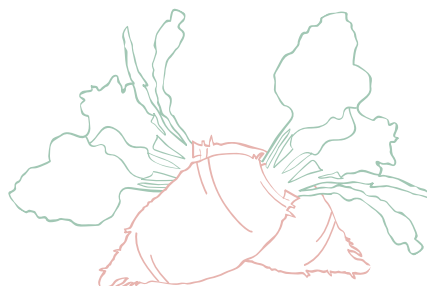
Donald Steinberger (23 years in the sugar industry) is Agriculturist responsible for the growing areas, receiving operations and mechanical repairs at the Blissfield and Fremont receiving stations. Don has worked for five sugar companies at the Fremont factory location during his tenure. Before beets, Don graduated from Green Springs High School and has earned several advanced certificates including welding, mechanical repairs, tool and die, management, accounting, etc. He was involved in the family farm and was part owner and manager of their John Deere dealership. Don is involved with the county fair and is Chairman of the Fair Board. He resides just outside of Fremont, OH with his wife, Connie. They have two sons, Eric (32) and Kurt (31), and two grandsons.



Robert Wight (28 years) is Agriculturist for Carrollton in the areas South and West of Saginaw. He also supervises the beet operations at the Albee receiving station. Prior to joining Michigan Sugar, Bob worked for Schemm Farms for 21 years managing the farm (including sugarbeets) and their certified seed operations. Bob graduated from Arthur Hill Trade School of Saginaw. He and his wife, Janice reside just South of Saginaw and they have three children, Karen (42), Cheryl (41) and Brian (39). They also have six grandchildren and are members of the St. James Lutheran Church.



Tom Rader (12 years with Farmers & Manufacturers, 22 years with Michigan Sugar) is Manager of Seed Plant. He is responsible for sugarbeet seed processing and coating, planting, maintaining and harvesting research plots. Tom is a member of many local clubs and organizations including Saginaw Moose 82, American Legion, Eagles, Masons, Shrine, Arab Patrol and Hillbilly Club. He resides in Saginaw with his wife, Trudy when they are not at their cabin in Harrison. He has four children and one grandchild. 🐦



CHANGES IN LAMBTON COUNTY



*By Wayne Martin, Agriculturist,
Croswell District, Ontario*

The Ontario growing area of Lambton County is adopting European technology in their quest to streamline the Field Cleaned Beets system. The group has introduced the ROPA Euro Maus to their equipment line up in an effort to handle the recently increased volume targeted for direct shipment into the Croswell facility.

The Maus is another phase in the ongoing direct ship program from the Lambton County growing area to the Croswell processing facility. This area has grown sugarbeets since 1997 and has no piling grounds. The heart of this area lies approximately 40 miles North of Dover and 40 miles south and east of Croswell. In an effort to reduce costs, the growers have been "field cleaning" their sugarbeets with specialized and/or modified equipment and loading the crop for immediate transfer to the Croswell factory. In 2002, the acreage in this area grew from 700 to 2790 acres. In order to handle the beets as efficiently as possible, the "Maus" was introduced to the North American scene.

Previously, one harvest group travelled with all the necessary equipment to harvest, clean and load the sugarbeets for immediate delivery to the processing facility. Breakdowns or delays would cause a ripple effect, potentially crippling the entire sequence of operations. Now several harvesters can lift a prescribed or targeted amount of beets and store them in accessible "windrows" for the Maus' subsequent nocturnal visit. A Company representative monitors all harvesting operations to ensure supplies are sufficient for the Maus' nightly reloading capacity and will lead the Maus to its next logistical pile. The Maus can handle 28-foot wide windrows while cleaning and loading up to 300 tons per hour. The absence of a tare sampling system is this machine's only challenge for performing in the North American arena. Efforts in 2003 will be to retrofit the Maus with the necessary hardware to obtain samples for the quality analysis process.

This system breaks the links between harvest-hauling-piling-transferring. It also decongests the Croswell



*Top: ROPA Euro Tiger harvesting sugarbeets
in Ontario.*

*Below: ROPA Euro Maus loading sugarbeets
for transport to the factory.*



factory yard by spreading the receiving of the Croswell Proper beets and the Lambton beets over a 24-hour period. All parties can better plan and utilize their labour and equipment with the increased flexibility.

These piles are intended for short-term storage. Beets are targeted for transport within two to four days during the early harvest period and seven to ten days for end-of-season beets. Short-term storage minimizes risk and reduces shrink. Research is planned that will assess shrink and differences that may affect beet quality in field storage situations. The Maus is undoubtedly a very effective way to handle sugarbeets for a direct ship system as is required for the Northern Ontario growing area.

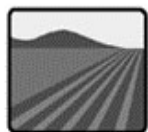
Also new to the area is the ROPA Euro Tiger. Two Lambton growers handling approximately 1,200 acres of sugarbeets imported this harvester from Germany. The two main differences between the Tiger and our conventional North American systems. 1) One piece of equipment and one operator for the topping and lifting process; 2) On board holding capacity for 28 tons of harvested product.

This harvester is saddled with technology injecting a high level of automation to improve performance, accuracy and efficiency using hydraulic and electrical sensors. The operator's work at hand is highly visible and key areas, such as cleaning turbines, are monitored via closed circuit TV cameras and monitors.

The defoliation is a combination of flail action followed by a scalping procedure. Sugarbeets are lifted with vibrating shoes and then cleaned through a

series of turbines prior to storage in the "cargo hold." High flotation tires and articulated frame with crab steering are some features allowing this large machine to operate with the agility, maneuverability and footprint of a smaller piece of equipment. The articulating frame allows the machine to "dog track" as it harvests beets for increased traction in adverse field conditions and reduced deep soil compaction. The high-volume unloading conveyer allows for building field piles or loading carts or trucks. The Tiger can discharge a 28-ton cargo load in one minute. The Tiger has minimal harvest loss and leaves the soil surface somewhat even and firmed.

The Euro Tiger is certainly unique and offers an opportunity to change the way sugarbeets are handled in this part of the world in a "gentler manner." 🐯



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*By Dick Leach,
Director of
Community and
Government
Relations*

"Community" is a warm, friendly word used to describe where we live and also to describe groups of people with the same interests. We all belong to several communities such as a church community, the agricultural community, and our hometowns. Communities are great for building relationships and coalitions where we can work together to accomplish things for a common good.

Michigan Sugar Company is a member of many industrial and professional communities, but the most important communities to the Cooperative are the ones where our factories are located and where our grower-owners live and do business.

We were recently recognized by two organizations for our involvement in the community:

Saginaw Future, Inc., Saginaw County's economic development group, has recognized Michigan Sugar Company for successfully forming its cooperative and saving 350 full-time and 1,100 campaign jobs in the communities where we are located.

The tag lines "LOCALLY GROWN LOCALLY OWNED" and "ADD A LITTLE LOCAL FLAVOR" were designed to make consumers feel good about buying the Pioneer brand sugar. The television commercials that many of us have seen on WNEM TV-5 were created by Prancing & Ewend, our ad agency, coordinated by Barb Wallace and produced by TV-5. Those ads have received two silver ADDY Awards, which are given for excellence in advertising. All of these efforts are designed to place Michigan Sugar Company, its grower-owners, its employees, and its products as excellent members in many communities.

Our community events program continues to be an important public relations effort here at Michigan Sugar. We will continue to donate our great Pioneer Sugar to worthy causes and agencies that help people in need. We will also support the Sugar Queen Program and the Sebewaing Sugar Festival. We will continue with the free use of the cotton candy machines with enough supplies for 200 servings with each machine. As our advertising budget allows, we think it's important to get this "local" message to our customers.

We at Michigan Sugar Company are: proud of our company, proud of our products, and proud to be part of the local communities where we are located. We are proud to be a locally-owned, locally-run cooperative producing Pioneer brand sugar, which is pure and natural and has only 15 calories per teaspoon. 🍬

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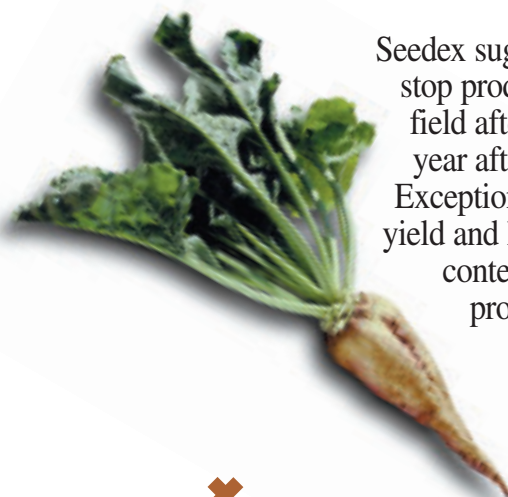
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President's and Chairman's Annual Reports, pages 14 and 17.

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