

January 2009

# On Farm Research

AND DEMONSTRATION

*Partnership  
of:*

*Sugar Beet Growers  
Michigan Sugar Company  
Michigan State University  
Agribusiness*

**Sugarbeet**   
**Advancement** 



Partnership of: Sugar Beet Growers  
Michigan Sugar Company  
Michigan State University  
Agribusiness

## MISSION STATEMENT

The mission of *Sugarbeet Advancement* is to generate research and utilize education to enhance productivity and profitability of the Great Lakes sugar beet industry.

This will be accomplished through a cooperative effort involving Michigan State University, Michigan Sugar Company, producers and agribusiness.

The *Sugarbeet Advancement* Committee will be active in identifying research needs, conducting educational programming, and identifying promotional and financial support to accomplish established goals.



On Farm Research and Demonstration

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## PREFACE

The Sugarbeet Advancement Committee is proud to present you with the 12<sup>th</sup> edition of the “Sugarbeet on Farm Research and Demonstration Report.” This document is a compilation of research involving new varieties, products, production practices, and other issues that are important to improving sugarbeet management. The 24 member Advancement Committee is active in determining priorities. This year 31 trials were established in Michigan and Ontario and only two were abandoned due to adverse weather that made results unreliable.

In 2008 Michigan Sugar Company produced over 4.1 million tons of beets. A new record yield of 28.88 tons per acre and 18.2% sugar was achieved. This shattered the old record by about 4 tons per acre. Certainly adequate moisture and a moderate summer temperature played a large role in this achievement. However, do not underestimate the role that improved grower management has played. These practices include: early planting, reduced tillage, increased populations, better disease control, improved fertility and better varieties. Sugarbeet Advancement is pleased to have played a significant research role in each of these practices.

To effectively utilize this year’s research report make sure that you analyze each trial individually and read any comments that are written. Because we are conducting large scale research under the farmer’s management, comments are made to reflect pertinent trial information/conditions. Trials are replicated to allow good statistical analysis to be performed. Trial reliability is stated for each location.

In the future Sugarbeet Advancement will continue to work on production issues that are critical to improving yield, quality and profitability. With the varieties that are available, along with excellent management practices, these current yields were certainly not an accident. In fact, yield and quality improvements will continue to march forward in the future.

Our challenge to you is to continue to improve quality and your bottom line by adopting some of these research findings on your operation. We are always willing to work with growers that have new ideas or want to test current research on your farm. *Take the Sugarbeet Advancement Challenge!*

Sincerely,

Mark Lumley  
Sugarbeet Advancement Chair

Steven Poindexter  
Sugarbeet Extension Educator





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Michigan State University  
Agribusiness

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### ***Special Thanks to Sugarbeet Advancement Partners:***

Producer Cooperators	Hilleshog Seeds– Doug Ruppal
Michigan Sugar Company and Agriculturists	GTG – Randy Hemb
MSU Extension Agents	Tri County Equipment
MSU Ag Experiment Station	Sugarbeet Advancement Committee
BetaSeed – Rob Gerstenberger	Tom Wenzel – Sugarbeet Advancement
ACH Seeds – Andy Bernia	B & B Research Farm – Paul Horny & Dennis Fleishman



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## COMMITTEE LIST

**Dave Bailey**  
Michigan Sugar Company  
10338 North Dean  
St. Louis MI 48880  
989-620-5449 (Cell)

**Warren Bierlein**  
4785 Lorenzo Road  
Vassar MI 48768

**Dennis Bischer**  
2222 N. Verona Road  
Bad Axe MI 48413  
989-269-7957

**Bob Boehm**  
Michigan Farm Bureau  
P.O. Box 30960  
Lansing, MI 48909  
517-323-7000

**Clay Crumbaugh**  
9224 North Crapo Road  
St. Louis MI 48880  
989-681-3029

**Kurt Ewald**  
LAKKE-Ewald Farms, Inc.  
4949 Unionville Rd.  
Unionville MI 48767-9724  
989-550-1191

**Mark Flegenheimer**  
Michigan Sugar Company  
2600 S. Euclid Avenue  
PO Box 917  
Bay City MI 48706  
989-686-1549

**Ralph Fogg**  
Michigan Sugar Company  
2600 S. Euclid Avenue  
PO Box 917  
Bay City MI 48706  
989-686-1549

**Dave Ganton**  
1700 Meridian  
Reese MI 48757

**Rick Gerstenberger**  
3800 N. Sheldon Rd.  
Snover MI 48472

**Corey Guza**  
Michigan Sugar Company  
2600 S. Euclid Avenue  
PO Box 917  
Bay City MI 48706  
989-686-1549

**Dave Helmreich**  
6566 Frasier Rd.  
Bay City MI 48706  
989-686-0486

**Lee Hubbell**  
Michigan Sugar Company  
2600 S. Euclid Avenue  
PO Box 917  
Bay City MI 48706-3497  
989-686-0161

**Mike Leen**  
159 S. Howard Avenue  
Crowell MI 48422  
810-679-2240  
810-404-0240

**Mark Lumley**  
2578 Confederation Rd.  
Sarnia ON N7T 7H3



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Michigan State University  
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## COMMITTEE LIST

**Dr. Mitch McGrath**  
USDA – ARS – MWA  
494D Plant & Soil Sci Bldg.  
East Lansing MI 48824  
517-432-2355

**Chad McNaughton**  
5940 Galbraith Line Road  
Crosswell MI 48420

**Paul Pfenninger**  
Michigan Sugar Company  
2600 S. Euclid Avenue  
PO Box 917  
Bay City MI 48706  
989-686-1549

**Steve Poindexter**  
MSU Extension – Saginaw Co.  
One Tuscola Street, Suite 100  
Saginaw MI 48607-1287  
989-758-2500 Ext. 208

**Dave Pratt**  
MSU Extension - Tuscola Co.  
362 Green Street  
Caro MI 48723-1998

**Mike Richmond**  
8067 Richmond Road  
Bay Port MI 48720

**Scott Roggenbuck**  
8579 Helena Rd.  
Harbor Beach MI 48441  
989-479-6854  
989-550-4495

**Doug Ruppel**  
Syngenta Seeds – Hilleshog  
5146 Rogers Road  
Akron MI 48701

**Alan Sherwood**  
8228 N. Bush Road  
St. Louis MI 48880

**Christy Sprague**  
Michigan State University  
466 Plant & Soil Science Bldg.  
East Lansing MI 48824  
517-355-0271

**James Stewart**  
Michigan Sugar Company  
320 Sugar Street  
Carrollton MI 48724  
989-752-8232

**Mark Varner**  
12472 Atherton Road  
Davison MI 48412

**John Zandstra**  
Ridgetown College  
University of Guelph  
Ridgetown ON N0P 2C0

### 2008 Executive Committee:

**Chairman – Mark Lumley**  
**Vice Chairman – Clay Crumbaugh**  
**Treasurer – Mike Richmond**  
**Secretary – Corey Guza**  
**Fifth Member – Paul Pfenninger**

**SUGARBEET ADVANCEMENT COMMITTEE  
2008 VOTING MEMBERSHIP**

**24 Voting Members**

<b>Company</b>	<b>Name</b>	<b>Terms</b>
<b>Michigan Sugar Company</b>	<b>Paul Pfenninger (5<sup>th</sup> Member)</b>	<b>3</b>
	<b>Corey Guza (Secretary)</b>	<b>1</b>
	<b>Jim Stewart</b>	<b>4</b>
	<b>Dave Ganton</b>	<b>2</b>
	<b>Ralph Fogg</b>	<b>3</b>
	<b>Dave Bailey</b>	<b>1</b>
	<b>Lee Hubbell</b>	<b>4</b>
	<b>Mike Leen</b>	<b>2</b>
<b>Michigan Sugar Company District Growers</b>	<b>Mark Lumley (Chairman)</b>	<b>1</b>
	<b>Mike Richmond (Treasurer)</b>	<b>1</b>
	<b>Dave Helmreich</b>	<b>1</b>
<b>Michigan Sugar Company At Large Growers</b>	<b>Clay Crumbaugh (Vice Chairman)</b>	<b>2</b>
	<b>Kurt Ewald</b>	<b>1</b>
	<b>Scott Roggenbuck</b>	<b>3</b>
	<b>Alan Sherwood</b>	<b>2</b>
	<b>Chad McNaughton</b>	<b>3</b>
<b>Michigan State University and University of Guelph</b>	<b>Dave Pratt</b>	<b>3</b>
	<b>John Zandstra</b>	<b>1</b>
	<b>Christy Sprague</b>	<b>2</b>
<b>Sugar Beet Seed Company</b>	<b>Doug Ruppel</b>	<b>1</b>
<b>Agri-Business</b>	<b>Dennis Bischer</b>	<b>1</b>
	<b>Mark Varner</b>	<b>2</b>
<b>Michigan Sugar Beet Growers Co-op Board</b>	<b>Warren Bierlein</b>	<b>1</b>
	<b>Tom Gettel</b>	<b>1</b>

**Ex-Officio Members**

<b>Company</b>	<b>Name</b>
<b>Farm Bureau</b>	<b>Bob Boehm</b>
<b>USDA</b>	<b>Mitch McGrath</b>
<b>SBA Director</b>	<b>Steve Poindexter</b>
<b>Chairman of Michigan Sugar Company Board of Directors</b>	<b>Rick Gerstenberger</b>
<b>CEO of Michigan Sugar Company</b>	<b>Mark Flegenheimer</b>





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## TERMINOLOGY

The data in the 2008 *Sugarbeet Advancement* Research and Demonstration Book can be a valuable tool for making production decisions on your farm. Producers must understand the terminology to draw correct conclusions. Most of the research demonstration trials are replicated three or four times, either in a randomized format or complete randomized block. These trials have a statistical analysis run on them. Trials, which were not randomized and/or replicated, are considered as demonstrations with no statistical analysis run. The following comments should be helpful in your understanding of the results.

**TREATMENT NAME** -- Identify different named treatments in the trial.

**RWSA** -- Recoverable White Sugar Per Acre. This number is calculated by multiplying recoverable white sugar per ton by actual yield per acre. All reported numbers are rounded to the nearest pound.

**ACTUAL YIELD T/A** -- Tonnage calculated on per acre basis. Reported number is rounded to one-hundredth decimal point. Yields were calculated by subtracting 5% tare from the gross tons, unless truck weights were used on the trial.

**RWST** -- Recoverable White Sugar Per Ton incorporating sugar and clear juice purity. Reported number is rounded to the nearest pound. This is based on a 120-day slice (not fresh basis).

**% SUGAR** -- Percentage Sugar Content of Beet; rounded to the one-tenth decimal point.

**% CJP** -- Percentage Clear Juice Purity; rounded to the one-tenth decimal point.

**RHIZOCTONIA BEETS** -- Average number of dead or dying beets from Rhizoctonia Crown Rot per indicated length of row. Counts were normally taken in August.

**POPULATION** -- In monitoring trials, approximately 10, 20, and 30 day plant counts were taken to monitor emergence of each treatment. Results are reported on beets per 100 foot of row.

**HARVEST POPULATION** -- Beet population was taken after beet defoliation. All crowns were counted, including small beets, which may not be picked up by harvesters.

**AVERAGES** -- Use averages to compare treatments which are better or worse than average of trial.

**LSD 5%** -- Least Significant Difference at the 95% confidence level. If the difference between treatments is greater than the LSD 5%, it indicates that the treatments being compared are actually different. This calculation is used to take into account soil variation and other factors. NS indicates differences between treatments are *Not Significant*.

**C.V. %** -- Coefficient of variation is an indicator of how much variation is in the trial. If C.V.s are 5% or less, it is considered an excellent trial; 10% or less is a good trial; 15% is fair, and etc. The less variation the more reliable the results are.

\* **1x – 2x – 3x** -- Indicates how many times a practice was done.



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## 2008 VARIETY TRIAL AVERAGES

<b>Cooperator:</b> Average of 4 Variety Trials	<b>Tillage:</b>
<b>Location:</b> Ontario, Pigeon, Sandusky, Ithaca	<b>Harvest Date:</b>
<b>Planting Date:</b>	<b>Sample Date:</b>
<b>Previous Crop:</b>	<b>Herbicides:</b>
<b>Soil Type:</b>	<b>Replicated:</b>
<b>Row Spacing:</b>	<b>Seed Spacing:</b>
<b>Fertilizer:</b>	<b>Fungicide:</b>

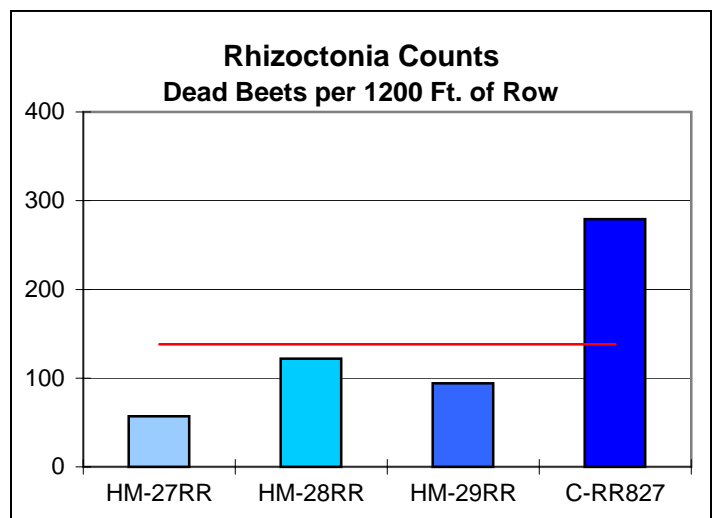
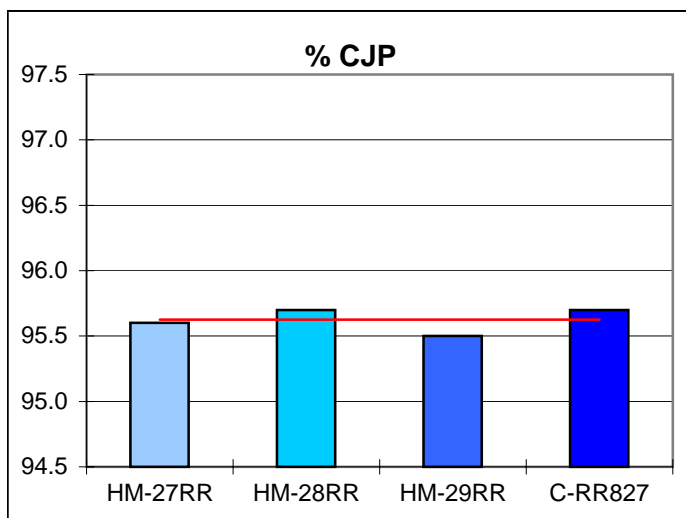
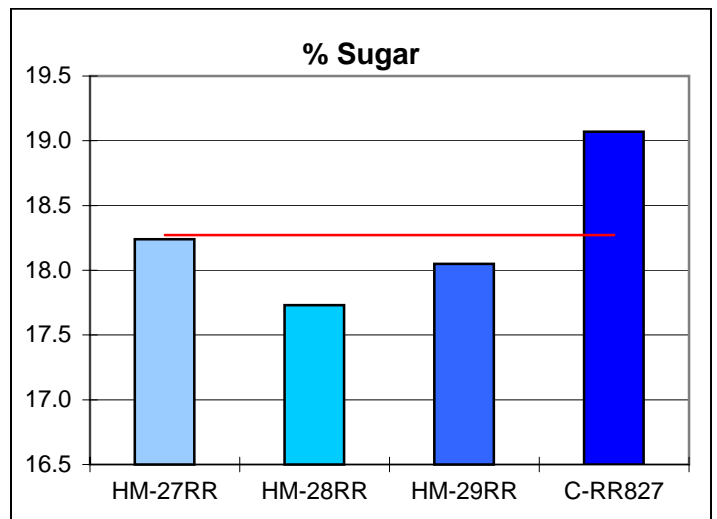
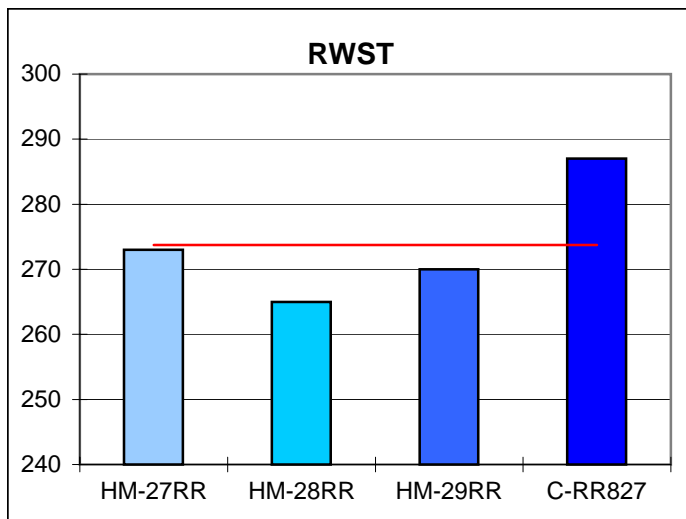
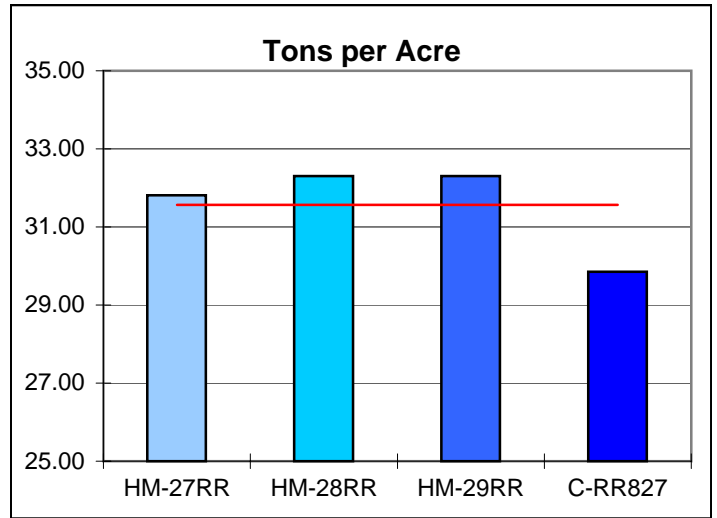
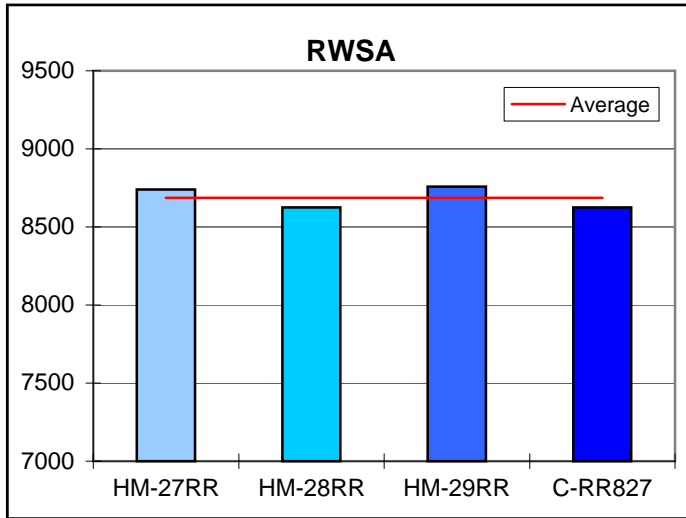
VARIETY	REV / ACRE	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS 100 Ft. of Row				RHIZ. 1200 Ft. of Row
							EARLY	MID	FINAL	HARV.	
HM-29RR	\$ 1,273	8758	32.30	270	18.1	95.5	70	168	199	192	94
HM-27RR	\$ 1,268	8740	31.81	273	18.2	95.6	54	163	206	198	57
HM-28RR	\$ 1,250	8625	32.30	265	17.7	95.7	47	160	202	192	122
C-RR827	\$ 1,251	8624	29.85	287	19.1	95.7	53	143	194	166	279
<b>AVERAGE</b>	\$ 1,262	8686	31.56	274	18.3	95.6	56	159	200	187	138
<b>LSD (5%)</b>		NS 614	NS 2.92	8	0.5	NS 0.3	NS 28	15	7	24	224
<b>C.V. (%)</b>		4	5.78	2	1.7	0.2	32	6	2	7	102

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b>  <b>RHIZOCTONIA:</b>  <b>QUADRIS APP:</b>	<b>CERC. LEAF SPOT:</b>  <b>NEMATODES:</b>  <b>WEATHER:</b>
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**Comments:** See individual trials for specific location data. In some situations, C-RR827 may require an additional Cercospora Leaf Spot spray. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 274.

## 2008 VARIETY TRIAL AVERAGES





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## 2008 VARIETY TRIAL

<b>Cooperator:</b>	Brian Fox	<b>Tillage:</b>	Fall Plow - Danish Tine 2x
<b>Location:</b>	Ontario	<b>Harvest Date:</b>	10/28/2008
<b>Planting Date:</b>	4/24/2008	<b>Sample Date:</b>	10/28/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Roundup 2x
<b>Soil Type:</b>	Clay Loam	<b>Replicated:</b>	4x
<b>Row Spacing:</b>	30"	<b>Seed Spacing:</b>	4.25"
<b>Fertilizer:</b>	10 gal. 28% Banded over row, Broadcast 8-39-120 variable, 60 lbs. N Sidedress A.A.	<b>Fungicide:</b>	Headline (57 DSV) Senator + Dithane (112 DSV) Headline (145 DSV)

VARIETY	REV / ACRE	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS				RHIZ. 1200 Ft.
							100 Ft. of Row				
HM-28RR	\$ 1,498	11436	37.92	302	19.5	96.9	66	244	250	244	4
C-RR827	\$ 1,493	11398	36.62	311	20.2	96.8	106	230	236	229	34
HM-29RR	\$ 1,479	11289	37.20	303	19.8	96.5	78	235	240	238	1
HM-27RR	\$ 1,470	11222	36.80	305	19.9	96.6	70	242	245	236	0
<b>AVERAGE</b>	\$ 1,485	11336	37.13	305	19.8	96.7	80	238	243	237	10
<b>LSD (5%)</b>		NS 369	NS 1.10	6	0.3	0.2	NS 52	NS 13	NS 13	NS 16	7
<b>C.V. (%)</b>		2	1.90	1	0.9	0.2	41	3	3	4	46

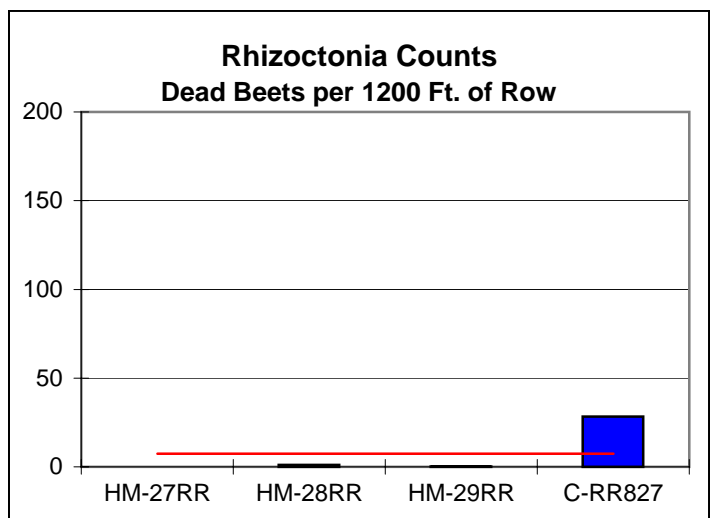
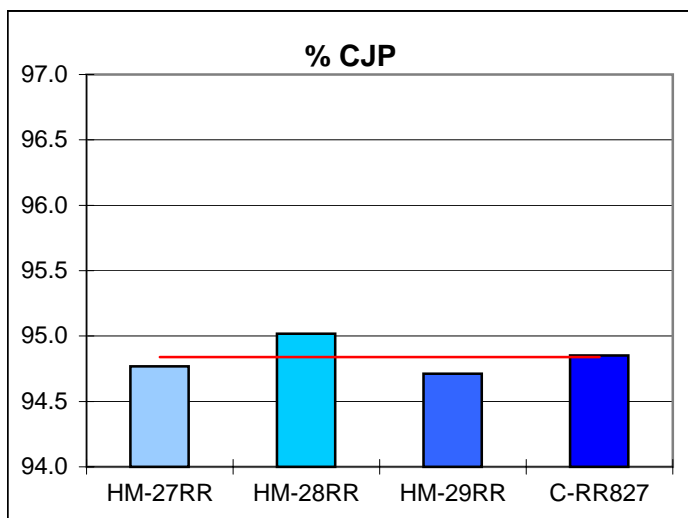
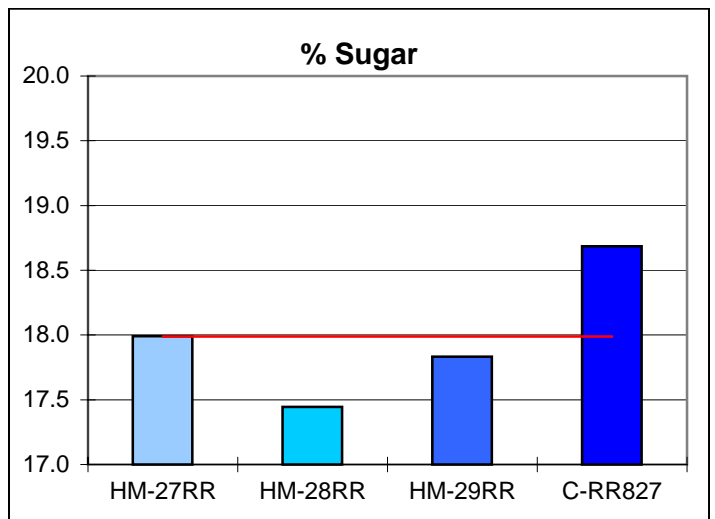
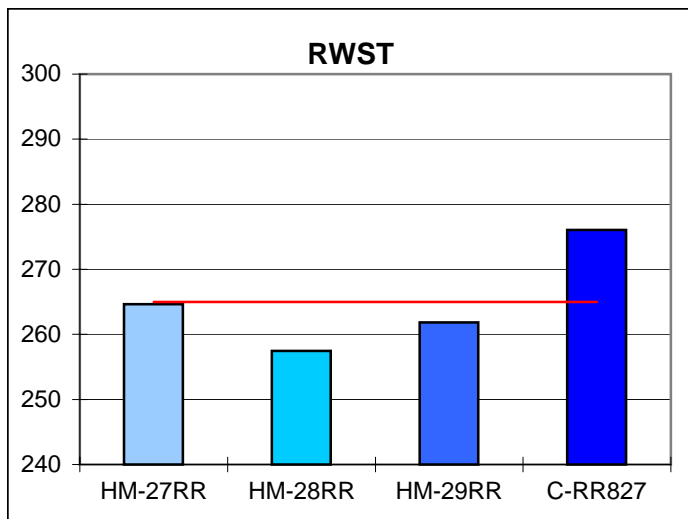
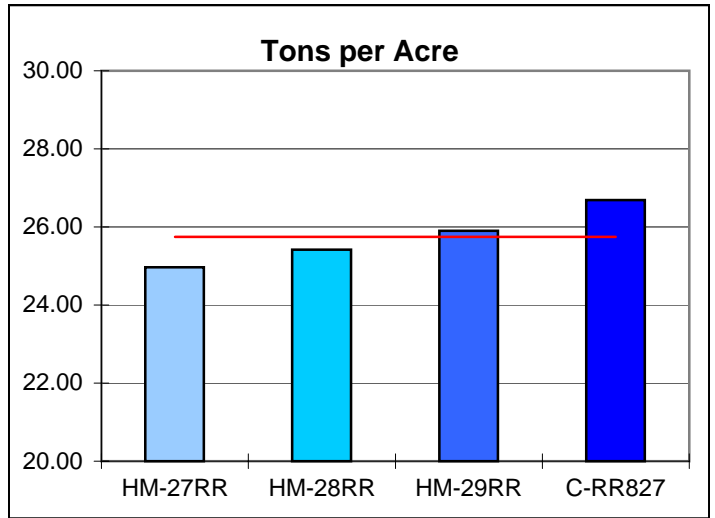
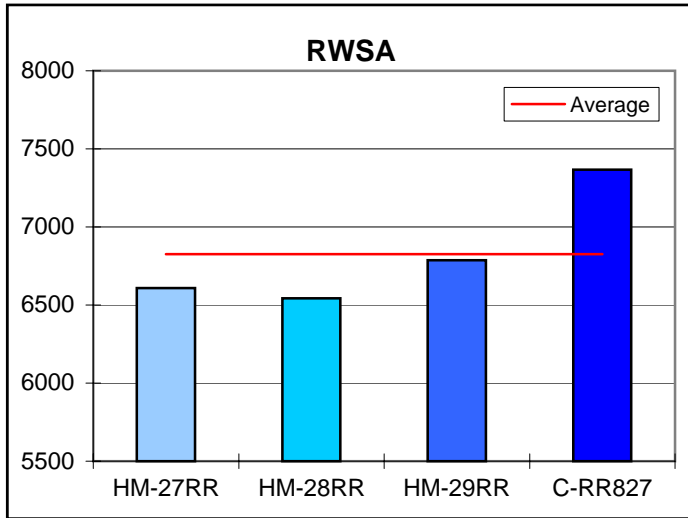
**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b>	Excellent 41,000 plants/acre	<b>CERC. LEAF SPOT:</b>	Good
<b>RHIZOCTONIA:</b>	Low	<b>NEMATODES:</b>	None
<b>QUADRIS APP:</b>	No	<b>WEATHER:</b>	Good Moisture

**Comments:** Very high yielding trial. Harvest population averaged over 41,000 plants per acre. Good soil moisture conditions. Minimal disease problems. In some situations, C-RR827 may require an additional Cercospora Leaf Spot spray. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 305.

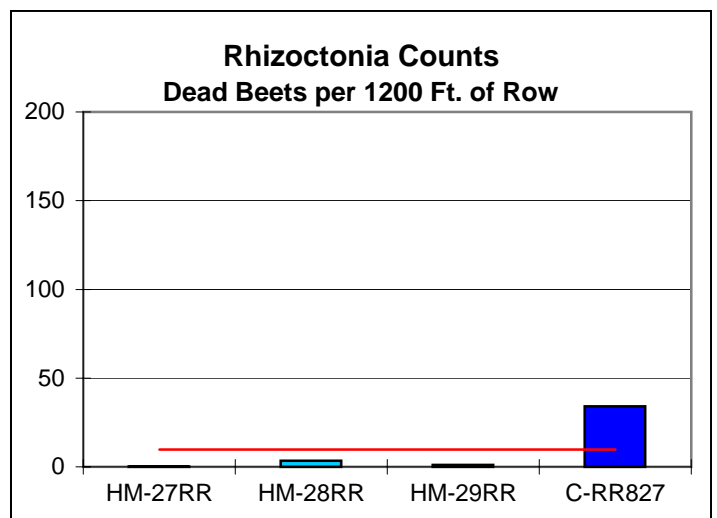
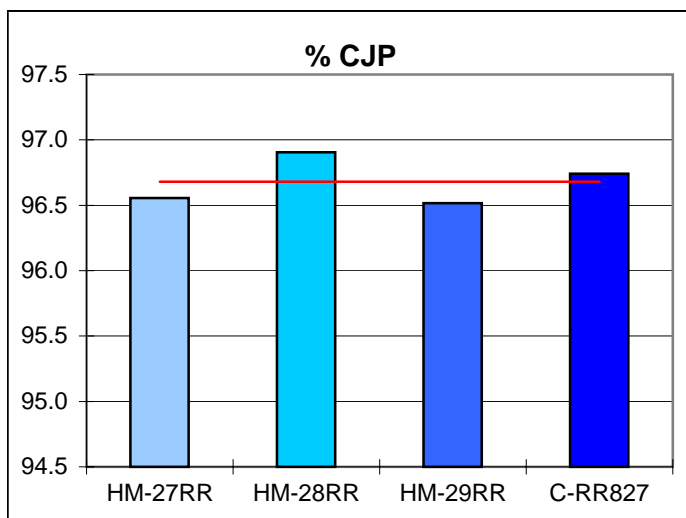
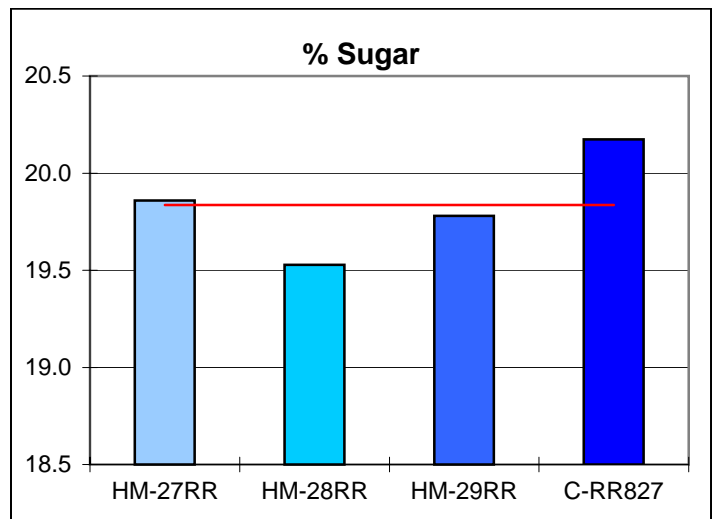
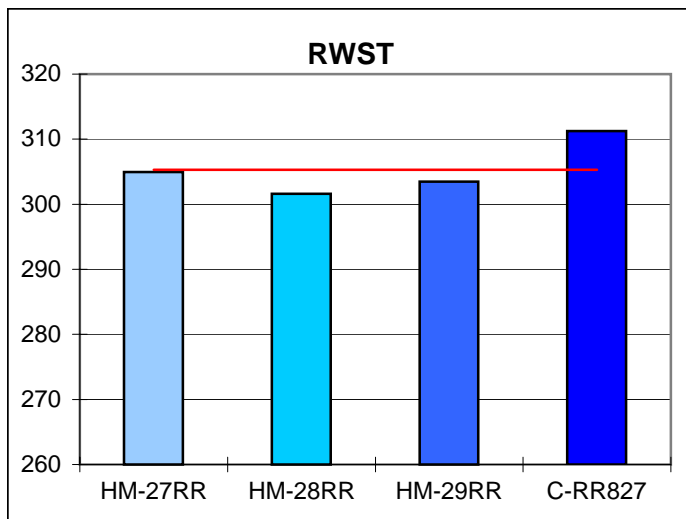
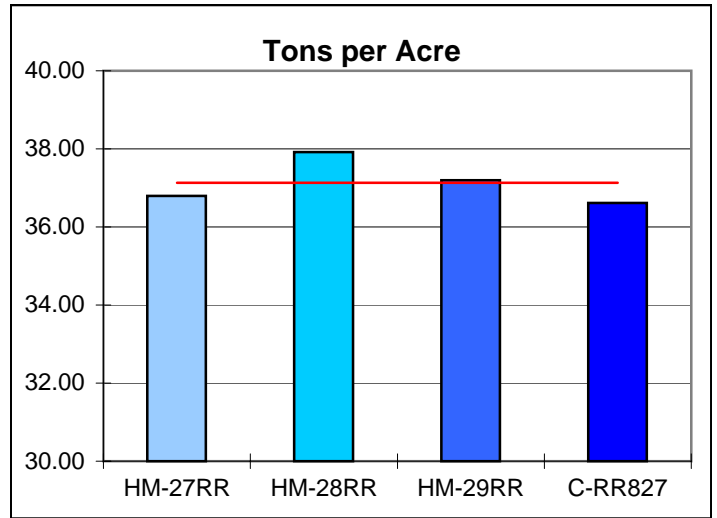
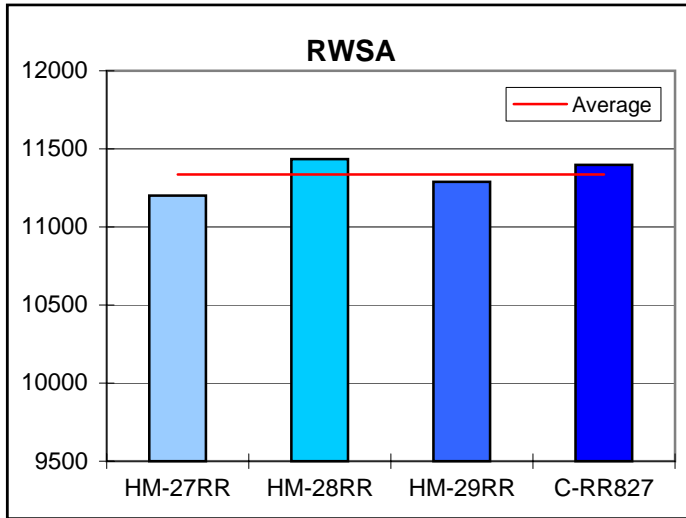
**Cooperating Agriculturist:** Wayne Martin, Michigan Sugar Company  
Janice LeBoeuf, Ontario Ministry of Agriculture

# 2008 HUMM VARIETY TRIAL





## 2008 FOX VARIETY TRIAL





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## 2008 VARIETY TRIAL

<b>Cooperator:</b>	Loren & Josh Humm	<b>Tillage:</b>	Fall Chisel - Field Cultivator 2x
<b>Location:</b>	Ithaca, Gratiot County	<b>Harvest Date:</b>	10/31/2008
<b>Planting Date:</b>	4/26/2008	<b>Sample Date:</b>	10/13/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Roundup 3x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Row Spacing:</b>	28"	<b>Seed Spacing:</b>	4"
<b>Fertilizer:</b>	10 gal. 22-11-0, 2 x 2; 104 lbs. N, Urea/ESN	<b>Fungicide:</b>	Eminent (98 DSV) Kocide 3000 (129 DSV)

VARIETY	REV / ACRE	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS				RHIZ. 1200 Ft. of Row
							100 Ft. of Row				
							17 DAY	20 DAY	30 DAY	HARV.	
C-RR827	\$ 1,112	7367	26.69	276	18.7	94.9	42	69	119	125	28
HM-29RR	\$ 1,024	6786	25.90	262	17.8	94.7	63	92	133	143	0
HM-27RR	\$ 997	6608	24.97	265	18.0	94.8	54	88	137	153	0
HM-28RR	\$ 988	6543	25.42	257	17.5	95.0	54	83	134	148	1
<b>AVERAGE</b>	\$ 1,030	6826	25.74	265	18.0	94.8	53	83	131	142	7
<b>LSD (5%)</b>		461	1.67	7	0.5	NS 0.6	NS 33	NS 39	NS 26	NS 26	18
<b>C.V. (%)</b>		4	4.05	2	1.8	0.4	39	30	12	11	149

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b>	Fair - 27,000 Plants /Acre	<b>CERC. LEAF SPOT:</b>	Good
<b>RHIZOCTONIA:</b>	Very Low	<b>NEMATODES:</b>	None Detected
<b>QUADRIS APP:</b>	Yes, 8-12 Leaf	<b>WEATHER:</b>	Dry Season

**Comments:** Trial was planted in marginally dry soil conditions and was relatively slow to emerge. Stand establishment was adequate but lower than other variety trials. Growing conditions during the season were dry compared to other growing areas. In some situations, C-RR827 may require an additional Cercospora Leaf Spot spray. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 265.

**Cooperating Agriculturist:** Wayne Davis, Michigan Sugar Company



On Farm Research and Demonstration

Partnership of: Sugar Beet Growers  
Michigan Sugar Company  
Michigan State University  
Agribusiness

## 2008 VARIETY TRIAL

**Cooperator:** Randy Sturm  
**Location:** Pigeon, Huron County  
**Planting Date:** 4/22/2008  
**Previous Crop:** Wheat  
**Soil Type:** Clay Loam  
**Row Spacing:** 28"  
**Fertilizer:** 479# 5-16-34+Micros Broadcast;  
22 gal. 28%+ Thio-Sol Broadcast;  
20 gal. 28% Sidedressed

**Tillage:** Fall Chisel - Field Cultivator 2x  
**Harvest Date:** 10/17/2008  
**Sample Date:** 9/22/2008  
**Herbicides:** Roundup 2x  
**Replicated:** 4x  
**Seed Spacing:** 4"  
**Fungicide:** Proline 68 (DSV)  
Headline 142 (DSV)

VARIETY	REV / ACRE	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS 100 Ft. of Row				RHIZ. 1200 Ft. of Row
							13 DAY	20 DAY	30 DAY	HARV.	
HM-27RR	\$ 1,301	8451	32.43	260	17.7	94.7	57	127	192	183	19
HM-29RR	\$ 1,273	8260	32.80	252	17.3	94.5	111	156	185	178	98
C-RR827	\$ 1,259	8175	29.83	274	18.4	95.2	55	109	178	165	172
HM-28RR	\$ 1,246	8088	32.07	252	17.2	94.8	53	122	179	173	101
<b>AVERAGE</b>	\$ 1,271	8244	31.78	260	17.7	94.8	69	128	183	175	97
<b>LSD (5%)</b>		NS 702	1.98	10	0.6	0.4	40	37	NS 26	NS 24	94
<b>C.V. (%)</b>		5	3.90	2	2.0	0.3	36	18	9	9	60

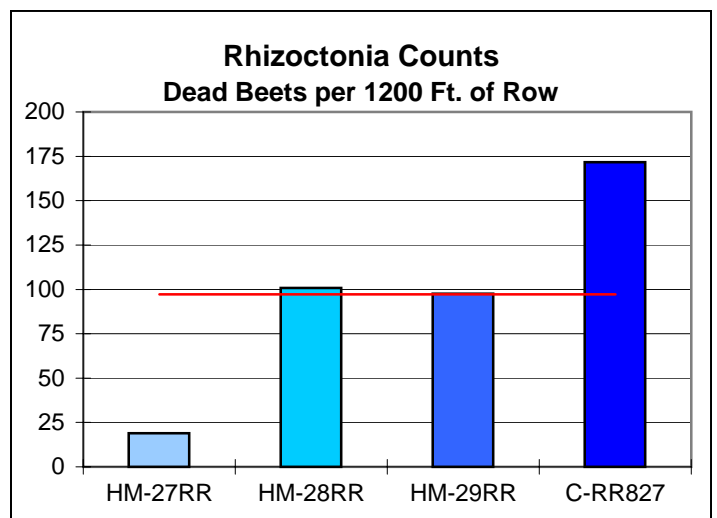
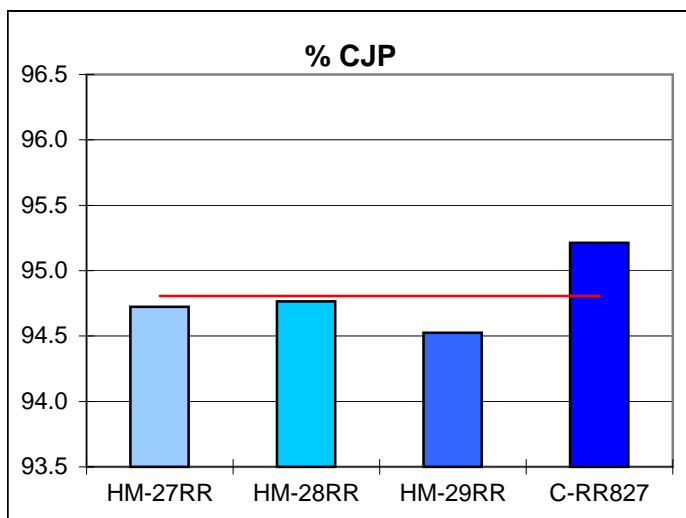
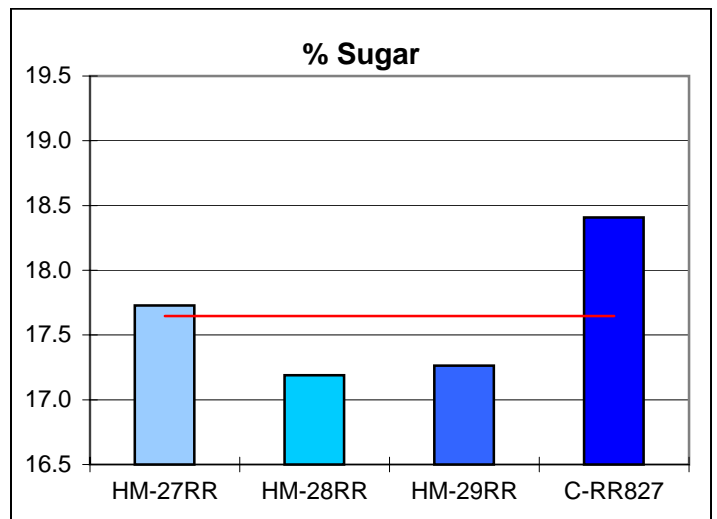
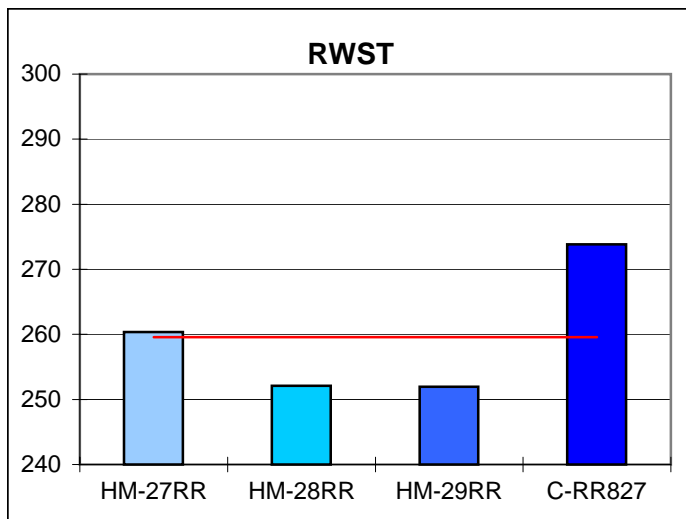
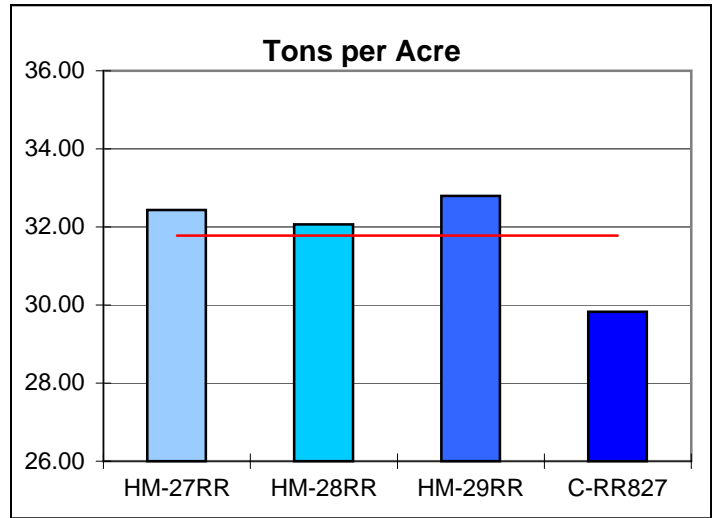
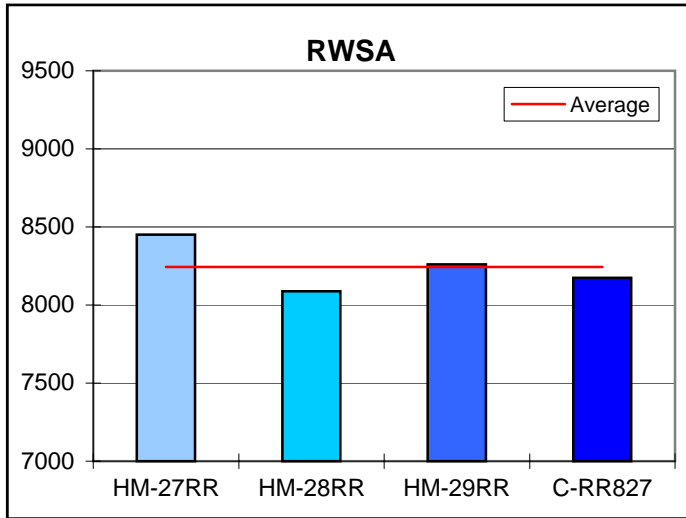
**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b>	Excellent - 34,000 Plants/Acre	<b>CERC. LEAF SPOT:</b>	Good
<b>RHIZOCTONIA:</b>	Moderate - Affected Yield	<b>NEMATODES:</b>	Not Found
<b>QUADRIS APP:</b>	None	<b>WEATHER:</b>	Excellent

**Comments:** Trial was planted into good soil conditions. Severity of Rhizoctonia would be considered moderate and negatively effected yield particularly in the most susceptible variety. In some situations, C-RR827 may require an additional Cercospora Leaf Spot spray. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 260.

**Cooperating Agriculturist:** Roger Elston, Michigan Sugar Company

## 2008 STURM VARIETY TRIAL





On Farm Research and Demonstration

Partnership of: Sugar Beet Growers  
Michigan Sugar Company  
Michigan State University  
Agribusiness

## 2008 VARIETY TRIAL

<b>Cooperator:</b>	Wadsworth Farms, Inc.	<b>Tillage:</b>	Fall Chisel - Field Cultivator 1x
<b>Location:</b>	Sandusky, Sanilac County	<b>Harvest Date:</b>	11/11/2008
<b>Planting Date:</b>	4/21/2008	<b>Sample Date:</b>	10/10/2008
<b>Previous Crop:</b>	Dry Beans	<b>Herbicides:</b>	Roundup 3x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Row Spacing:</b>	28"	<b>Seed Spacing:</b>	4"
<b>Fertilizer:</b>	250# 15-20-3 plus micros 80# Anhydrous Sidedress Variable rate 0-0-60 Fall	<b>Fungicide:</b>	Proline (63 DSV) Gem (126 DSV)

VARIETY	REV / ACRE	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS				RHIZ. 1200 Ft. of Row
							100 Ft. of Row				
							10 DAY	21 DAY	31 DAY	HARV.	
HM-29RR	\$ 1,310	8696	33.28	261	17.3	96.2	29	189	238	208	277
HM-27RR	\$ 1,307	8678	33.03	263	17.4	96.2	36	196	248	220	208
HM-28RR	\$ 1,270	8431	33.77	250	16.7	95.9	14	192	245	201	381
CRR827	\$ 1,138	7554	26.24	288	19.0	96.1	9	165	243	143	881
<b>AVERAGE</b>	\$ 1,263	8339	31.58	266	17.6	96.1	22	185	243	193	437
<b>LSD (5%)</b>		525	1.49	14	0.8	NS 0.6	19	NS 27	NS 14	29	162
<b>C.V. (%)</b>		4	2.95	3	2.7	0.4	53	9	4	10	23

**TRIAL RELIABILITY:** Excellent

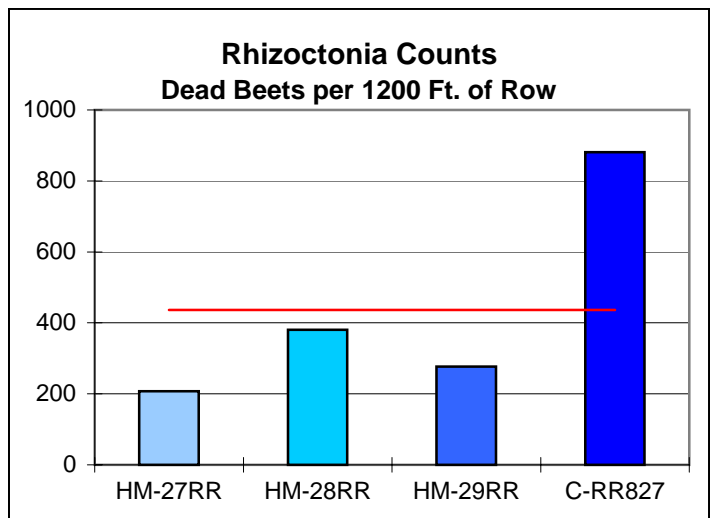
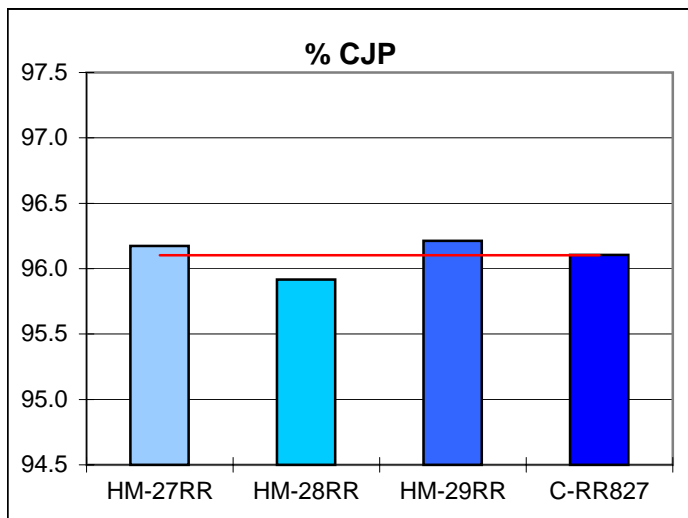
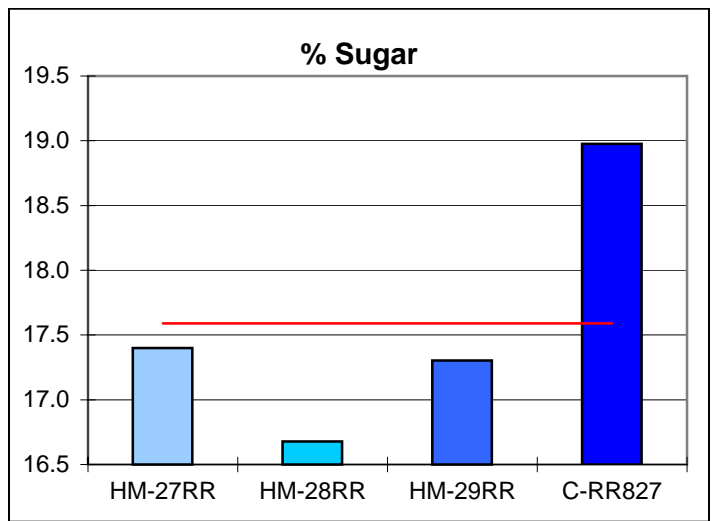
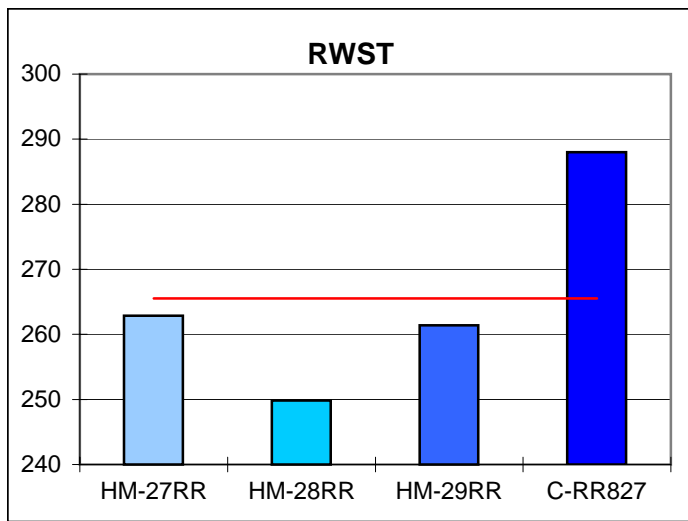
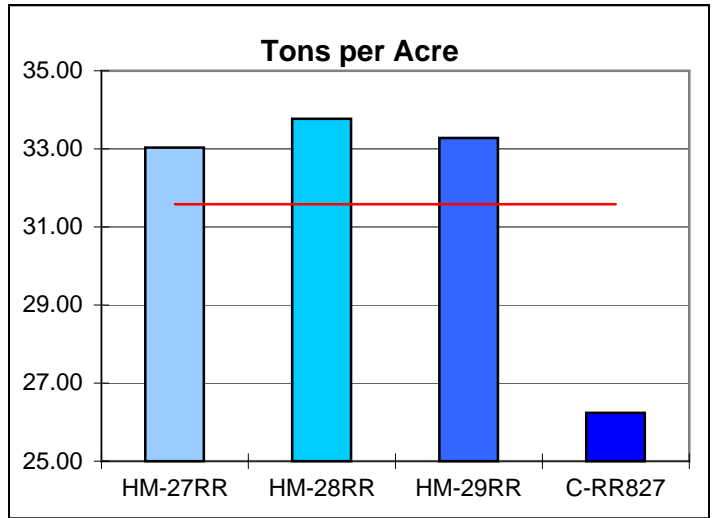
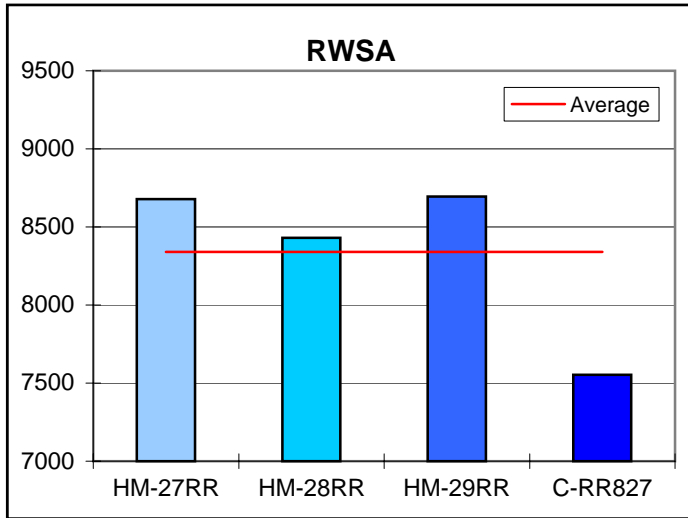
<b>EMERGENCE:</b>	Excellent - 43,000 Plants/Acre	<b>CERC. LEAF SPOT:</b>	Excellent
<b>RHIZOCTONIA:</b>	Heavy	<b>NEMATODES:</b>	Not Detected
<b>QUADRIS APP:</b>	No	<b>WEATHER:</b>	Very Good Moisture

**Comment:** Trial was planted under good soil conditions. This trial did not have any Quadris applied for Rhizoctonia control. Severity of Rhizoctonia would be considered heavy. Variety C-RR827 was most impacted by Rhizoctonia reducing the stand by 40%. In comparison HM-27RR is the most Rhizoctonia resistant variety with a stand reduction of 11%. The other two varieties are moderate in resistance with HM-28RR at 18% and HM-29RR with 13% reduction of stand. In some situations, C-RR827 may require an additional Cercospora Leaf Spot spray. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 266.

**Cooperating Agriculturist:** Paul Wheeler, Michigan Sugar Company



## 2008 WADSWORTH VARIETY TRIAL



Michigan Sugar Company  
 Official Variety Trial  
 Varieties Approved for Sale - Average of 2 Years  
 2008

		Nurseries														
		A Lower Number Indicates More Resistance														
Variety		RWSA	RWST	Tons/A	% Suc	% CJP	% Emerg	CLS	Root Aphid	Rhizoc- tonia	Aphano- myces	Rhizo- mania				
Fully Approved	Beta 5930R	7311	254.9	28.58	17.75	93.7	63.1	2.65	2.4	F	4.7	P	4.3	G-	5.2	F
	Beta 5833R	7154	246.6	28.83	16.96	94.4	63.5	3.19	1.7	G	3.6	G	4.3	G-	4.3	G
	SX 1233	7168	250.6	28.45	17.28	93.0	67.6	3.19	2.7	F-	5.1	P	4.2	G	4.2	G
	Crystal R509	7133	245.4	28.89	17.11	93.7	62.5	2.78	1.9	G	3.7	G	4.6	F+	4.6	G-
Limited Approval	SX 1260RR	7724	244.6	31.42	16.91	94.2	71.0	3.18	2.9	F-	4.6	P	4.1	G	3.8	E
	HM 9055RR	7544	248.5	30.24	17.19	94.1	64.2	3.12	3.0	F-	4.8	P	4.0	G	4.8	G-
	HM 9050RR	7498	252.4	29.58	17.51	93.8	64.7	2.73	2.1	G-	4.6	P	4.3	G-	5.0	F
	HM 9042RR	7410	251.7	29.31	17.47	93.8	62.3	2.72	2.4	F	4.3	F	4.1	G	5.2	F
	HM 9051RR	7285	252.0	28.74	17.43	94.0	59.7	2.75	2.4	F	5.0	P	5.0	F	5.0	F
<b>Speciality Variety**</b>																
High Sugar	Crystal RR827*	8267	257.7	31.83	17.76	94.1	65.7	4.13	1.6	E	5.5	P	4.0	G	4.9	G-
High Sugar	BTS 17RR32*	8226	252.2	32.47	17.30	94.4	70.8	3.75	1.5	E	5.0	P	4.0	G	4.2	G
Nematode	Beta 1643N*	7912	250.4	31.41	17.25	94.2	66.2	3.68	1.8	G	5.4	P	3.7	G	4.7	G-
High Sugar	BTS 17RR62*	7830	256.4	30.20	17.59	94.3	58.7	3.88	1.6	E	4.9	P	5.2	P	4.1	G
Roundup	HM 28RR	7638	241.7	31.47	16.75	94.0	71.9	3.11	2.5	F	4.1	F	4.2	G	4.1	G
Roundup	HM 27RR	7489	243.5	30.64	16.95	93.8	70.1	3.15	2.4	F	4.0	G	4.3	G-	4.1	G
Roundup	HM 29RR	7485	243.4	30.59	16.90	93.9	65.8	3.19	2.1	G-	4.2	F	4.3	G-	3.8	E

LSD (P=.05)	613.8	6.65	2.08	0.35	NS	NS	0.34									E= Excellent
CV	3.8	1.27	3.25	0.98	0.47	6.48	5.00									G= Good
Means	7567.0	249.50	30.16	17.26	94.00	65.50	3.20									F= Fair
																P=Poor

\*\* Crystal RR824\* was also given Special Approval but has only been tested one year.

\* There will be an addendum to be signed by growers relating to Cercospora & Rhizoctonia control.

Michigan Sugar Company  
**Plant to Stand Trials**  
 Average of 3 Locations  
 2008

No.	Variety	RWSA	RWST	Tons/A	%Suc	%CJP	% Emergence		CLRate 0-9
							Early	Final	
20	Crystal RR827	9670	276.2	35.50	18.63	94.95	46.7	63.1	1.44
29	HM 29RR	9533	258.7	37.30	17.45	95.17	59.4	73.4	1.03
28	HM 28RR	9443	255.7	37.33	17.24	95.24	69.5	76.1	1.02
12	Beta 17RR32	9390	269.8	35.15	18.09	95.38	56.7	69.7	1.42
44	SX 1260RR	9352	256.8	36.78	17.31	95.26	68.1	74.5	1.11
31	HM 9039RR	9330	259.0	36.46	17.45	95.27	65.3	78.9	0.92
30	HM 9032RR	9161	252.8	36.69	17.25	94.67	58.2	70.6	0.89
3	Beta 1643N	9084	260.3	35.23	17.61	94.99	45.1	52.8	1.87
27	HM 27RR	9011	258.2	35.36	17.50	94.92	60.3	72.4	1.02
5	Crystal R509	8912	260.7	34.55	17.69	94.83	47.9	61.4	0.75
35	HM 9055RR	8894	259.5	34.57	17.60	94.84	56.8	68.8	0.81
10	HM 7172Rz	8740	259.5	34.18	17.63	94.80	56.0	70.3	1.08
9	Crystal R442	8697	262.0	33.48	17.85	94.65	55.9	63.6	0.69
34	HM 9051RR	8678	265.3	33.07	17.85	95.25	47.9	62.7	0.70
32	HM 9042RR	8643	265.1	32.97	18.04	94.68	51.8	63.4	0.67
33	HM 9050RR	8489	263.2	32.71	17.89	94.73	60.8	69.3	0.80
1	Beta 5833R	8332	255.9	32.94	17.31	95.09	36.2	43.2	0.98
11	HM 2771Rz	7789	261.3	30.11	17.59	95.29	61.3	75.9	0.76
LSD (P=.05)		671.4	9.95	2.01	0.48	0.68	9.57	10.13	0.39
CV		4.5	2.29	3.48	1.62	0.43	10.29	7.14	23.40
Grand Mean		8952.7	261.10	34.69	17.66	95.00	55.78	67.20	1.00

Trial Quality: Fair & Good  
 Reps: 6 at two locations  
 4 at one location

Row Width: 30 inches  
 Quadris: 1 app, Rhizoc. Control good

Michigan Sugar Company  
**Official Variety Trial - 2008**

Average of 6 Locations

Sorted by RWSA

ID#	Variety	RWSA	RWST	Tons/A	% Suc	% CJP	Emerg %	CLS*
20	Crystal RR827	9225	262.1	34.82	17.89	94.49	63.8	4.0
13	BTS 17RR62	8977	261.0	34.03	17.68	94.93	62.7	4.0
22	Crystal RR824	8901	259.3	33.88	17.59	94.90	62.7	4.2
21	Crystal RR808	8864	265.8	33.02	18.07	94.70	69.7	3.7
12	BTS 17RR32	8787	256.9	33.85	17.44	94.89	70.8	3.8
3	Beta 1643N	8735	250.0	34.59	17.12	94.47	56.0	3.4
19	BTS 18RR66	8569	233.8	36.43	16.11	94.51	49.4	4.0
36	HM 9080RR	8406	248.0	33.68	16.97	94.56	61.0	3.3
26	Crystal RR877	8389	232.8	35.75	16.12	94.25	67.5	3.7
15	BTS 18RR16	8345	246.6	33.41	16.91	94.50	54.6	2.4
18	BTS 18RR46	8342	245.0	33.56	16.76	94.61	71.7	3.8
38	HM 9110RR	8342	250.7	32.98	17.20	94.46	59.8	3.1
14	BTS 18RR06	8334	255.2	32.32	17.27	95.06	67.6	3.4
17	BTS 18RR36	8249	253.7	32.08	17.35	94.54	70.4	4.4
29	HM 29RR	8241	246.6	33.25	16.90	94.50	64.3	3.1
30	HM 9032RR	8226	240.3	33.95	16.62	94.20	64.4	3.3
44	SX 1260RR	8207	245.3	33.18	16.83	94.55	68.9	3.1
27	HM 27RR	8204	250.3	32.66	17.20	94.39	67.6	3.2
23	Crystal RR840	8204	252.8	32.17	17.34	94.42	43.8	2.5
46	SX 1282 RR	8201	244.5	33.30	16.79	94.50	67.1	3.4
28	HM 28RR	8191	243.4	33.39	16.73	94.42	71.2	2.9
42	HM 9133RR	8177	250.2	32.44	17.21	94.33	66.6	2.9
39	HM 9116RR	8175	251.4	32.21	17.24	94.46	60.7	3.0
41	HM 9131RR	8167	253.1	32.04	17.39	94.35	69.4	2.8
31	HM 9039RR	8150	249.3	32.59	17.13	94.35	72.3	3.1
4	Beta 5670R	8122	245.5	32.78	17.03	93.94	74.5	3.6
43	HM 9151RR	8110	239.8	33.58	16.64	93.96	67.8	3.2
6	Crystal R689	8104	237.3	33.79	16.35	94.40	72.2	3.8
35	HM 9055RR	8073	250.3	32.01	17.17	94.43	63.9	3.0
24	Crystal RR848	8054	254.0	31.42	17.32	94.66	69.4	4.0
45	SX 1281RR	8045	253.4	31.48	17.29	94.68	65.2	2.9
16	BTS 18RR26	8037	256.7	31.00	17.63	94.31	64.3	2.3
34	HM 9051RR	8036	257.8	30.96	17.55	94.72	56.7	2.6
33	HM 9050RR	8021	254.5	31.24	17.48	94.27	65.3	2.6
5	Crystal R509	8003	250.7	31.68	17.22	94.30	59.7	2.7
25	Crystal RR898	7930	255.0	30.74	17.34	94.83	75.1	3.7
32	HM 9042RR	7913	251.8	31.11	17.36	94.12	62.1	2.8
37	HM 9084RR	7909	239.9	32.78	16.59	94.22	62.7	3.4
8	SX 1233	7837	254.8	30.57	17.39	92.27	64.5	3.3
9	Crystal R442	7755	247.7	30.97	17.12	94.09	64.2	2.5
1	Beta 5833R	7749	247.3	31.08	16.85	94.85	58.6	3.3
2	Beta 5930R	7727	255.0	30.13	17.61	94.06	58.5	2.6
40	HM 9130RR	7689	240.7	31.73	16.46	94.71	56.8	3.9
10	HM 7172Rz	7453	244.1	30.38	16.95	93.91	68.4	2.9
11	HM 2771Rz	7258	254.2	28.28	17.27	94.87	69.5	2.9
7	HM 2788NT	7155	217.8	32.50	15.32	93.71	69.4	2.8
LSD (P=.05)		352.0	6.74	1.19	0.38	0.97	3.51	0.66
CV		3.8	2.39	3.24	1.96	0.91	4.80	10.02
Grand Mean		8164.9	249.04	32.52	17.08	94.41	64.62	3.24

\* Lower number indicates more resistance.



Partnership of: Sugar Beet Growers  
Michigan Sugar Company  
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**2008 VARIETY TRIAL RAINFALL DATA (INCHES)  
NEAREST LOCATION**

LOCATION COOPERATOR	April	May	June	July	Aug.	Sept.	Oct.	Season Total
Auburn Meylan	2.40	1.26	7.11	4.51	3.73	4.88	2.01	25.90
Breckenridge Humm	1.38	1.17	3.75	2.30	1.20	5.45	2.85	18.10
Colling Ewald	1.33	1.60	4.45	4.50	2.25	5.61	2.13	21.87
Dover Fox	1.60	2.55	6.25	3.60	1.55	4.30	2.10	21.95
Sandusky Wadsworth	1.60	2.60	4.64	2.00	4.20	9.10	1.95	26.09
Akron Rayl/Bernia	2.84	1.30	5.92	6.01	4.11	5.25	2.57	28.00
Pigeon Sturm	1.60	2.34	5.04	2.45	3.75	5.01	2.01	22.20
<b>Average</b>	1.82	1.83	5.31	3.62	2.97	5.66	2.23	23.44

\* Rainfall data is at the nearest monitoring point to the field. This data was not taken at the field, so some difference may have occurred at the actual location.





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Partnership of: Sugar Beet Growers  
Michigan Sugar Company  
Michigan State University  
Agribusiness

## 2008 NEMATODE / RADISH VARIETY TRIAL

<b>Cooperator:</b>	LAKKE Ewald Farms	<b>Tillage:</b>	Fall Plow - Spg Field Cultivator
<b>Location:</b>	Unionville	<b>Harvest Date:</b>	9/23/2008
<b>Planting Date:</b>	4/19/2008	<b>Sample Date:</b>	9/18/2008
<b>Previous Crop:</b>	Wheat/Oil Seed Radish	<b>Herbicides:</b>	Microrate 4x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4
<b>Row Spacing:</b>	22"	<b>Seed Spacing:</b>	4.5
<b>Fertilizer:</b>	10 gal. 28-0-0 + Micros 30 gal. 28-0-0 Broadcast	<b>Fungicide:</b>	Proline (41 DSV), Gem (83 DSV) Inspire (135 DSV)

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-5534N - Oilseed Radish	\$1,226	7675	29.21	263	17.4	96.3
B-5534N - No Oilseed	\$1,083	6551	26.12	251	16.6	96.2
<b>LSD (5%)</b>		396	1.87	7	0.3	NS 0.5
<b>C.V. (%)</b>		2	3.00	1	0.7	0.2

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-5833R - Oilseed Radish	\$764	4893	20.60	237	15.9	96.0
B-5833R - No Radish	\$497	3017	13.80	218	14.7	96.0
<b>LSD (5%)</b>		871	3.53	6	0.3	NS 1.3
<b>C.V. (%)</b>		10	9.10	1	0.8	0.6

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b> Excellent	<b>RHIZOCTONIA:</b> Low
<b>QUADRIS APP:</b> Yes	<b>NEMATODES:</b> High

**Comments:** These two trials were conducted in the same split field with high levels of sugarbeet cyst nematodes. Oilseed radish was drilled in strips in wheat stubble late summer of 2007. The nematode resistant variety B-5534N was planted on one half of the field and the susceptible variety B-5833R was planted on the other half. Where radish was planted yield and quality were significantly higher. Colonel oilseed radish was planted at a rate of 20 lbs/acre with a cost of \$2.10/ lb. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the combined trial average of 242.25.

**Cooperating Agriculturist:** Craig Rieman, Michigan Sugar Company



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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Meylan Farms Inc.	<b>Tillage:</b>	Fall Chisel, Triple K 1x
<b>Location:</b>	Auburn, Bay County	<b>Harvest Date:</b>	11/1/2008
<b>Planting Date:</b>	4/19/2008	<b>Sample Date:</b>	10/6/2008
<b>Previous Crop:</b>	Pickles / Oat Cover Crop	<b>Herbicides:</b>	Split Rate 2x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Row Spacing:</b>	30"	<b>Seed Spacing:</b>	4.5
<b>Fertilizer:</b>	2x2 - 17 gal. 19-17-0 23.5 gal. 28%	<b>Fungicide:</b>	Proline (48 DSV) Headline (115 DSV) Eminent (167 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS		
						100 Ft. of Row		
						10 DAY	20 DAY	30 DAY
B-1643N	9206	33.57	274	17.9	96.7	145	173	176
B-5833R	7003	27.03	259	17.0	96.5	180	207	210
<b>AVERAGE</b>	8104	30.30	267	17.5	96.6	162	190	193
<b>LSD (5%)</b>	690	2.00	10	0.6	NS 0.2	21	33	32
<b>C.V. (%)</b>	4	2.90	2	1.4	0.1	6	8	7

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b> Excellent - 34,000 Plants/Acre	<b>CERC. LEAF SPOT:</b> Very Good
<b>RHIZOCTONIA:</b> Low to Moderate	<b>NEMATODES:</b> Heavy
<b>QUADRIS APP:</b> Yes, 4-6	<b>WEATHER:</b>

**Comments:** Sugarbeet Cyst Nematodes can significantly reduce tonnage and quality of susceptible varieties.

**Cooperating Agriculturist:** Tom Schlatter, Michigan Sugar Company



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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Wegener Farms	<b>Tillage:</b>	Fall Plow - Danish Tine 1x
<b>Location:</b>	Auburn, Bay County	<b>Harvest Date:</b>	10/10/2008
<b>Planting Date:</b>	4/19/2008	<b>Sample Date:</b>	9/29/2008
<b>Previous Crop:</b>	Dry Beans	<b>Herbicides:</b>	Nortron - Split Rate 2x
<b>Soil Type:</b>	Londo Tappen Loam	<b>Replicated:</b>	5x
<b>Row Spacing:</b>	30"	<b>Seed Spacing:</b>	4 9/16"
<b>Fertilizer:</b>	15 gal., 19-17-0 Starter 250 lbs. of 33-0-0 Broadcast 200 lbs. of 0-0-60 Broadcast	<b>Fungicide:</b>	Proline (48 DSV) Gem (131 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-1634N	7416	27.93	266	18.1	94.7
B-5833R	6873	26.45	260	17.6	95.0
<b>AVERAGE</b>	7145	27.19	263	17.9	94.8
<b>LSD (5%)</b>	384	0.86	NS 12	NS 0.7	0.2
<b>C.V. (%)</b>	3	1.80	3	2.3	0.1

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b> Good	<b>CERC. LEAF SPOT:</b> Good
<b>RHIZOCTONIA:</b> Heavy	<b>NEMATODES:</b> Moderate
<b>QUADRIS APP:</b> Yes, 2-8 Leaf	<b>WEATHER:</b>

**Comments:** Field had a heavy level of Rhizoctonia and moderate level of sugarbeet cyst nematode. B-1643N visually had more Rhizoctonia than B-5833R but still out-yielded it because of nematode resistance.

**Cooperating Agriculturist:** Tom Schlatter, Michigan Sugar Company





**No Starter**



**Starter Mix: 10-34-0 + 28%N**



**Fall Oat Cover Crop Followed By  
Stale Seed Bed Planting**



**30 Inch Row Canopy**



**22 Inch Row Canopy**



**15 Inch Row Canopy**





**Sugarbeet Diagnostic Field Day**



**Boron Deficiency**



**Manganese Deficiency**



**Rhizomania**



**Flea Beetle Damage**



**Sugarbeet Cyst Nematodes**





**Quadris 4-6 Leaf**



**Proline 4-6 Leaf**



**Quadris + Proline 4-6 Leaf**



**Check**



**Rhizoctonia Tip Rot**



**Harvested Rhizoctonia Beets**





**Soil in Crown Increases Rhizoctonia**



**Band Spraying Quadris/Proline**



**Clover Plow Down Improves Soil Quality**



**Glyphosate Weed Issues**



**Poor Topping Reduces Quality**



**Now that's not topping too far ahead of the harvester!**



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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Terry Schindler	<b>Tillage:</b>	Fall Chisel - Danish Tine 1x
<b>Location:</b>	Kawkawlin, Bay County	<b>Harvest Date:</b>	10/23/2008
<b>Planting Date:</b>	4/1/2008	<b>Sample Date:</b>	9/19/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Nortron
<b>Soil Type:</b>	Clay Loam	<b>Replicated:</b>	4
<b>Row Spacing:</b>	22"	<b>Seed Spacing:</b>	4.5"
<b>Fertilizer:</b>	18 gal., 19-17-0 Starter 20 gal. 28% Sidedress	<b>Fungicide:</b>	Inspire (48 DSV) Gem (120 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-1643N	7083	27.57	257	17.2	95.8
C-271	5844	23.31	251	17.0	95.2
<b>AVERAGE</b>	6463	25.44	254	17.1	95.5
<b>LSD (5%)</b>	1020	3.19	NS 13	NS 0.6	NS 0.7
<b>C.V. (%)</b>	7	5.57	2	1.5	0.3

**TRIAL RELIABILITY:** Good

<b>EMERGENCE:</b>	B-1643N Good; C-271 Fair	<b>CERC. LEAF SPOT:</b>	Good
<b>RHIZOCTONIA:</b>	Heavy - Both Varieties	<b>NEMATODES:</b>	Moderate
<b>QUADRIS APP:</b>	Yes, 2-6 Leaf	<b>WEATHER:</b>	----

**Comments:** Very heavy levels of Rhizoctonia reduced yield in both varieties.

**Cooperating Agriculturist:** Tom Schlatter, Michigan Sugar Company





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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Vern Stephen	<b>Tillage:</b>	Fall Chisel - Field Cultivator 1x
<b>Location:</b>	Bay County	<b>Harvest Date:</b>	9/24/2008
<b>Planting Date:</b>	4/7/2008	<b>Sample Date:</b>	9/24/2008
<b>Previous Crop:</b>	Black Beans	<b>Herbicides:</b>	Nortron - Micro Rate 4x
<b>Soil Type:</b>	Sandy Loam	<b>Replicated:</b>	6x
<b>Row Spacing:</b>	30"	<b>Seed Spacing:</b>	4.2
<b>Fertilizer:</b>	10 gal. 19-17-0 + Micros 105 lbs., 82% at Planting 180 lbs., 0-0-60 Broadcast	<b>Fungicide:</b>	Gem (48 DSV) Eminent (106 DSV) Headline (151 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-1643N	7374	29.32	252	16.9	95.6
MIX of 80% R-509 & 20% B-5833 R	6653	27.63	241	16.3	95.2
AVERAGE	7014	28.47	246	16.6	95.4
LSD (5%)	358	1.30	10	NS 0.7	NS 0.7
C.V. (%)	3	3.08	3	2.7	0.5

**TRIAL RELIABILITY:**    **Excellent**

<b>EMERGENCE:</b> Fair <b>RHIZOCTONIA:</b> Heavy <b>QUADRIS APP:</b> Yes, 2-8 Leaf	<b>CERC. LEAF SPOT:</b> Good <b>NEMATODES:</b> Moderate <b>WEATHER:</b>
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**Comments:** Rhizoctonia pressure was moderate for the mixed varieties and heavy for B-1643N. Even though Rhizoctonia was heavier in B-1643N, the nematode resistant variety out-yielded the susceptible variety mix.

**Cooperating Agriculturist:**    Ron Meyer, Michigan Sugar Company



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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Pat Gruehn	<b>Tillage:</b>	Fall Chisel - Field Cultivator 1x
<b>Location:</b>	Sebewaing, Huron County	<b>Harvest Date:</b>	10/31/2008
<b>Planting Date:</b>	4/20/2008	<b>Sample Date:</b>	10/1/2008
<b>Previous Crop:</b>	Dry Beans	<b>Herbicides:</b>	Pyramin/Dual
<b>Soil Type:</b>	Sandy Loam	<b>Replicated:</b>	5x
<b>Row Spacing:</b>	22"	<b>Seed Spacing:</b>	4.7
<b>Fertilizer:</b>	400 lbs, 3-14-45 Broadcast 35 gal. 28% Nitrogen	<b>Fungicide:</b>	Proline (53 DSV) Gem (91 DSV) Eminent (141 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-1643N	8306	33.51	248	16.8	95.0
B-5833R	7957	31.72	251	16.9	95.4
<b>AVERAGE</b>	8132	32.62	249	16.9	95.2
<b>LSD (5%)</b>	NS 428	0.78	NS 12	NS 0.6	NS 0.8
<b>C.V. (%)</b>	3	1.37	3	2.0	0.5

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b>	Good	<b>CERC. LEAF SPOT:</b>	Good
<b>RHIZOCTONIA:</b>	Low	<b>NEMATODES:</b>	<b>Not Detected</b>
<b>QUADRIS APP:</b>	Yes, 2-6	<b>WEATHER:</b>	Hail Defoliation - Early Sum.

**Comments:** Trial located in a known sugarbeet cyst nematode area, but none were found in this trial. Hail defoliation in early summer caused regrowth that may have affected sugar content.

**Cooperating Agriculturist:** Jeff Elston, Michigan Sugar Company



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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Wasmiller Farms	<b>Tillage:</b>	Fall Chisel - Field Cultivator 1x
<b>Location:</b>	Saginaw County	<b>Harvest Date:</b>	9/24/2008
<b>Planting Date:</b>	4/21/2008	<b>Sample Date:</b>	9/24/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Nortron - Micro Rate 4x
<b>Soil Type:</b>	Clay	<b>Replicated:</b>	6x
<b>Row Spacing:</b>	30"	<b>Seed Spacing:</b>	4.2
<b>Fertilizer:</b>	15 gal. 10-34-0 + Mn 140 lbs. N from 28%	<b>Fungicide:</b>	Quadris (79 DSV) Eminent (118 DSV) Headline (150 DSV) Supertin/Pencozob (169 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS		
						100 Ft. of Row		
						10 DAY	19 DAY	29 DAY
B-1643N	8949	38.65	233	16.5	93.2	69	154	183
B-5833R	9411	39.90	236	16.6	93.5	80	161	196
<b>AVERAGE</b>	9180	39.27	235	16.6	93.3	74	158	190
<b>LSD (5%)</b>	NS 941	0.77	NS 13	NS 0.8	NS 0.5	NS 33	NS 28	NS 20
<b>C.V. (%)</b>	5	0.90	4	3.1	0.4	30	12	7

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b> Excellent - 33,000 plants/acre	<b>CERC. LEAF SPOT:</b> Excellent
<b>RHIZOCTONIA:</b> Low	<b>NEMATODES:</b> Low Level
<b>QUADRIS APP:</b> Yes	<b>WEATHER:</b> ---

**Comments:** Sugarbeet cyst nematodes were detected at low levels. In the presence of low levels or no nematodes, resistant and susceptible varieties will yield similarly.

**Cooperating Agriculturist:** Ron Meyer, Michigan Sugar Company



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## 2008 NEMATODE VARIETY TRIAL

<b>Cooperator:</b>	Richmond Brothers Farms, LLC	<b>Tillage:</b>	Fall Mold Board / Fall Field Cultivated Stale Seedbed Planting
<b>Location:</b>	Pigeon, Huron County	<b>Harvest Date:</b>	10/28/2008
<b>Planting Date:</b>	4/15/2008	<b>Sample Date:</b>	10/1/2008
<b>Previous Crop:</b>	Wheat	<b>Herbicides:</b>	Split Rate 2x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	5
<b>Row Spacing:</b>	30"	<b>Seed Spacing:</b>	4.3"
<b>Fertilizer:</b>	Starter: 5 Gal 28%, 7 Gal 10-34-0, 3 Gal Thio-sol, Mn & B. Manure - 12,000 Gal	<b>Fungicide:</b>	Proline (54 DSV) Gem (99 DSV) Proline (133 DSV)

VARIETY	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
B-1643N	10459	36.03	290	19.1	96.3
B-5833R	10102	36.03	281	18.5	96.1
<b>AVERAGE</b>	10281	36.03	285	18.8	96.2
<b>LSD (5%)</b>	NS 467	NS 1.36	5	0.2	NS 0.5
<b>C.V. (%)</b>	3	2.10	1	1.5	0.3

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b> Excellent	<b>CERC. LEAF SPOT:</b> Excellent
<b>RHIZOCTONIA:</b> Light	<b>NEMATODES:</b> <b>Not Detected</b>
<b>QUADRIS APP:</b> Yes 4-6 Leaf	<b>WEATHER:</b>

**Comments:** B-1643N visually had more Rhizoctonia than B-5833R. In the absence of nematodes the varieties had the same tonnages.

**Cooperating Agriculturist:** Roger Elston, Michigan Sugar Company



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## 2008 QUADRIS & PROLINE TRIAL

<b>Cooperator:</b>	Steve Hoard	<b>Tillage:</b>	Fall Subsoiled - Field Cultivator 1x
<b>Location:</b>	Breckenridge, Gratiot County	<b>Harvest Date:</b>	10/24/2008
<b>Planting Date:</b>	4/24/2008	<b>Sample Date:</b>	10/6/2008
<b>Previous Crop:</b>	Black Beans	<b>Herbicides:</b>	Roundup - 3x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Spacing:</b>	30" Row, 4" Seed	<b>Variety:</b>	C-RR827
<b>Fertilizer:</b>	Starter: 15 Gal of 28% & 10-34-0 Mixed with Additives, 100 Lb. of N/Ac. by Urea	<b>Fungicide:</b>	Proline (49 DSV) Gem (86 DSV) Proline (133 DSV)

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	RHIZ. COUNTS 1200 Ft. of Row	
							7/1/08	8/18/08
Quadris & Proline	\$952	6585	25.02	264	17.7	95.3	22	257
Quadris	\$922	6277	23.83	263	17.7	95.4	28	291
Proline	\$841	5754	21.51	266	17.8	95.5	55	426
Check	\$730	4802	18.53	259	17.4	95.4	131	584
<b>AVERAGE</b>		5854	22.22	263	17.7	95.4	59	389
<b>LSD (5%)</b>		1562	5.66	NS 12	NS 0.7	NS 0.6	78	242
<b>C.V. (%)</b>		17	16.00	3	2.3	0.4	83	39

**TRIAL RELIABILITY: Good**

<b>EMERGENCE:</b> Good	<b>CERC. LEAF SPOT:</b> Good Control
<b>RHIZOCTONIA:</b> Heavy	<b>QUADRIS APP:</b> Quadris & Proline

**Comments:** Trial was conducted to compare the efficacy of Quadris (10.5 oz/acre) and Proline (5.7 oz/acre) for control of Rhizoctonia rot of sugar beets. Treatments were applied in a 7 inch band at about the 4 leaf stage (5/29/08). A full rate of Quadris and Proline were combined as an additional treatment. The Proline treatments included a non-ionic surfactant at a rate of 0.25% v/v. Rhizoctonia infestation was heavy and somewhat patchy between replications. Best control and highest yield occurred by combining full rates of Quadris and Proline in a single application but not significantly better than Quadris alone. Under heavy Rhizoctonia levels Quadris may have better efficacy than Proline. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 263. The cost used for Quadris and Proline was \$23.90 and \$21.29, respectively, plus \$7.50 for application.

**Cooperating Agriculturist:** Dave Bailey, Michigan Sugar Company



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## 2008 QUADRIS & PROLINE TRIAL

<b>Cooperator:</b>	Meylan Farms Inc.	<b>Tillage:</b>	Fall Chisel, Triple K 1x
<b>Location:</b>	Auburn, Bay County	<b>Harvest Date:</b>	11/1/2008
<b>Planting Date:</b>	4/19/2008	<b>Sample Date:</b>	10/6/2008
<b>Previous Crop:</b>	Pickles / Oat Cover Crop	<b>Herbicides:</b>	Split Rate 2x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Spacing:</b>	30", 4.5" Seed	<b>Variety:</b>	B-1643 N
<b>Fertilizer:</b>	2x2 - 17 gal. 19-17-0 23.5 gal. 28%	<b>Fungicide:</b>	Proline (48 DSV) Headline (115 DSV) Eminent (167 DSV)

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	RHIZ. COUNTS 1175 Ft. of Row	
							7/10/08	8/26/08
Proline	\$1,274	8888	32.46	274	18.1	96.3	1	42
Quadris & Proline	\$1,241	8813	31.75	278	18.2	96.5	1	57
Check	\$1,216	8295	30.17	275	18.0	96.6	9	150
Quadris	\$1,179	8259	30.93	267	17.7	96.1	2	67
<b>AVERAGE</b>		8563	31.30	273	18.0	96.4	3	79
<b>LSD (5%)</b>		NS 763	NS 2.86	4	0.2	NS 0.4	NS 7	63
<b>C.V. (%)</b>		6	5.71	1	0.8	0.3	132	50

**TRIAL RELIABILITY:** Fair

<b>EMERGENCE:</b> Excellent	<b>NEMATODES:</b> Yes, Heavy Levels
<b>RHIZOCTONIA:</b> Low	<b>QUADRIS APP:</b> Quadris & Proline

**Comments:** Trial was conducted to compare the efficacy of Quadris (10.5 oz/acre) and Proline (5.7 oz/acre) for control of Rhizoctonia rot of sugar beets. Treatments were applied in a 7 inch band at about the 4 leaf stage (5/21/08). Full rates of Quadris and Proline were combined as an additional treatment. The Proline treatments included a non-ionic surfactant at a rate of 0.25% v/v. Early Rhizoctonia counts in July indicated very low levels of disease. Later counts in August had increased Rhizoctonia incidence but still at a relatively low level. All treatments were significantly better in Rhizoctonia control than the check. However, because of the patchy nature of the disease yields were not significantly different between the treatments. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 273. The cost used for Quadris and Proline was \$23.90 and \$21.29, respectively, plus \$7.50 for application. Confidence in the quality results is low due to Quadris having a lower RWST then the check even though it had a lower Rhizoctonia level.

**Cooperating Agriculturist:** Tom Schlatter, Michigan Sugar Company



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## 2008 RHIZOCTONIA QUALITY EXPERIMENT

**Cooperator:** Steve Hoard                      **Harvest Date:** 10/24/2008  
**Location:** Breckenridge, Gratiot County      **Replicated:** 3x

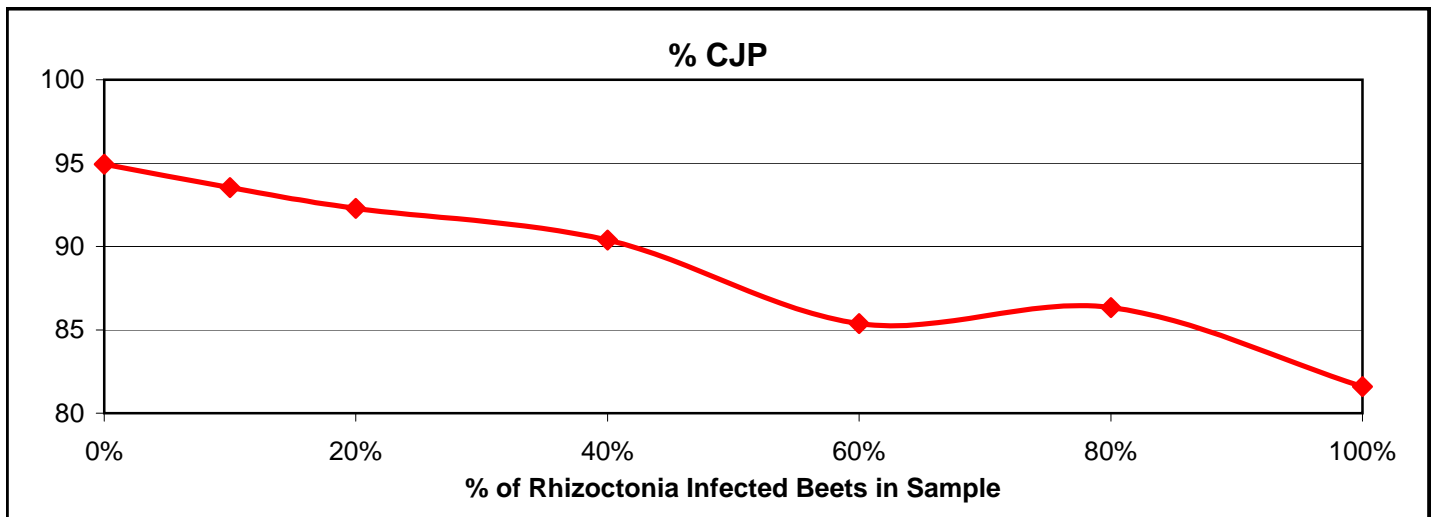
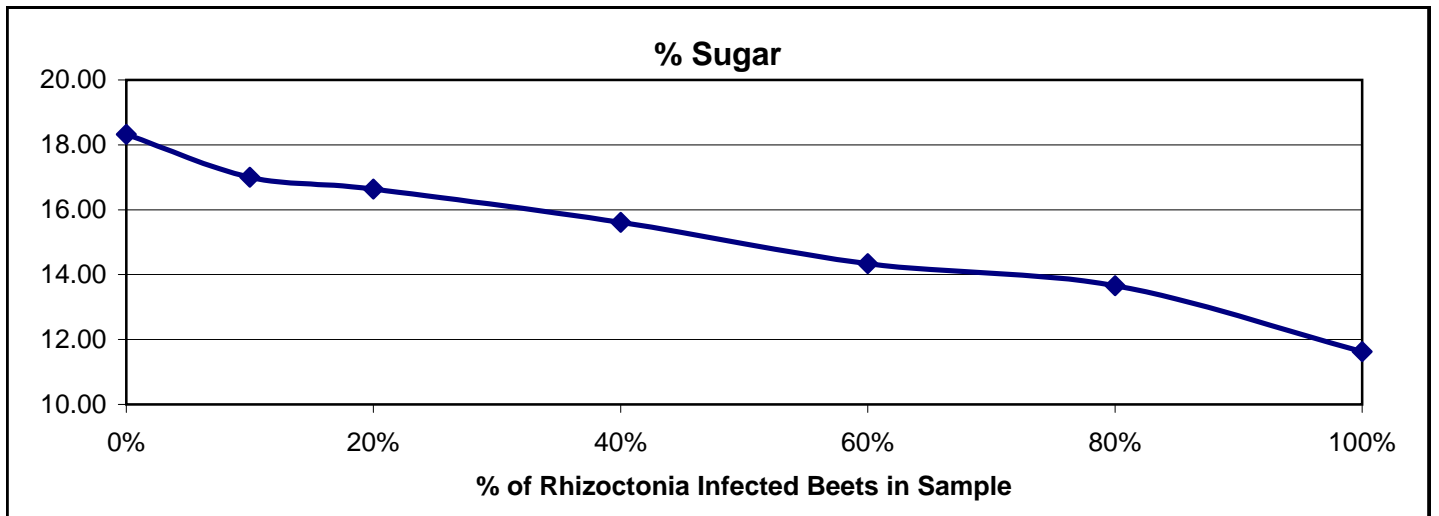
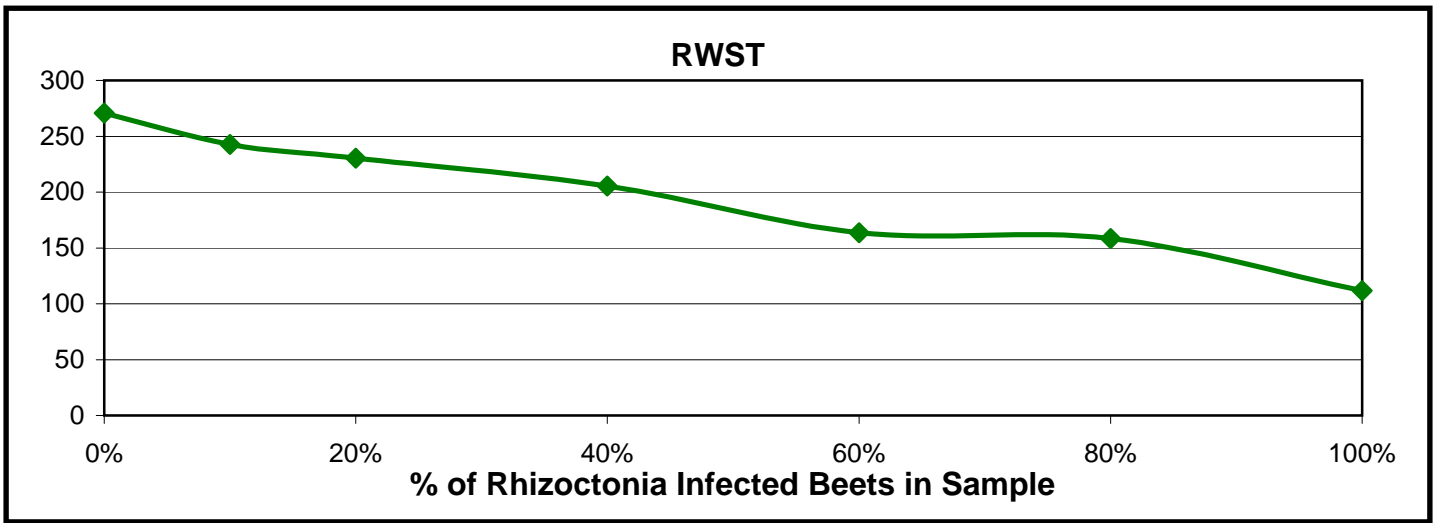
Rhizoctonia is a major root disease in the Great Lakes growing area that has significantly reduced tonnage in many fields. Many growers are managing this disease by timely applications of Quadris and/or resistant varieties. Often, infected Rhizoctonia beets will completely decompose and will not make it into the storage piles. However, in the last couple of years it has become more apparent that partially decomposed beets make it into the piles. These beets commonly have intact crowns but the root is partially rotted. A study was conducted to examine the impact Rhizoctonia beets can have on quality if it is processed.

Partially decomposed beets that made it threw the harvester and into the truck were collected. Beets that appeared to be without Rhizoctonia symptoms were also collected from the same truck. These beets were used to make beet quality samples with different numbers of infected beets from zero infected to all 10 beets infected.

Quality was reduced even with as little as one partially diseased beet added to the samples. Partially decomposed beets from Rhizoctonia will reduce sugar percentage, clear juice purity, and recoverable sugar per ton. In our quest for improved quality, Rhizoctonia management is one factor that must not be over looked.

TREATMENT	RWST	% SUGAR	% CJP
0% - No Infected Beets	271	18.3	94.9
10% - 1 of 10 Beets Infected	243	17.0	93.5
20% - 2 of 10 Beets Infected	230	16.6	92.3
40% - 4 of 10 Beets Infected	205	15.6	90.4
60% - 6 of 10 Beets Infected	164	14.3	85.4
80% - 8 of 10 Beets Infected	159	13.7	86.3
100% - 10 of 10 Beets Infected	112	11.6	81.6

# HOARD RHIZOCTONIA QUALITY EXPERIMENT







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## 2008 PONCHO BETA SEED TREATMENT TRIAL

<b>Cooperator:</b>	John Spero	<b>Tillage:</b>	Fall Plow - Field Cultivator 2x
<b>Location:</b>	Saginaw	<b>Harvest Date:</b>	9/23/2008
<b>Planting Date:</b>	4/18/2008	<b>Sample Date:</b>	9/23/2008
<b>Previous Crop:</b>	Soybeans	<b>Herbicides:</b>	Pyramin at planting - 2x split rate
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	5x
<b>Variety:</b>	B-5833R	<b>Spacing:</b>	28" Rows, 5" Seed
<b>Fertilizer:</b>	220 lbs., 10-24-10 + micros 200 lbs. 45-0-0 + ESN	<b>Fungicide:</b>	Proline (61 DSV) Headline (101 DSV) Topsin/Penncozob (121 DSV) Headline (162 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS 100 Ft. of Row				Insect Feeding (# Plants)
						7 DAY	11 DAY	19 DAY	31 DAY	
PONCHO BETA	8389	33.66	249	16.7	95.8	25	144	152	185	10
CHECK	8112	32.75	248	16.6	95.7	42	167	167	185	41
<b>AVERAGE</b>	8251	33.21	249	16.7	95.7	34	155	160	185	26
<b>LSD (5%)</b>	NS 528	NS 2.81	NS 9	NS .5	NS .4	NS 18	NS 29	4	NS 24	6
<b>C.V. (%)</b>	4	4.81	2	1.6	0.2	36	1	2	9	15

**TRIAL RELIABILITY:** Excellent

<b>EMERGENCE:</b>	Excellent	<b>CERC. LEAF SPOT:</b>	Excellent
<b>RHIZOCTONIA:</b>	Low	<b>NEMATODES:</b>	Very Low
<b>QUADRIS APP:</b>	No	<b>WEATHER:</b>	----

**Comments:** Trial was conducted to compare Poncho Beta insecticide seed treatment to industry standard seed treatment with no Poncho Beta. The seed was from the same seed lot. Significantly less insect feeding was observed with Poncho Beta treatment. The feeding counts were done at 31 days after planting. Insect damaged plants were counted if they had any detectable damage and does not indicate the level of damage on a plant. Poncho Beta seemed to have lower amounts of feeding on the plants that had damage compared to the check. Damage was predominantly from flea beetle.

**Cooperating Agriculturist:** Ron Meyer, Michigan Sugar Company



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## 2008 STARTER FERTILIZER TRIAL

<b>Cooperator:</b>	Bean & Beet Farm	<b>Tillage:</b>	Fall Plowed - Spring S Tine
<b>Location:</b>	Saginaw County	<b>Harvest Date:</b>	10/2/2008
<b>Planting Date:</b>	5/5/2008	<b>Sample Date:</b>	10/2/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Microrates
<b>Soil Type:</b>	Clay	<b>Replicated:</b>	6x
<b>Spacing:</b>	30" Row, Seed Thinned to 6"	<b>Variety:</b>	B-5833R
<b>Fertilizer:</b>	See Treatments: Side-dressed N. on 6/12/08 Soil Test P - 35 ppm, pH - 7.9	<b>Fungicide:</b>	3 Cercospora Applications Quadris at 4-8 Leaf Stage

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
St: 15 Gal. Mix 28% & 10-34 (31# N, 30# P <sub>2</sub> O <sub>5</sub> ) N: 60# N Side-dressed	\$821	5571	21.07	264	17.5	96.3
St: No Starter N: 87# N PPI	\$803	5290	20.07	264	17.4	96.3
AVERAGE		5430	20.57	264	17.4	96.3
LSD (5%)		NS 382	NS 1.56	NS 3	NS 0.2	NS 0.3
C.V. (%)		5	5.11	1	0.6	0.2

**TRIAL RELIABILITY:**     **Good**

<b>EMERGENCE:</b> Excellent	<b>RHIZOCTONIA:</b> Very Low
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**Comments:** Trial was conducted to look at the combination effect of a 2x2 starter fertilizer (31-30-0) and 60 lbs. of side-dress nitrogen compared to a no starter fertilizer program with all the nitrogen (87 lbs/acre) pre plant incorporated. The treatment with 2x2 starter fertilizer visually had better growth than no starter treatment. A trend for higher yield occurred with starter/side-dress nitrogen application. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 264. Cost used for P<sub>2</sub>O<sub>5</sub> was \$0.40 per pound and \$10 was used for sidedress cost.

**Cooperating Agriculturist:**     Tim Boring, Michigan State University  
Paul Horny & Dennis Fleischmann, Saginaw Valley Bean & Beet Farm





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## 2008 X-BEET PRIMING TRIAL

<b>Cooperator:</b>	John Spero	<b>Tillage:</b>	Fall Moldboard, Spring Field Cult. 2x
<b>Location:</b>	Saginaw County	<b>Harvest Date:</b>	9/23/2008
<b>Planting Date:</b>	4/18/2008	<b>Sample Date:</b>	9/23/2008
<b>Previous Crop:</b>	Soybeans	<b>Herbicides:</b>	1.55 Lbs Pyramin Banded at Planting
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	5x
<b>Spacings:</b>	28" Rows, 4 15/16" Seed	<b>Variety:</b>	SX 1233
<b>Fertilizer:</b>	220 Lbs 10-34-0 w/ Micros, 200 Lbs 45-0-0 w/ 40% ESN	<b>Fungicide:</b>	Proline (61 DSV) Headline (101 DSV) Topsin/Penncozob (121 DSV) Headline (162 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	POPULATIONS 100 Ft. of Row				
						7 Day	9 Day	11 Day	19 Day*	31 Day*
X-BEET	7319	31.69	231.0	16.0	94.2	29	131	138	141	156
CHECK	7172	30.65	234.1	16.2	94.3	4	93	111	148	162
<b>AVERAGE</b>	7246	31.17	232.6	16.1	94.3	17	112	124	145	159
<b>LSD (5%)</b>	NS 364	NS 1.23	NS 9.6	NS 0.5	NS 0.7	23	NS 42	NS 45	NS 31	NS 18
<b>LSD (10%)</b>	NS 279	0.94								
<b>C.V. (%)</b>	3	2.24	2.3	1.8	0.4	80	21	21	12	7

**TRIAL RELIABILITY:**    **Good**

<b>EMERGENCE:</b> Good	<b>CERC. LEAF SPOT:</b> Excellent Control
<b>RHIZOCTONIA:</b> Very Low	<b>QUADRIS APP:</b> None

**Comments:** Trial was planted and emerged under good soil moisture conditions. The variety was SX 1233. Seed was X-BEET primed by GTG and compared to non primed seed from the same seed lot. X-BEET primed seed emerged significantly faster than non primed seed. **On day twelve a frost/freeze occurred that reduced stand counts. X-BEET treatments may have been reduced more since more beets were emerged at the time of the frost/freeze.** Final stands were not significantly different. There was no significant difference in beet quality between the treatments. Tonnages of each of the five replications of X-BEET were higher than non primed seed. This difference was significant at the 90% confidence level.

**Cooperating Agriculturist:**    Ron Meyer, Michigan Sugar Company



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## 2008 STARTER FERTILIZER TRIAL

<b>Cooperator:</b>	Bean & Beet Farm	<b>Tillage:</b>	Fall Plowed - Spring S Tine
<b>Location:</b>	Saginaw County	<b>Harvest Date:</b>	10/2/2008
<b>Planting Date:</b>	5/5/2008	<b>Sample Date:</b>	10/2/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Microrates
<b>Soil Type:</b>	Clay	<b>Replicated:</b>	6x
<b>Spacing:</b>	30" Row, Seed Thinned to 6"	<b>Variety:</b>	B-5833R
<b>Fertilizer:</b>	See Treatments: Side-dressed N. on 6/12/08 Soil Test P - 35 ppm, pH - 7.9	<b>Fungicide:</b>	3 Cercospora Applications Quadris at 4-8 Leaf Stage

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
St: 7.5 Gal. of 10-34-0 (9# N, 30# P <sub>2</sub> O <sub>5</sub> ) N: 57# N PPI & 22.5# N Side-dressed	\$981	6621	24.69	268	17.7	96.4
St: 15 Gal. Mix 28% & 10-34 (31# N, 30# P <sub>2</sub> O <sub>5</sub> ) N: 57# N PPI	\$922	6170	23.61	261	17.5	95.7
St: No Starter N: 57# N PPI & 30# N Side-dressed	\$891	5959	22.53	264	17.6	96.0
St: 10 Gal. of 28% (30# N) N: 57# N PPI	\$862	5693	21.79	261	17.4	95.9
<b>LSD (5%)</b>		486	1.95	NS 8	NS 0.3	NS 0.7
<b>C.V. (%)</b>		7	6.85	2	1.6	0.6

**TRIAL RELIABILITY: Good**

<b>EMERGENCE:</b> Excellent	<b>RHIZOCTONIA:</b> Very Low
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**Comments:** Trial was conducted to look at the effect of starter 2x2 fertilizer and nitrogen placement/timing on early season growth and yield of sugarbeets. Soil test indicated that phosphorous levels are in the optimum range. Starter fertilizers containing 30 lbs of phosphorous in combination with nitrogen showed a visual early season growth response and yielded well. Side-dress nitrogen application seemed to have a positive influence on yield. Pre-plant application of nitrogen (4/17/08) was applied 2 1/2 weeks prior to planting (5/5/08) and was worked into the soil. Dry conditions occurred after the application which may have caused some nitrogen loss. Total nitrogen rate for each treatment was approximately 87 lbs/acre. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 264. Cost used for P<sub>2</sub>O<sub>5</sub> was \$0.40 per pound and \$10 was used for sidedress cost.

**Cooperating Agriculturist:** Tim Boring, Michigan State University  
Paul Horny & Dennis Fleischmann, Saginaw Valley Bean & Beet Farm



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## 2008 STARTER FERTILIZER TRIAL

<b>Cooperator:</b>	Sylvester Farms & MSC	<b>Tillage:</b>	
<b>Location:</b>	Bay County	<b>Harvest Date:</b>	10/23/2008
<b>Planting Date:</b>	5/5/2008	<b>Sample Date:</b>	10/23/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Split Rates
<b>Soil Type:</b>	Clay	<b>Replicated:</b>	6x
<b>Spacing:</b>	30" Row, Seed Thinned to 6"	<b>Variety:</b>	B-5833R
<b>Fertilizer:</b>	See Treatments: Side-dressed N. on 6/12/08 Soil Test P - 82 ppm, pH - 7.7	<b>Fungicide:</b>	3 Cercospora Applications Quadris at 4-8 Leaf Stage

TREATMENT	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
St: 15 Gal. Mix 28% & 10-34 (31# N, 30# P <sub>2</sub> O <sub>5</sub> ) N: 57# N PPI	\$1,402	10298	35.35	291	19.1	96.2
St: 7.5 Gal. of 10-34-0 (9# N, 30# P <sub>2</sub> O <sub>5</sub> ) N: 57# N PPI & 22.5# N Sidedressed	\$1,385	10241	35.41	289	19.1	96.0
St: No Starter N: 57# N PPI & 30# N Sidedressed	\$1,394	10199	34.99	292	19.2	96.2
St: 10 Gal. of 28% (30# N) N: 57# N PPI	\$1,388	10072	34.71	291	19.1	96.3
<b>LSD (5%)</b>		NS 794	NS 2.95	NS 6	NS 0.3	NS 0.5
<b>C.V. (%)</b>		6	6.83	2	1.3	0.4

**TRIAL RELIABILITY:** Fair

<b>EMERGENCE:</b> Excellent	<b>RHIZOCTONIA:</b> Low
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**Comments:** Trial was conducted to look at the effect of starter 2x2 fertilizer and nitrogen placement/timing on early season growth and yield of sugar beets. Soil test phosphorous levels are very high. Starter fertilizers containing 30 lbs of phosphorous in combination with nitrogen showed a slight visual early season growth response. Pre-plant application of nitrogen (4/23/08) was applied 2 weeks prior to planting (5/5/08) and worked into the soil. Total nitrogen rate for each treatment was approximately 87 lbs/acre. No significant yield differences occurred between treatments. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 291. Cost used for P<sub>2</sub>O<sub>5</sub> was \$0.40 per pound and \$10 was used for sidedress cost.

**Cooperating Agriculturist:** Tim Boring, Michigan State University  
Research Group at Michigan Sugar Company



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## 2008 AVAIL TRIAL

<b>Cooperator:</b>	Allen Bischer	<b>Tillage:</b>	Fall Chisel - Field Cultivator 1x
<b>Location:</b>	Harbor Beach, Huron County	<b>Harvest Date:</b>	10/3/2008
<b>Planting Date:</b>	4/22/2008	<b>Sample Date:</b>	9/22/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Microrates 4x, Outlook
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	5x
<b>Spacing:</b>	30", 4.25" Seed	<b>Variety:</b>	B-1643 N
<b>Fertilizer:</b>	Starter: 15-24-7 w/ 4% S, 1% Ca, .6% Mg, 1% Mn, 0.25% B, 87 Lbs of N by Urea Broadcast	<b>Fungicide:</b>	Proline (52 DSV) Headline (113 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
Starter w/ Avail	6866	27.13	253	17.3	94.7
Starter	6693	26.51	253	17.3	94.4
<b>AVERAGE</b>	6779	26.82	253	17.3	94.6
<b>LSD (5%)</b>	NS 725	NS 2.33	NS 9	NS 0.5	NS 0.5
<b>C.V. (%)</b>	6	4.94	2	1.6	0.3

**TRIAL RELIABILITY:** Good

<b>EMERGENCE:</b>	Good	<b>CERC. LEAF SPOT:</b>	Very Good Control
<b>RHIZOCTONIA:</b>	Moderate	<b>NEMATODES:</b>	Not Detected
<b>QUADRIS APP:</b>	No	<b>WEATHER:</b>	---

**Comments:** Trial was established to look at the effect of Avail when added to dry starter fertilizer compared to the same starter with no Avail. Avail is a product that claims to inhibit fixation of phosphorous fertilizer allowing improved plant uptake of phosphorous. This trial did not show any visible or measurable effect on yield when Avail was added to the 2x2 starter fertilizer. Soil test indicated that phosphorous levels were high (52 ppm) and soil pH was 6.9. Mixing Avail with dry starter fertilizer caused some fertilizer build up on the planter.

**Cooperating Agriculturist:** Dennis Bischer, Thumb Farm Service  
Matt Booms, Michigan Sugar Company





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## 2008 STARTER FERTILIZER AND AVAIL TRIAL

<b>Cooperator:</b>	Houghtaling Farms	<b>Tillage:</b>	Fall Chisel - Field Cultivator 1x
<b>Location:</b>	Sandusky, Sanilac County	<b>Harvest Date:</b>	11/1/2008
<b>Planting Date:</b>	4/27/2008	<b>Sample Date:</b>	10/8/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Roundup 3x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Spacing:</b>	28" Row, 4" Seed	<b>Variety:</b>	Mix of HM 27-28-29 RR
<b>Fertilizer:</b>	Starter: 8 Gal. of 10-34-0 w/ 1 pint Boron, 75 Lbs of N by 28% PPI	<b>Fungicide:</b>	Proline (97 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
Starter w/ Avail	7960	30.16	264	17.7	95.4
Starter	7794	29.73	262	17.8	95.0
Check	7090	27.71	256	17.2	95.4
<b>AVERAGE</b>	7615	29.20	261	17.6	95.3
<b>LSD (10%)</b>	603	2.07	8	0.3	NS 0.7
<b>C.V. (%)</b>	6	5.16	2	1.1	0.5

**TRIAL RELIABILITY:** Good

<b>EMERGENCE:</b> Good	<b>CERC. LEAF SPOT:</b> Fair Control
<b>RHIZOCTONIA:</b> Low	<b>NEMATODES:</b> Not Detected
<b>QUADRIS APP:</b> None	<b>WEATHER:</b>

**Comments:** Trial was established to look at the effect of standard starter fertilizer, no starter fertilizer and Avail added to starter fertilizer. Avail is a product that claims to inhibit fixation of phosphate fertilizer allowing improved plant absorption of phosphorus and potentially increasing yield. Twelve row strips were replicated across the field utilizing a standard starter fertilizer tank (10-34-0 plus boron) and a second tank that contained the same mix with the addition of Avail. Soil test indicated high phosphorus levels (60 ppm) and a 7.1 pH. Strips that had a 2x2 starter fertilizer had visibly better growth early in the season. Strips with starter fertilizer yielded better than non starter strips. The addition of Avail to the starter did not significantly enhance yield.

**Cooperating Agriculturist:** David Ganton, Michigan Sugar Company  
Eric Sherwood, Star of the West





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## 2008 FOLIAR MICRONUTRIENT TRIAL

<b>Cooperator:</b>	Loren & Josh Humm	<b>Tillage:</b>	Fall Chisel - Field Cultivator 2x
<b>Location:</b>	Ithaca, Gratiot County	<b>Harvest Date:</b>	10/31/2008
<b>Planting Date:</b>	4/26/2008	<b>Sample Date:</b>	10/13/2008
<b>Previous Crop:</b>	Corn	<b>Herbicides:</b>	Roundup 3x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	4x
<b>Spacing:</b>	28"	<b>Variety:</b>	4"
<b>Fertilizer:</b>	Starter: 10 gal. 22-11-0; 104 lbs. N, Urea/ESN	<b>Fungicide:</b>	Eminent (98 DSV) Kocide 3000 (129 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
Check	6744	24.52	275	18.7	94.8
Boron & Manganese	6727	24.41	275	18.7	94.7
Boron	6712	24.27	277	18.7	95.0
Manganese	6516	23.99	272	18.6	94.5
<b>AVERAGE</b>	6674	24.30	275	18.6	94.7
<b>LSD (5%)</b>	NS 1021	NS 3.6	NS 5.3	NS 0.2	NS 0.5
<b>C.V. (%)</b>	10	9.27	1	0.9	0.3

**TRIAL RELIABILITY:** Fair

<b>EMERGENCE:</b>	Fair - 27,000 Plants /Acre	<b>CERC. LEAF SPOT:</b>	Good Control
<b>RHIZOCTONIA:</b>	Very Low	<b>NEMATODES:</b>	None Detected
<b>QUADRIS APP:</b>	Yes, 8-12 Leaf	<b>WEATHER:</b>	Dry Season

**Comments:** Trial was conducted to see if there is a crop response to foliar applied micronutrients (Boron and Manganese). Soil test indicated an adequate supply of micronutrients available and did not recommend additional application. The soil pH was 6.6. The grower did not apply any micronutrients in the starter fertilizer. Applications of Tracite liquid Boron and Ele-Max liquid flowable manganese was applied at the 8-10 leaf stage at 2 quarts and 1 pint rates, respectively. The two products were also applied in combination. No visual or yield response was detected between any treatments. No foliar injury was detected.

**Cooperating Agriculturist:** Wayne Davis, Michigan Sugar Company



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## 2008 FOLIAR BORON TRIAL

<b>Cooperator:</b>	Warren Braun	<b>Tillage:</b>	V Ripper & Field Cult. Fall - Planted in Oat Cover Crop Stubble
<b>Location:</b>	Harbor Beach, Huron County	<b>Harvest Date:</b>	10/29/2008
<b>Planting Date:</b>	4/21/2008	<b>Sample Date:</b>	10/8/2008
<b>Previous Crop:</b>	Wheat - Oats Cover Crop	<b>Herbicides:</b>	Roundup 3x
<b>Soil Type:</b>	Sandy Loam	<b>Replicated:</b>	4x
<b>Spacing:</b>	28" Row, 4.1" Seed	<b>Variety:</b>	HM-28RR
<b>Fertilizer:</b>	90 Lbs 11.4-21-7 w/ 8.4 S, 0.3 B, 0.9 Mg, 0.9 Mn: 100 Lbs 46-0-0, 7000 Gal. of Liquid Manure	<b>Fungicide:</b>	Headline (1st) Eminent (2nd)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
Check	6561	25.86	255	17.2	95.3
Foliar Boron	6423	25.50	253	17.2	94.9
<b>AVERAGE</b>	6492	25.68	254	17.2	95.1
<b>LSD (5%)</b>	NS 1997	NS 7.66	NS 4	NS 0.4	NS 1.5
<b>C.V. (%)</b>	14	13.26	1	1.0	0.7

**TRIAL RELIABILITY:** Poor

<b>EMERGENCE:</b> Good	<b>CERC. LEAF SPOT:</b> Good Control
<b>RHIZOCTONIA:</b> Low	<b>NEMATODES:</b> Not Detected
<b>QUADRIS APP:</b> None	<b>WEATHER:</b> ---

**Comments:** Field was identified as showing Boron deficiency. Tracite liquid Boron was foliar applied at 3 quarts per acre on June 11th. Field was relatively dry when symptoms occurred. All boron foliar symptoms disappeared in both check and treated strips after rainfall and Boron application. Check and Boron applied strips yielded the same.

**Cooperating Agriculturist:** Matt Booms, Michigan Sugar Company



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## 2008 NFUSION NITROGEN TRIAL

<b>Cooperator:</b>	Clay Crumbaugh	<b>Tillage:</b>	Fall Chisel, Fall Field Cult. 1x., Stale Seedbed
<b>Location:</b>	Breckenridge, Gratiot County	<b>Harvest Date:</b>	11/4/2008
<b>Planting Date:</b>	4/17/2008	<b>Sample Date:</b>	10/13/2008
<b>Previous Crop:</b>	Soybeans	<b>Herbicides:</b>	Micro-rates 5x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	2x
<b>Spacing:</b>	30"	<b>Variety:</b>	Beta B-5833R
<b>Fertilizer:</b>	Starter: 216 Lbs of 12-12-12 w/ 1 Mn & 0.5 B, Nitrogen varied as part of trial.	<b>Fungicide:</b>	Eminent (58 DSV) Headline (115 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	30 DAY POP. 100 Ft. of Row
Conventional N - 85 Lbs Total N Rate	8600	30.65	280	18.4	96.5	244
80-20 Ratio of Conv N & Nfusion - 68 Lbs Total N Rate	8225	29.03	283	18.7	96.2	248
Conventional N - 68 Lb Total N Rate	7928	28.89	275	18.2	96.0	244
AVERAGE	8251	29.52	279	18.4	96.2	245
LSD (5%)	NS 830	1.51	NS 19	NS 1.2	0.2	NS 20
C.V. (%)	2	1.19	2	1.6	0.1	2

**TRIAL RELIABILITY: Excellent**

<b>EMERGENCE:</b> Excellent	<b>CERC. LEAF SPOT:</b> Very Good Control
<b>RHIZOCTONIA:</b> Very Low	<b>NEMATODES:</b> Not Detected
<b>QUADRIS APP:</b> Quadris, 2-8 Leaf Stage	<b>WEATHER:</b> ---

**Comments:** Trial was conducted to evaluate the effect that NFUSION may have on sugar beet yield and quality. NFUSION is a slow release nitrogen product distributed by Wilber-Ellis. This product was added to 28% liquid nitrogen in this trial at a rate of 20% of the total nitrogen. Because of the assumed increase in efficiency from the slow release and added cost of NFUSION, normal rates were reduced from the typical 85 lbs of nitrogen per acre to 68 lbs. A comparison was also made at the rate of 68 lbs with no NFUSION added. Yield and quality differences between the two low nitrogen rate treatments were non significant. The normal conventional treatment of 85 lbs. of nitrogen trended better in RWSA and tons. Growing conditions were relatively dry compared to other production areas.

**Cooperating Agriculturist:** Dave Bailey, Michigan Sugar Company



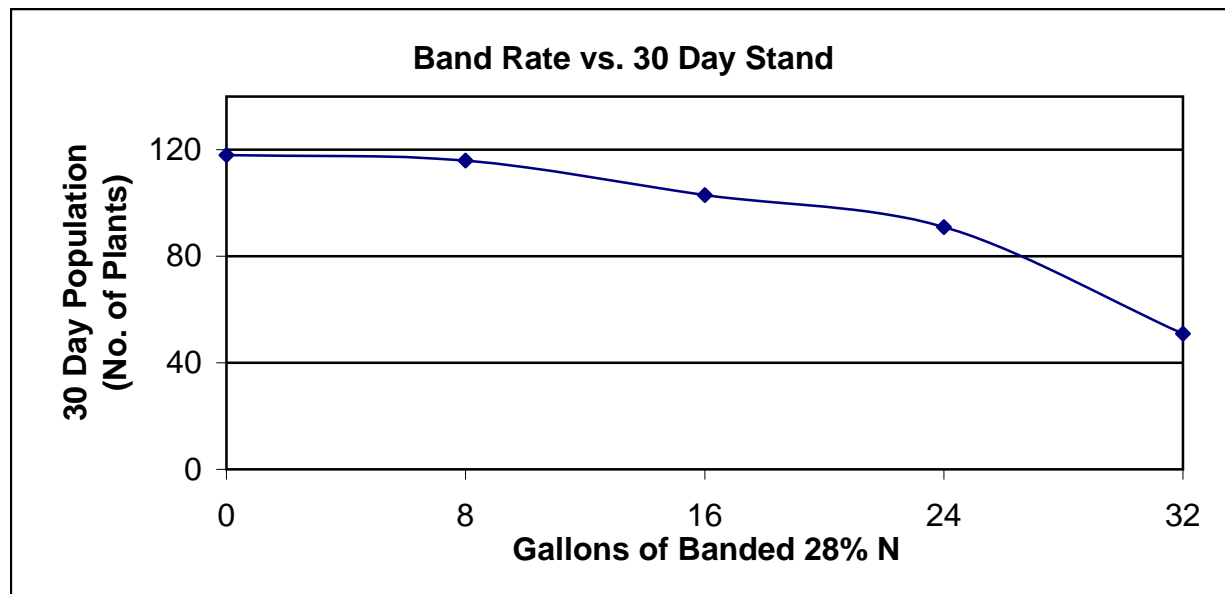
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## 2008 BANDED 28% NITROGEN RATE TRIAL: EFFECT OF BAND RATE ON EMERGENCE

<b>Cooperator:</b>	Clay Crumbaugh	<b>Variety:</b>	Crystal R-509
<b>Planting Date:</b>	4/22/2008	<b>Fertilizer:</b>	Starter: 216 Lbs of 12-12-12 w/ 1 Mn & 0.5 B, Nitrogen: 28% Banded at varying rates.
<b>Replicated:</b>	4x		

TREATMENT Gallons of Banded 28% Nitrogen	Lbs of Nitrogen	POPULATION 100 Ft. of Row			% Stand of 0 Gal Rate
		10 Day	20 Day	30 Day	
0 Gal.	0	83	120	118	100%
8 Gal.	24	76	113	116	98%
16 Gal.	48	61	102	103	87%
24 Gal.	72	65	93	91	77%
32 Gal.	96	22	52	51	43%
<b>LSD (5%)</b>		28	27	24	
<b>C.V. (%)</b>		29	19	16	



**Comments:** Trial was conducted to look at effective and efficient ways to supply early season nitrogen to young sugar beet plants. Past experience has indicated that 2x2 banding of nitrogen and other nutrients often stimulates early season growth and yield. Research was conducted on applying a ten inch band of nitrogen over the row shortly after planting. Different rates were applied and emergence counts were taken. The night after the nitrogen application, approximately ¼ inch of rainfall occurred. No significant effect on emergence occurred at 8 gallons per acre of 28% nitrogen in a ten inch band. Rates of 16, 24, and 32 gallons did affect emergence. Overall emergence would be considered poor. Further evaluation will be conducted in 2009.



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## 2008 NARROW ROW TRIAL

<b>Cooperator:</b>	Brian Rayl & Bernia Family Farm	<b>Tillage:</b>	Disk Ripper - Field Cultivator 1x
<b>Location:</b>	Akron, Tuscola County	<b>Harvest Date:</b>	11/5/2008
<b>Planting Date:</b>	4/18/2008	<b>Sample Date:</b>	11/5/2008
<b>Previous Crop:</b>	Wheat	<b>Herbicides:</b>	Roundup 3x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	3x
<b>Row Spacing:</b>	30/22 inch	<b>Seed Spacing:</b>	4.25"
<b>Fertilizer:</b>	2x2 Starter = 5 gal. 10-34-0 + 13 gal. 28% + 3 gal. Thiosol; 85 lbs. N Broadcast	<b>Variety:</b>	HM 28 RR
		<b>Fungicide:</b>	Proline 54 DSV Gem 88 DSV

ROW SPACING	ECONOMIC NET RETURN	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	HARVEST POPULATION 100 Ft. of Row
22 inch	\$1,526	<b>13266</b>	42.09	315	20.3	97.1	213
30 inch	\$1,416	12039	38.96	309	20.1	96.5	195
<b>LSD (10%)</b>		1052	3.2	3.6	0.37 (NS)	0.5	43 (NS)
<b>C.V. (%)</b>		3.5	3.3	0.5	0.8	0.2	9

**TRIAL RELIABILITY: Excellent**

<b>EMERGENCE:</b> Very good	<b>CERC. LEAF SPOT:</b> Good
<b>RHIZOCTONIA:</b> Very little	<b>NEMATODES:</b> Not detected
<b>QUADRIS APP:</b> 2-8 leaf	<b>WEATHER:</b> ----

**Comments:** Trial was conducted by coordinating the planting and harvesting efforts of Rayl Farms and Bernia Family Farms in one location to compare 30 inch to 22 inch rows for yield and quality. Seed spacing was planted at 4.25" spacing. Final stands of 22" rows equaled 50,000 plants per acre and 30" rows are 34,000. Fertility and other management practices were kept the same between row widths. Significant differences appear for better quality and RWSA with the narrow rows under a high yielding environment. Truck weights were used for harvest with tare deducted. Revenue per acre is based on a \$40 per ton projected payment and an "average RWST" equal to the trial average of 312. Seed cost were calculated using \$211 per unit. Quadris cost were \$23.90 for 30" rows and \$32.55 for 22" rows.

**Cooperating Agriculturist:** Jeff Karst, Michigan Sugar Company

## 2008 QUALITY MANAGEMENT TRIAL

<b>Cooperator:</b>	Clay Crumbaugh	<b>Tillage:</b>	Fall Chisel, Fall Field Cult. 1x., Stale Seedbed
<b>Location:</b>	Breckenridge, Gratiot County	<b>Harvest Date:</b>	11/4/2008
<b>Planting Date:</b>	4/22/2008	<b>Sample Date:</b>	11/4/2008
<b>Previous Crop:</b>	Soybeans	<b>Herbicides:</b>	Micro-rates 5x
<b>Soil Type:</b>	Loam	<b>Replicated:</b>	3x
<b>Spacing:</b>	30"	<b>Variety:</b>	Crystal R-509
<b>Fertilizer:</b>	Starter: 216 Lbs of 12-12-12 w/ 1 Mn & 0.5 B, Nitrogen varied as part of trial.	<b>Fungicide:</b>	Eminent (58 DSV) Headline (113 DSV)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	HARV. POP. 100 Ft. of Row
High Level Management	7666	25.68	298	19.8	95.7	120
Typical Management	7514	26.02	289	19.3	95.3	108
<b>LSD (5%)</b>	NS 1378	NS 2.89	NS 22	NS 1.2	NS 0.7	6
<b>C.V. (%)</b>	5	3.18	2	1.7	0.2	1

**TRIAL RELIABILITY:** Fair

<b>EMERGENCE:</b> Poor	<b>CERC. LEAF SPOT:</b> Good Control
<b>RHIZOCTONIA:</b> Moderate	<b>NEMATODES:</b> Not Detected
<b>QUADRIS APP:</b> Yes on High Level, No on Typical	<b>WEATHER:</b> ---

**Comments:** Trial was conducted to compare "typical grower management practices" to what would be considered "high quality" management practices. Trial consisted of 3- 90 foot blocks of each treatment. All treatments had the same starter fertilizer. Quality samples were taken off the beet piler. Truck scale weights were used to exclude tare. Typical management practices are as follows: 110 lbs of nitrogen per acre, 4.5 inch seed spacing, no Quadris, poor topping that left some green tissue on the crown and two leaf spot sprays. High level management practices are as follows: 85 lbs of total nitrogen per acre, 3 7/8 inch seed spacing, Quadris at the 4 leaf stage, excellent topping, and two leaf spot sprays. Emergence in the trial was poor because of seed issues. Harvest populations were well below the ideal of 180 to 200 beets per 100 foot of row. Yields from both treatments were not significantly different. Quality indicators (RWST, % sugar, and CJP) trended higher in the high management treatment. Crystal R-509 was utilized because of field history of Rhizoctonia.

**Cooperating Agriculturist:** Dave Bailey, Michigan Sugar Company



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## 2008 CERCOSPORA LEAF SPOT TRIAL

<b>Cooperator:</b>	Randy Sturm	<b>Tillage:</b>	Fall Chisel - Field Cultivator 2x
<b>Location:</b>	Pigeon, Huron County	<b>Harvest Date:</b>	10/17/2008
<b>Planting Date:</b>	4/22/2008	<b>Sample Date:</b>	9/22/2008
<b>Previous Crop:</b>	Wheat	<b>Herbicides:</b>	Roundup 2x
<b>Soil Type:</b>	Clay Loam	<b>Replicated:</b>	4x
<b>Spacing:</b>	28"	<b>Variety:</b>	4"
<b>Fertilizer:</b>	479# 5-16-34+Micros Broadcast; 22 gal. 28%+ Thio-Sol Broadcast; 20 gal. 28% Sidedress	<b>Fungicide:</b>	Proline 68 (DSV) Headline 142 (DSV) 8/30/08

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP
1 Spray	8027	31.29	257	17.6	94.4
2 Spray	8045	32.19	250	17.2	94.5
<b>AVERAGE</b>	8036	31.74	253	17.4	94.4
<b>LSD (5%)</b>	NS 1074	NS 4.04	NS 22	NS 1.3	NS 0.9
<b>C.V. (%)</b>	4	3.63	2	2.1	0.3

**TRIAL RELIABILITY:** Good

<b>EMERGENCE:</b> Excellent - 34,000 Population	<b>CERC. LEAF SPOT:</b> Good
<b>RHIZOCTONIA:</b> Low	<b>NEMATODES:</b> Not Detected
<b>QUADRIS APP:</b> None	<b>WEATHER:</b> ---

**Comments:** Trial was conducted to compare a single leaf spot application to a two application system. Leaf spot pressure was low. Quality samples were taken only three weeks after second application because of expected early harvest. At that time very little leaf spot was seen between either treatments. At harvest on 10/17/08 leaf spot pressure was considerably higher in the single spray treatment than the two spray treatment. No significant differences measured between any treatments.

**Cooperating Agriculturist:** Roger Elston, Michigan Sugar Company

## ***Reclaiming Beet Ground Soil Quality and Productivity with Low-Intensity Tillage, Biosuppressive Covers and Organic Inputs<sup>1</sup>***

Economic pressures have led to shorter rotations with more frequent planting of sugar beets. Intense tillage and trafficking has damaged soil structure, and many beet growers have seen yields stagnate or decline. Specific causes are often difficult to identify and may arise from multiple sources including diseases, insects and nematodes. Managing cropping systems with the goal of improving soil quality can improve stand establishment and crop growth, improve water infiltration, drainage and aeration, maintain a balance of pests and pathogens, and create a low-stress environment for the crop. The goal of this project is to develop an approach to soil quality management designed to reclaim the natural productivity of currently unproductive beet ground. Key objectives include a reduction in tillage intensity when practical; the use of biosuppressive cover crops for disease, insect and nematode control; and the use of livestock manure as an organic input to enhance microbial activity and add soil carbon and structure.

Oil seed radish (var. Colonel, 20 lb/ac) and oriental mustard (var. Pacific Gold, 12 lb/ac) were sown in untilled wheat stubble on a sandy clay loam on 8 August 2006 and 8 August 2007 at the Lakke-Ewald farm in Unionville. Oil seed radish is suppressive of sugar beet cyst nematode, and oriental mustard has been shown to be suppressive of soil borne fungal diseases. Two seeding methods were used: 1) direct-drilling with a Deere 750 no-till drill (15 ft width, 7.5 inch spacing), and 2) slurry seeding with aeration tillage with seed-laden dairy manure (10° gang angle, 10,000 gal/ac). The plots (2000 ft x 15 ft in 2006, 1000 ft by 15 ft in 2007) were arranged in a randomized complete block with four replications. Cover crop biomass and plant population (plants yd<sup>-2</sup>) were measured in November of each year prior to tillage incorporation.

The slurry-seeded plant population was 40% to 50% of the direct-drilled stand, but the biomass yield of the slurry-seeded crop was equal to or greater than the direct-drilled crop (table 1). The slurry-seeded plants effectively scavenged the manure nitrogen and grew vigorously. Individual slurry-seeded plants were two to six time larger than drilled plants.

The 2008 sugar beet crop was planted on April 19 in 22-inch rows. The field had a history of poor sugar beet yields—sugar beet cyst nematode (SBCN) was suspected but not confirmed as the likely cause. The field was split east-to-west with a nematode resistant variety, B-5534N planted on the east-half and a susceptible variety, B-5833R on the west-half. Thirty-day plant stands were excellent, 214 plants per 100 ft-row on the east-half and 194 plants on the west half (table 1). All plots were sampled in two transects (one east and one west) for plant available nitrogen (PSNT) and sugar beet cyst nematode on May 31. Based on the results of the pre-sidedress nitrate test (PSNT) there was little difference in plant available nitrate nitrogen between the manured and non-manured plots. Presumably, the nitrate N was lost through ammonia volatilization, leaching, or incorporated in microbial and plant biomass. Sugar beet cyst nematode was detectable--the greatest numbers followed the oriental mustard cover crops. The least SBCN followed the oil seed radish cover crop.

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<sup>1</sup> The authors are T.M. Harrigan, Biosystems and Agricultural Engineering, Michigan State University; S. Poindexter, Regional Sugar Beet Specialist, MSUE, and D.R. Mutch, Kellogg Biological Station, Michigan State University. December 20, 2008.



Table 1. Fall 2007 cover crop biomass, spring 2008 sugar beet crop nematode population and nitrogen credit based on PSNT.

Seeding Method	2007 East Cover Crops				2007 West Cover Crops				PSNT lb N	SBCN nematode
	Biomass ton/ac *	Plants ft <sup>2</sup>	30-day stand	Rhizoc	Biomass ton/ac	Plants ft <sup>2</sup>	30-day Stand	Rhizoc		
Check, no cover, no tillage	0.84 d	---	221 a	6 a	0.79 c	---	189 a	13 a	62 ab	203 abc
No cover crop, manure	0.92 d	---	216 a	3 a	0.68 c	---	187 a	4 a	86 ab	198 abc
Oil seed radish, slurry seed	2.08 ab	5.1 b	208 a	1 a	2.60 a	4.6 b	198 a	2 a	91 ab	50 a
Oil seed radish, direct drill	2.38 a	8.8 b	207 a	0 a	2.49 a	9.9 b	201 a	1 a	95 a	100 ab
Oriental mustard, slurry seed	2.12 a	8.6 b	211 a	2 a	2.36 a	7.4 b	192 a	1 a	58 b	2745 bc
Oriental mustard, direct drill	1.55 c	20.6 a	220 a	5 a	1.87 b	17.7 a	198 a	13 a	79 ab	5098 c

\*abc letters within the same column represent significant differences ( $p \leq 0.10$ ) by Tukey's HSD procedure. SBCN mean separation by Friedman's median aligned test ( $p \leq 0.10$ ). Risk ratings based on SBCN eggs plus J2's: no risk = 0; low = 1-1000; moderate = 1001-10,000; high = >10,000.

The beets were harvested on September 23 in the first days of the harvest campaign. Although the field was rated as low to moderate risk based on the results of nematode count, the average yield of the resistant variety was 11.6 t/ac and 3457 lb recoverable sugar greater than the susceptible variety (Table 2). The sugar content of the resistant variety averaged 1.8 percentage points greater than the susceptible variety. The greatest yields for each variety followed oil seed radish, or oriental mustard combined with manure. There was no difference in clear juice purity between treatments or varieties.

Table 2. Sugar beet harvest data, 2008.

Seeding Method	East Field 2008, B-5534N *					West Field 2008, B-5833R				
	ton/acre	CJP, %	% Sugar	RWST	RWSA	ton/ac.	CJP, %	% Sugar	RWST	RWSA
Check, no cover, no tillage	26.1 c	93.3 a	16.7 b	251 b	6551 c	13.8 c	96.0 a	14.7 c	218 b	3017 b
No cover crop, manure	27.3 bc	96.3 a	17.1 ab	255 b	6956 bc	14.0 bc	96.2 a	14.9 c	225 b	3157 b
Oil seed radish, slurry seed	28.9 ab	96.2 a	17.3 ab	267 a	7726 a	17.3 ab	95.6 a	15.7 ab	239 a	4128 a
Oil seed radish, direct drill	29.2 a	96.3 a	17.4 a	263 a	7675 ab	20.6 a	95.9 a	16.1 a	237 a	4893 a
Oriental mustard, slurry seed	29.1 ab	96.2 a	17.5 a	263 a	7646 ab	17.6 a	96.0 a	15.9 a	240 a	4207 a
Oriental mustard, direct drill	26.4 bc	96.4 a	17.1 ab	256 b	6759 c	14.0 bc	96.5 a	15.1 bc	226 b	3170 b
<b>Treatment avg.</b>	27.8	96.3	17.2	259	7219	16.2	96.0	15.4	233	3762

\* abc letters within the same column represent significant differences by Tukey's HSD procedure ( $p \leq 0.10$ ).

Based on the 2008 sugar beet harvest at the Ewald farm in Unionville:

- Slurry seeded plant populations were 40 to 50% of the direct drilled crops, but total biomass production was equal to or greater than direct drilling.
- Manure N was presumably lost to volatilization, leaching, or incorporated in microbial or plant biomass and not detectable with the PSNT. There was no difference in nitrate N due to manure application.
- The nematode resistant variety averaged 11.6 tons/ac beet yield, 26 lbs RWST and 3457 lbs greater RWSA than the susceptible variety.
- The greatest beet and sugar yields for each variety followed oil seed radish, or oriental mustard when combined with manure.
- Although high SBCN counts at side-dress time followed oriental mustard, there was no corresponding drop in sugar production when the cover crop was combined with manure.





Michigan State University Extension  
Saginaw County  
One Tuscola Street  
Suite 100  
Saginaw, MI 48607-1287

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