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.

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

ACKNOWLEDGEMENTS

ON-FARM RESEARCH AND DEMONSTRATION

The Sugarbeet Advancement Committee is pleased to provide you with the Ninth Edition of the "Sugar Beet Research and Demonstration Report." The research is based on the Priorities established by the Sugarbeet Advancement Committee. The ultimate goal is to improve the profitability of the sugar beet producers of Michigan Sugar Company. Tremendous amount of effort and cooperation is required to establish, monitor, harvest, and process the information collected. Establishing approximately 30 field scale research trials, reflecting grower conditions, is only possible with the cooperation of growers.

In 2005, Michigan Sugar Company produced nearly 3.4 million tons of beets. This equates into an average yield of 21.5 tons per acre and a grower sugar of approximately 17.1%. Tonnage continues to steadily improve each year and Michigan Sugar Company currently enjoys the fastest improving Recoverable White Sugar per Acre in the Nation. Quality was down this year due to two main factors. First, a warmer fall than normal with late season rains allowed beets to continue to grow rather than store sugar. The second was related to poor Cercospora leaf spot control. Many fields experience browning of leaves by harvest, most likely due to poor timings of fungicide applications and/or not applying a final application to protect the plants till harvest. THIS COST THE INDUSTRY MILLIONS OF DOLLARS in the lost quality of beets, i.e. Recoverable Sugar. BEETCAST is a State of the Art spray prediction model that should be followed closely by growers. The importance of BEETCAST will become more apparent with the adoption of a quality contract.

Sugarbeet Advancement makes every attempt to supply the industry with quality production research information. It is produced on farms under actual grower production conditions. For this reason **it is imperative that for each trial that the comment section is studied thoroughly.** Outside forces such as pestilence, weather, etc. which may affect the results are noted. Statistical analysis is done on most trials that calculates the Least Significant Difference at a 95% confidence level. Always use the statistics to help draw the correct conclusion from the results.

When Sugarbeet Advancement was formed in 1997 average yields of beets were about 15 tons/acre. Our goal was to move the industry up to average yield of 20 tons/acre. Yields definitely have improved beyond the initial target and the new goal is 25 tons/acre in conjunction with high quality. The success of the Sugarbeet Advancement has been phenomenal. Cooperation from growers, Michigan Sugar researchers, and private industry has been exceptional. We must not lose sight that Sugarbeet Advancement is your research and educational program. Direction from the Sugarbeet Advancement Committee keeps our efforts well grounded in current sugar beet production issues.

Sugarbeet Advancement is always looking for grower input. We encourage you to contact any committee member with production concerns of the industry.

Sincerely,

Rob Henne
Sugarbeet Advancement Chair

Steve Poindexter
Sugarbeet Extension Educator

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

TABLE OF CONTENTS

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

TABLE OF CONTENTS
Continued

SPECIAL THANKS TO SUGARBEET ADVANCEMENT PARTNERS:

Producer Cooperators
Michigan Sugar Agriculturalists and Company
Monitor Sugar Agriculturalists and Company
MSU Extension Agents
MSU Ag Experiment Station
Bean and Beet Research Farm – Paul Horny and Dennis Fleishman
Betaseed – Rob Gerstenberger
ACH Seeds – Andy Bernia
Hilleshog – Doug Ruppal
GTG – Randy Hemb
Seedex – Harold Rouget
J & D Implement, Inc.
Reggie VanSickle – Research Technician – Sugarbeet Advancement
Sugarbeet Advancement Committee

SUGARBEET ADVANCEMENT COMMITTEE
2005 VOTING MEMBERSHIP

24 Voting Members

Company	Name	Terms
Michigan Sugar Company	Paul Pfenninger (5th Member)	2
	Corey Guza (Secretary)	4
	Jim Stewart	3
	Roger Elston	1
	Ralph Fogg	2
	Dave Bailey	4
	Lee Hubbell	3
	Rick List	1
Michigan Sugar Company District Growers	Rob Henne (Chairman)	1
	Glenn Jack	1
	Dave Helmreich	1
	Clay Crumbaugh	1
Michigan Sugar Company At Large Growers	Alan Sherwood (Vice Chairman)	2
	Mark Helmreich (Treasurer)	1
	Dean Hadaway	3
	Kevin Hecht	3
Michigan State University	Mark Seamon	3
	Tim Harrigan	1
	Christy Sprague	2
Sugar Beet Seed Company	Rob Gerstenberger	1
Agri-Business	John Schultz	2
	Randy Hemb	1
Michigan Sugar Beet Growers Co-Op Board	Marty Lewis	1
	Clay Maxwell	1

Ex-Official Members

Company	Name
Farm Bureau	Bob Boehm
USDA	Mitch McGrath
SBA Director	Steve Poindexter

Chairman of Michigan Sugar Company Board of Directors – Tom Zimmer
CEO of Michigan Sugar Company – Mark Flegenheimer

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

COMMITTEE LIST

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

Robert 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

Roger Elston
Michigan Sugar Company
P.O. Box 626
Sebewaing, MI 48759
(989) 883-3203

Ralph Fogg
Michigan Sugar Company
2600 S. Euclid Avenue
P.O. Box 917
Bay City, MI 48706
(989) 686-1549

Rob Gerstenberger
2125 North Banner Road
Sandusky, MI 48471
(810) 648-3351

Cory Guza
Michigan Sugar Company
2600 S. Euclid Avenue
P.O. Box 917
Bay City, MI 48706
(989) 686-1549

Dean Hadaway
Michigan Sugar Beet Growers
6231 Gilford Road
Fairgrove, MI 48733
(989) 693-6613

Dr. Timothy Harrigan
MSU Ag Engineering Dept.
225 Farrall Hall
East Lansing, MI 48824-1323
(517) 353-0767

Kevin Hecht
Michigan Sugar Beet Growers
9149 Frankenmuth Road
Vassar, MI 48768
(989) 652-0346

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

Mark Helmreich
Michigan Sugar Beet Growers
723 Delta Road
Freeland, MI 48623
(989) 686-8999

Randy Hemb
Germain's Technology Group
160 W. Aspen Court Unit 8
Oak Creek, WI 53154-4450
(517) 297-9170 (Cellular)

Robert Henne
Michigan Sugar Beet Growers
8165 Richmond Road
Bay Port, MI 48722
(989) 453-3541

Lee Hubbell
Michigan Sugar Company
2600 S. Euclid Avenue
Bay City, MI 48706-3497
(989) 686-0161

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

COMMITTEE LIST

Glenn Jack
Michigan Sugar Beet Growers
RR #8 Chatham, Ont.
Canada, N7M 5J8
(519) 354-7598

Marty Lewis
MI Sugar Co-Op Board
5082 North Road
North Street, MI 48049
(810) 385-4888

Richard List
Michigan Sugar Company
P.O. Box 39
Bay City, MI 48707
(989) 686-0965

Clay Maxwell
4676 South M-18
Beaverton, MI 48612
(989) 205-5352

Dr. Mitch McGrath
USDA – ARS – MWA
494D Plant & Soil Science Bldg.
East Lansing, MI 48824-1325
(517) 432-2355

Paul Pfenninger
Michigan Sugar Company
2600 S. Euclid Avenue
Bay City, MI 48706
(989) 686-1549

Steve Poindexter
Michigan State Univ. Ext.
One Tuscola Street Suite 100
Saginaw, MI 48607-1287
(989) 758-2500 Ext. 208

John Schultz
Cooperative Elevator Co.
969 Pine Street
Sebewaing, MI 48759
(989) 883-3030

Mark Seamon
Michigan State Univ. Ext.
One Tuscola Street Suite 100
Saginaw, MI 48607-1287
(989) 758-2500 Ext. 203

Alan Sherwood
Michigan Sugar Beet Growers
3346 East Monroe Road
St. Louis, MI 48880-9238
(989) 681-4192

Christy Sprague
Michigan State University
466 Plant and Soil Science Bldg.
East Lansing, MI 48824-1325
(517) 355-0271

James Stewart
Michigan Sugar Company
320 Sugar Street
Carrollton, MI 48724
(989) 752-8232

Ray VanDriessche
1470 S. Scheurmann
Bay City, MI 48708
(989) 686-1549

2005 Executive Committee:

Chairman - Rob Henne
Vice Chairman - Alan Sherwood
Treasurer - Mark Helmreich
Secretary - Corey Guza
Fifth Member - Paul Pfenninger

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

PREFACE

The Data in the 2005 *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.

Quality analysis was provided by Hilleshog and may be somewhat lower than the analysis from Michigan Sugar Company because of different laboratory procedures. Relative differences between treatments should be the same.

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. Gross tons (no tare off).

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.

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 in which one treatment compared to another is 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.

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**LAKKE-Ewald Farms**	**Tillage:**	Fall: Chisel / Spring: 1X Field Cult
Location:	Tuscola County - Unionville	**Harvest Date:**	9/21/05 (Sampled 9/19/05)
Planting Date:	4/5/05	**Type of Harvester:**	Artsway
Previous Crop:	Corn	**Herbicides:**	Micro Rate 4 X
Soil Type:	Tappan / Londo Loam	**Replicated:**	3 x
Row Spacing:	22 Inch / 4.2 Inch Spacing	**# of Rows Harvested:**	8
Fertilizer:	120 lbs. N (28%) Variable Rate MAP - Potash	**Fungicide:**	7/9/05 - Eminent - DSV 58 8/8/05 – Headline - DSV 65

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 14 DAY	23 DAY	44 DAY	HARVEST	1200 Ft. RHIZ
7172 RZ	**2870**	**12.47**	**230**	**15.63**	**95.25**	**42**	**99**	**171**	**153**	**5**
B-4381 R	2591	11.42	227	15.41	95.37	41	99	186	159	40
2761 RZ	**2457**	**10.83**	**226**	**15.32**	**95.57**	**63**	**114**	**204**	**152**	**66**
B-5451	2429	10.06	242	16.38	95.24	27	90	192	143	95
B-5310	**2316**	**10.22**	**226**	**15.34**	**95.36**	**48**	**88**	**184**	**146**	**92**
B-5833 R	2262	10.28	219	14.84	95.54	54	129	193	162	73
C-271	**2241**	**9.84**	**227**	**15.42**	**95.44**	**72**	**92**	**195**	**147**	**81**
2767	2222	9.47	234	15.78	95.61	59	110	216	162	56
2763 RZ	**2215**	**9.79**	**226**	**15.32**	**95.56**	**46**	**124**	**212**	**175**	**74**
C-963	2153	9.31	231	15.62	95.61	48	100	196	142	120
2771 RZ	**2019**	**9.05**	**222**	**14.98**	**95.68**	**23**	**83**	**219**	**164**	**56**
Prompt	1870	7.91	234	16.02	**94.91**	28	93	188	158	48
AVERAGE	**2304**	**10.05**	**229**	**15.51**	**95.43**	**46**	**102**	**196**	**155**	**67**
L S D (5%)	NS	2.21	10	.82	.36	NS	NS	17	NS	52
C.V. (%)	**14**	**12.99**	**3**	**3.13**	**.22**	**41**	**27**	**5**	**10**	**46**

Comments: Trial had high levels of Sugar Beet Cyst Nematodes and low rainfall. Trial was planted under good soil conditions. Emergence was slow due to cold conditions. Rhizoctonia pressure was moderate; Rhizoctonia counts based on dead or dying beets per 1200 foot of row. Nematodes had large impact on yield. Some Root Aphids found. Cercospora Leafspot control was good; spots prevalent on leaves. Harvest population was 37,000 plants per acre. All seed was planted with 4M Primed seed.

Trial Reliability: Poor

Cooperating Agriculturist(s): Craig Rieman, Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Gerstenberger Farms**
Location: Sanilac County – Sandusky
Planting Date: 4/9/05
Previous Crop: Soybeans
Soil Type: Loam
Row Spacing: 28 Inch / 4.1 Inch Seed Spacing
Fertilizer: 200 lbs. 15-29-9 + Zn + B
Applied 2x2
30 Gallons 28% N/acre

Tillage: Fall Chisel – 1x Field Cult.
Harvest Date: 10/26/05 (Sampled 10/7/05)
Type of Harvester: Artsway
Herbicides: Micro Rate 5x
Replicated: 3x
 # Rows Harvested: 6
Fungicide: 7/12/05 – GEM – 64 DSV
8/6/05 – Eminent – 67 DSV

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
C-271	**7474**	**30.49**	**246**	**16.99**	**94.14**	-	-	-	-	**302**
7172 RZ	7425	30.88	241	16.68	94.10	-	-	-	-	68
2767	**7246**	**29.62**	**245**	**16.73**	**94.71**	-	-	-	-	**192**
B-5833 R	7225	29.55	245	16.91	94.18	-	-	-	-	140
B-5451	**7190**	**30.50**	**236**	**16.38**	**94.08**	-	-	-	-	**224**
Prompt	6725	28.50	236	16.54	93.63	-	-	-	-	166
B-4381 R	**6644**	**27.84**	**237**	**16.38**	**94.40**	-	-	-	-	**214**
B-5310	6219	26.34	240	16.55	94.27	-	-	-	-	321
C-963	**6121**	**25.69**	**239**	**16.58**	**94.00**	-	-	-	-	**259**
2763 RZ	5858	25.07	232	16.01	94.51	-	-	-	-	532
2771 RZ	**5637**	**23.85**	**235**	**16.23**	**94.49**	-	-	-	-	**466**
2761 RZ	5452	22.74	240	16.63	**94.18**	-	-	-	-	576
AVERAGE	**6601**	**27.59**	**239**	**16.55**	**94.22**	-	-	-	-	**288**
L S D (5%)	1000	4.59	NS	NS	.43	-	-	-	-	196
C.V. (%)	**9**	**9.84**	**5**	**4.5**	**.27**	-	-	-	-	**40**

Comments: Very High Rhizoctonia / Aphanomyces Pressure. Trial planted under good soil conditions. Emergence was slow because of cold conditions. Emergence data is not given because of depth control variation in two rows which effected speed of emergence. Final population for the trial averaged 233 beet per 100 foot of row and/or 40,000 plants per acre at 41 days after emergence. There were very few Root Aphid and no Sugar Beet Cyst Nematode detected. The trial was greatly effected by Aphanomyces and Rhizoctonia Root Rot. Rhizoctonia susceptible varieties were affected the most. Rhizoctonia counts indicate dead or dying beets per 1200 foot of row. Cercospora Leaf Spot control was good; spots prevalent on leaves. All seed was planted with 4M primed seed.

Trial Reliability: Fair

Cooperating Agriculturist(s): Paul Wheeler – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Knoerr Farms**
Location: Bay County – Auburn
Planting Date: 4/10/05
Previous Crop: Corn
Soil Type: Loam
Row Spacing: 30 Inches
Fertilizer: 25 Gal. 28% Pre Plant
250 lbs. 13-20-16-1Zn-1Mn
10 Gal. 28% Sidedress

Tillage: Fall Chisel – 1x Field Cultivation
Harvest Date: 10/31/05 *(Sampled 10/10/05)*
Type of Harvester: Red River
Herbicides: 4x Micro Rate
Replicated: 3x
# of Rows Harvested: 6
Fungicide: * Amistar Applied at 2-6 Leaf Stage
7/11/05 – Eminent – 64 DSV
8/03/05 – Headline – 51 DSV
8/26/05 – Topsin + Penncozeb- 30 DSV

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	22 DAY	39 DAY	HARVEST	1200 Ft. RHIZ
C-271	**6928**	**28.66**	**242**	**16.84**	**93.91**	**85**	**127**	**169**	**149**	**17**
C-963	6750	28.49	237	16.55	93.81	24	99	149	133	3
B-5833 R	**6638**	**28.24**	**235**	**16.29**	**94.23**	**38**	**101**	**167**	**159**	**0**
B-5310	6585	27.35	241	16.73	94.05	49	105	139	120	7
B-5451	**6530**	**28.14**	**232**	**16.11**	**94.14**	**40**	**97**	**162**	**145**	**35**
2761 RZ	6482	26.97	240	16.79	93.72	58	126	169	154	11
B-4381 R	**6474**	**27.43**	**236**	**16.35**	**94.30**	**46**	**81**	**124**	**121**	**4**
2767	6333	26.21	242	16.67	94.37	64	135	184	168	17
2771 RZ	**6319**	**26.39**	**239**	**16.56**	**94.26**	**58**	**128**	**183**	**168**	**8**
2763 RZ	6286	26.19	237	16.34	94.51	35	85	137	122	11
7172 RZ	**6218**	**26.69**	**233**	**16.36**	**93.65**	**41**	**92**	**151**	**146**	**9**
Prompt	6169	25.81	239	16.64	**93.90**	32	106	156	151	6
AVERAGE	**6476**	**27.21**	**238**	**16.52**	**94.07**	**48**	**107**	**157**	**145**	**11**
L S D (5%)	505	2.17	9	.58	.5	28	31	26	25	NS
C.V. (%)	**5**	**4.71**	**2**	**2.08**	**.32**	**35**	**17**	**10**	**10**	**158**

Comments: High Yield Environment. Trial planted under good soil conditions with high corn stalk residue. Emergence was slow due to cold conditions. This was a very even and high yielding trial. Cercospora Leafspot control was fair; heavily spotted, some leaf tip browning. Trial had very little Root Aphid and low levels of Rhizoctonia and Sugar Beet Cyst Nematode. Rhizoctonia counts indicate dead or dying plant per 1200 foot of row. Average harvest population is 25,000 plants per acre. All seed was planted with 4M Primed Seed. First Cercospora Leafspot was found on July 7, 2005.

Trial Reliability: Very Good

Cooperating Agriculturist(s): Rick List – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Ridgeview Farms - Jeff Gulick**	**Tillage:**	Chisel – 1 x field cultivation
Location:	Gratiot County	**Harvest Date:**	10/26/05 (Sampled 9/11/05)
Planting Date:	4/11/05	**Type of Harvester:**	Artsway
Previous Crop:	Wheat	**Herbicides:**	Nortron – Micro Rate 3x
Soil Type:	Park Hill Loam	**Replicated:**	3x
Row Spacing:	30 Inch / 4.5 Inch Spacing	**# Rows Harvested:**	6
Fertilizer:	214 lbs. 13-6-6	**Fungicide:**	* Amistar applied at 2-6 Leaf Stage
	3 qts. Mn + 2 qts. B		7/11/05 – Eminent – DSV 53
	Nitrogen 100 lbs/acre		8/10/05 – GEM – DSV 66
	Potash 0-0-60 Variable Rate		

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 11 DAY	24 DAY	37 DAY	HARVEST	1200 Ft. RHIZ
7172 RZ	**4624**	**19.09**	**243**	**17.42**	**92.56**	**11**	**68**	**158**	**146**	**12**
2763 RZ	4398	18.69	236	16.65	93.27	15	82	203	181	169
B-5833 R	**4377**	**18.77**	**235**	**16.69**	**93.03**	**11**	**58**	**179**	**168**	**85**
2767	4279	17.21	249	17.37	93.68	20	92	189	166	46
B-5451	**4246**	**17.78**	**240**	**16.89**	**93.34**	**6**	**69**	**166**	**136**	**87**
2761 RZ	4165	16.67	247	17.27	93.62	25	119	190	170	120
C-271	**4098**	**17.43**	**235**	**16.49**	**93.66**	**28**	**92**	**188**	**149**	**79**
B-5310	4004	16.07	248	17.42	93.40	32	93	187	142	158
C-963	**3904**	**15.53**	**252**	**17.69**	**93.32**	**9**	**84**	**175**	**140**	**69**
Prompt	3702	15.73	235	16.49	93.64	11	74	187	160	25
2771 RZ	**3652**	**14.66**	**249**	**17.33**	**93.82**	**18**	**97**	**200**	**141**	**156**
B-4381R	3495	14.87	234	16.48	**93.39**	34	104	183	165	131
AVERAGE	**4079**	**16.88**	**242**	**17.02**	**93.40**	**18**	**86**	**184**	**155**	**95**
L S D (5%)	**1045**	**NS**	**12**	**.73**	**NS**	**19**	**42**	**21**	**28**	**NS**
C.V. (%)	**15**	**15**	**3**	**2.5**	**.7**	**62**	**29**	**7**	**11**	**94**

Comments: High Rhizoctonia / Aphanomyces Pressure. Trial planted under good soil conditions. Emergence was slow due to cold conditions. Moderate to heavy amounts of Rhizoctonia / Aphanomyces greatly affected yield. Rhizoctonia counts indicate dead or dying beets per 1200 foot of row. Amistar was applied for Rhizoctonia control. Leafspot control was poor; some leaf burn down. Very little Root Aphid and no Sugar Beet Cyst Nematode was detected. Average harvest population was 27,000 plants per acre. All seed was planted with 4M primed seed.

Trial Reliability: Fair / Poor

Cooperating Agriculturist(s): Dave Bailey – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Brian Fox**	**Tillage:**	Fall - Moldboard Plow; 1x Field Cult. Spring - 1x Triple K
Location:	Ontario	**Harvest Date:**	10/29/05 (Sampled 10/29/05)
Planting Date:	4/13/05	**Type of Harvester:**	Artsway
Previous Crop:	Soybeans	**Herbicides:**	3x Micro Rate
Soil Type:	Clay Loam	**Replicated:**	3x
Row Spacing:	30	**# of Rows Harvested:**	6
Fertilizer:	Fall – 150 lbs. MAP 200 lbs. Potash 90 lbs. N Sidedress	**Fungicide:**	Headline 7/12/05 - 55 DSV Senator + EBDC - 55 DSV estimate

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 19 DAY	30 DAY	41 DAY	HARVEST	1200 Ft. RHIZ
B-5833 R	**6668**	**27.62**	**242**	**16.90**	**93.64**	**54**	**117**	**122**	**132**	**2**
2761 RZ	6185	25.48	243	17.17	93.09	28	102	100	106	2
2771 RZ	**6034**	**24.91**	**242**	**17.00**	**93.50**	**21**	**96**	**104**	**108**	**12**
C-271	6026	24.90	242	16.99	93.46	58	120	120	120	18
B-4381 R	**5996**	**25.58**	**234**	**16.35**	**93.90**	**41**	**117**	**115**	**120**	**7**
2763 RZ	5958	25.50	234	16.35	93.86	67	155	153	149	3
C-963	**5956**	**24.35**	**245**	**17.28**	**93.17**	**30**	**103**	**98**	**102**	**23**
B-5310	5854	24.01	244	17.04	93.67	56	106	96	105	1
2767	**5770**	**23.46**	**246**	**17.14**	**93.78**	**64**	**143**	**135**	**131**	**2**
B-5451	5679	24.64	231	16.18	93.68	57	128	130	126	11
7172-RZ	**5613**	**24.89**	**225**	**15.93**	**93.44**	**32**	**119**	**117**	**123**	**1**
Prompt	4971	21.02	236	16.71	**93.21**	31	93	99	107	6
AVERAGE	**5893**	**24.70**	**239**	**16.75**	**93.53**	**45**	**117**	**116**	**119**	**7**
L S D (5%)	311	1.14	9	.55	.44	41	38	38	37	20
C.V. (%)	**3**	**2.72**	**2**	**1.94**	**.3**	**53**	**19**	**19**	**18**	**161**

Comments: High Yield Environment. Trial planted under good soil conditions but somewhat dry. Emergence was slow due to cold temperatures. Emergence was low on two replications due to soil/field variation. Moderate to high levels of Powdery Mildew and Cercospora Leafspot at harvest; leaf spot control was poor; some leaf burn down. Rhizoctonia levels were low. Rhizoctonia counts indicate dead or dying plants per 1200 foot of row. Harvest and weights were done by trucks at piling ground. Average harvest population 20,050 plants per acre. All seed was planted with 4M Primed seed.

Trial Reliability: VERY GOOD

Cooperating Agriculturist(s): Wayne Martin, Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Phil and Tim Leipprandt**	**Tillage:**	Mold Board; 1X Field Cult.
Location:	Huron County – Pigeon	**Harvest Date:**	9/21/05 (Sampled 9/19/05)
Planting Date:	4/15/05	**Type of Harvester:**	Artsway
Previous Crop:	Corn	**Herbicides:**	4X Micro Rate
Soil Type:	Clay Loam	**Replicated:**	3
Row Spacing:	22 Inch / 4.6 Inch	**# of Rows Harvested:**	8
Fertilizer:	2x2 5 gal, 10-34-0 + 15 Gallons 28% Mix 28% Pre- 90 lbs. N / Acre	**Fungicide:**	* Amistar Applied at 2-6 Leaf Stage 7/16/05 – Eminent – 64 DSV 8/9/05 – Headline – 53 DSV

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 20 DAY	31 DAY	39 DAY	HARVEST	1200 Ft. RHIZ
2763 RZ	**6622**	**23.85**	**277**	**19.22**	**93.73**	**7**	**148**	**166**	**132**	**0**
B-4381 R	6619	24.34	272	18.82	93.78	53	143	149	133	1
B-5833R	**6583**	**24.72**	**266**	**18.72**	**93.12**	**21**	**146**	**157**	**149**	**1**
2761 RZ	6480	24.04	269	18.72	**93.60**	14	114	145	122	1
2771 RZ	**6169**	**23.44**	**263**	**18.33**	93.56	**52**	**163**	**178**	**147**	**0**
7172 RZ	6002	22.69	264	18.77	**92.64**	18	125	139	130	0
B-5310	**5592**	**21.29**	**262**	**18.22**	93.66	**33**	**133**	**148**	**117**	**5**
2767	5511	21.35	259	17.67	**94.58**	27	159	165	139	3
C-271	**5338**	**20.03**	**264**	**18.16**	94.36	**30**	**148**	**165**	**131**	**3**
B-5451	5223	19.50	268	18.42	94.15	57	161	176	147	3
C-963	**4751**	**18.62**	**254**	**17.61**	**93.93**	**18**	**122**	**136**	**127**	**7**
Prompt	4419	17.60	249	18.03	**93.84**	13	129	160	145	0
AVERAGE	**5776**	**21.79**	**264**	**18.39**	**93.75**	**29**	**141**	**157**	**135**	**2**
L S D (5%)	1141	3.08	25	1.37	.88	NS	34	31	31	NS
C.V. (%)	**12**	**8.34**	**6**	**4.4**	**.6**	**83**	**14**	**12**	**14**	**165**

Comments: Rhizomania confirmed in trial. This trial was planted under good field conditions. Emergence was slow due to cold conditions. Trial had low levels of Rhizoctonia Crown Rot, Aphanomyces and Root Aphid. No Sugar Beet Cyst Nematodes found. Cercospora Leafspot control was very good; slight sprinkling of spots on leaves. Yields of Rhizomania tolerant varieties were better than susceptible varieties. Rhizoctonia counts indicate dead or dying plants per 1200 foot of row. Average harvest population was 32,000 plants per acre. All seed was planted with 4M primed pellets.

Trial Reliability: GOOD

Cooperating Agriculturist(s): Roger Elston - Michigan Sugar Company

Sugarbeet Advancement

Partnership Of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

2005 Variety Trials
(Average of Five Locations)
Final – Mid – and Early Emergence*
Beets per 100 Feet of Row

	HARVEST	FINAL	MID	EARLY	% STAND
H 2767	153	178	163	86	64
H 2771 RZ	146	177	151	76	63
H 2763 RZ	152	174	157	73	62
C 271	139	167	151	80	60
B 5451	139	165	146	74	59
B 5833 R	154	164	148	73	59
H 2761 RZ	141	162	143	80	58
PROMPT	144	158	135	63	57
B 4381 R	140	151	138	76	54
C 963	129	151	134	66	54
B 5310	126	151	135	75	54
H 7172 RZ	140	147	133	62	53
AVERAGE	142	162	145	74	58
LSD 5%	15	16	19	21	-
CV%	8	8	10	23	-

Comments: Stand counts based on three 100-foot replications at each location.
Average seed spacing = 4.3 Inches

* Early Stand Counts are approximately 20-Day Counts

* Mid Stand Counts are approximately 30-Day Counts

* Final Stand Counts are approximately 40-Day Counts

* % Stand Based on 40-Day Stand Counts

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

On-Farm Research and Demonstration
2005 Variety Trial Emergence Results

Variety	% Emergence		Suggested Seed Spacing / Inch
	2004	2005	
B-5310	62	54	4
7172 RZ	64	53	4
B-4381 R		54	4.5
C-963	66	54	4.5
C-271	68	60	4.5
2761 RZ	72	58	4.5
2763 RZ		62	4.5
B-5451	72	59	4.5
B-5833 R		59	4.5
2771 RZ		63	4.5
H-2767	74	64	4.5
Prompt	84	57	4.5 - 5

On-Farm Research and Demonstration
2005 Rhizoctonia Beets

Variety	Rhizoctonia Dead Beets / 1200 Ft.*
7172 RZ	16*
Prompt	42*
5833 R	50*
2767	53*
B-4381 R	66*
B-5451	76*
C-963	80
C-271	83
B-5310	97
2771 RZ	116
2761 RZ	129
2763 RZ	132

* *Average of Six Variety Trials – Not Significantly Different from Best Variety*

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

VARIETY TRIAL * RAINFALL DATA – NEAREST LOCATION

ON-FARM RESEARCH AND DEMONSTRATION

LOCATION COOPERATOR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	TOTAL RAINFALL
Unionville Lakke – Ewald	1.47	1.52	5.60	2.28	1.55	7.15	2.25	21.82
Ontario Fox	1.65	1.76	1.20	3.95	1.40	2.83	.66	13.45
Sandusky Gerstenberger	2.20	2.56	5.03	3.87	3.15	2.30	2.31	21.42
Breckenridge Gulick	1.07	1.61	2.51	1.23	.85	3.50	.85	11.62
Auburn Knoerr	.68	1.24	1.30	1.30	.64	5.41	3.40	13.97
Pigeon Leipprandt	1.88	1.98	4.82	3.69	1.57	5.77	2.45	22.16

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

PIONEER • BIG CHIEF
MICHIGAN SUGAR

Michigan Sugar Company – 2005

PLANT TO STAND – AVERAGE OF 2 YEARS

VARIETY	RWSA	RWST	T/A	% Suc.	% CJP	% EMERG	NURSERIES			
							RA Root Aphid	RH Rhizoc-tonia	AP Aphano-myces	RZ Rhizo-mania
Crystal 271	7267	262.7	27.71	18.25	93.98	63.4	F	P	E	
Beta 5451	7208	261.2	27.71	18.23	93.74	68.3	E	F	E	
Beta 5310	7036	257.2	27.50	17.96	93.81	62.2	G	P	E	
Crystal 963	7016	258.9	27.28	18.13	93.68	66.4	E	F	E	
HM 2763 RZ	6967	258.7	27.05	17.97	94.00	70.1	E	P	G	G
HM 7172 RZ	6813	252.2	27.12	17.90	93.02	59.1	F	G	F	G
HM 2761 RZ	6671	254.9	26.16	17.98	93.28	61.5	F	P	E	G
SX Prompt	6411	256.3	25.09	18.00	93.56	74.3	E	F	E	
MEANS	6924	257.7	26.95	18.05	93.63	65.7				

PLANT TO STAND – AVERAGE OF 4 LOCATIONS

VARIETY	RWSA	RWST	T/A	% Suc.	% CJP	% EMERG	Beets 100' at Harvest
Beta 4381 R	7539	244.6	30.84	16.32	96.03	62.1	156.6
Beta 5833 R	7430	240.5	30.81	16.16	95.69	68.3	168.0
Beta 5451	7315	252.0	28.99	16.79	95.99	65.5	151.1
Crystal 271	7283	248.7	29.04	16.54	96.16	61.6	149.2
HM 2763 RZ	7185	248.0	28.96	16.48	96.20	67.8	164.3
Beta 5310	7157	245.8	29.05	16.39	96.07	62.7	146.8
HM 7172 RZ	6987	238.4	29.13	16.27	94.91	52.5	125.8
Crystal 963	6892	245.4	28.24	16.38	96.01	62.8	147.9
HM 2771 RZ	6816	249.2	27.17	16.69	95.75	62.3	148.5
HM 2767	6760	252.7	26.69	16.83	95.86	66.2	158.2
HM 2761 RZ	6530	238.5	27.12	16.27	94.91	54.0	131.9
SX Prompt	6414	245.9	26.08	16.43	95.95	75.7	181.1
LDS (5%)	449	9.7	1.49	0.57	0.51	5.7	15.5
CV	4.45	2.76	3.62	2.44	0.37	6.27	6.06
Mean	7070	245.8	28.69	16.47	95.78	63.1	152.2

PIONEER • BIG CHIEF
MICHIGAN SUGAR

Michigan Sugar Company – 2005

AVERAGE OF TWO YEARS

OFFICIAL VARIETY TRIAL
Sorted by RWSA

VARIETIES APPROVED FOR THE 2006 GROWING SEASON

APPROVAL	VARIETY	RWSA	% SUGAR	RWST	T/A	% PURITY	% (1) EMERG	LEAF-SPOT*	NURSERIES			
									RA Root Aphid	RH Rhizoc-tonia	AP Aphano-myces	RZ Rhizo-mania
Fully Approved	**Crystal 271**	6854	18.14	259.6	26.52	93.65	62.2	100.3	F	P	E	
	Beta 5451	6769	18.05	256.2	26.73	93.30	66.3	101.9	E	F	E	
	Beta 5833R	6708	17.68	252.0	26.81	93.56	66.9	107.2	E	F		G
	Crystal 963	6676	18.07	255.6	26.28	93.13	63.6	95.0	E	F	E	
	Beta 5310	6643	17.82	252.9	26.45	93.36	60.6	81.5	G	P	E	
	Beta 4381R	6524	17.66	252.3	26.16	93.66	63.0	108.1	E	G		G
	HM 2763RZ	6455	17.77	254.2	25.56	93.65	67.8	103.0	E	P	G	G
	HM 2767	6370	17.99	257.5	24.88	93.70	67.1	86.4	P			
	HM 7172RZ	6366	17.79	249.4	25.76	92.78	55.9	90.0	F	G	F	G
	HM 2771RZ	6337	18.04	256.9	24.86	93.44	63.4	87.7	F			E
	HM 2761RZ	6303	17.83	252.4	25.13	93.18	59.4	96.0	F	P	E	G
	SX Prompt	5978	17.72	249.7	24.08	93.02	70.0	103.1	E	F	E	
Limited Approval	**Beta 1411R**	6727	18.19	254.5	26.64	92.62	49.1	107.8	F	P		F
	HM 2774RZ	6649	17.73	248.7	26.92	92.84	70.2	102.2	G	P		G
	HM 2773RZ	6634	17.99	255.3	26.18	93.28	65.0	109.9	G	P		E
	Crystal 355	6466	17.89	253.2	25.72	93.20	62.9	44.6	P	G		
Specialty Varieties	**Crystal 442 (R451)**	6732	17.98	253.3	26.67	92.98	54.3	92.0	G	P		F
	MEANS	6541	17.90	253.7	25.96	93.26	62.8	95.1				

The following varieties are being phased out but can be planted this year. B-5374, SX Spartan, HM E-38, B-5736, HM E-17

(1) Percentage of plants before thinning compared to seeds planted.

* Lower number indicates more resistance.

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTER TRIAL – HIGH RATE
(4.5 oz. / acre – 22 Inch Rows)

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Schindler Farms, LLC.**
Location: Bay County - Kawkawlin
Planting Date: 4/14/05
Previous Crop: Corn
Soil Type: Clay loam
Row Spacing: 22", Seed spacing 4.5 in.
Fertilizer: 20 gal - Starter
220# - 19-17-0+ Mn
Broadcast 220# - 45-0-0

Tillage: Fall: Chisel / Spring: Danish Tine 1x
Harvest Date: 10/29/05 (Sampled 10/3/05)
Type of Harvester: Artsway
Herbicides: Pre – Nortron
Replicated: 5x
# of Rows Harvested: 8
Fungicide: 5/27/05 - Amistar – 4-6 leaf stage
4.5 oz/Acre 7-9 inch Band
7/19/05 – Eminent - DSV 85
8/11/05 – Headline - DSV 54

AMISTAR TREATED	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
7172RZ Treated	**4802**	**21.49**	**224**	**15.34**	**94.91**	**-**	**-**	**-**	**-**	**8**
7172RZ Check	4504	19.87	227	15.52	95.02	-	-	-	-	20
271 Treated	**4471**	**19.54**	**229**	**15.60**	**95.20**	**-**	**-**	**-**	**-**	**96**
5833 R Treated	4437	20.08	221	15.06	95.34	-	-	-	-	98
2761RZ Treated	**4424**	**19.77**	**224**	**15.32**	**94.99**	**-**	**-**	**-**	**-**	**132**
5451 Treated	4365	18.82	232	15.75	95.23	-	-	-	-	164
2761 Check	**4258**	**18.39**	**231**	**15.68**	**95.27**	**-**	**-**	**-**	**-**	**183**
963 Check	4011	17.45	230	15.65	95.23	-	-	-	-	183
271 Check	**4004**	**17.98**	**224**	**15.27**	**95.15**	**-**	**-**	**-**	**-**	**180**
963 Treated	3999	17.93	223	15.27	95.04	-	-	-	-	141
5451 Check	**3856**	**17.64**	**219**	**14.99**	**95.08**	**-**	**-**	**-**	**-**	**218**
5833R Check	3752	17.17	219	14.95	95.26	-	-	-	-	174
AVERAGE	**4240**	**18.84**	**225**	**15.37**	**95.14**	**-**	**-**	**-**	**-**	**133**
L S D (5%)	**637**	**2.50**	**NS 13**	**NS.44**	**NS .80**	**-**	**-**	**-**	**-**	**82**
C.V. (%)	**12**	**10.42**	**5**	**.37**	**4.07**	**-**	**-**	**-**	**-**	**49**

Comments: Trial was conducted to look at response of Amistar on six of the most commonly planted varieties. The recommended rate is 4.5 oz. /acre for 22 inch rows. A paired trial was also established utilizing the lowest labeled rate of Amistar at 3 oz/ acre. Rhizoctonia infestation would be considered moderate. Generally an economical response occurred with most varieties. The largest response of almost three tons was seen with B-5833R. The paired trial utilizing the lowest labeled rate of Amistar produced similar results. (SEE AMISTAR TRIAL – LOW RATE).

Trial Reliability: **Good**

Cooperating Agriculturist(s): **Tom Schlatter – Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTER TRIAL – LOW RATE
(3.0 oz. /acre - 22 Inch Rows)

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Schindler Farms, LLC.**
Location: Bay County - Kawkawlin
Planting Date: 4/14/05
Previous Crop: Corn
Soil Type: Clay loam
Row Spacing: 22", Seed spacing 4.5 in.
Fertilizer: 20 gal. - Starter
220# - 19-17-0+ Mn
Broadcast 220# - 45-0-0

Tillage: Fall: Chisel / Spring: Danish Tine 1x
Harvest Date: 10/29/05 (Sampled 10/3/05)
Type of Harvester: Artsway
Herbicides: Pre – Nortron; Post – Betamix 1x
Replicated: 5x
# of Rows Harvested: 8
Fungicide: 5-27-05 – Amistar @ 4-6 Leaf Stage
Rate – 3.0 oz/Acre 7-9 Inch Band
7-19-05 – Eminent - DSV 85
8-11-05 – Headline - DSV 54

AMISTAR TREATED	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
7172RZ Treated	**4659**	**20.22**	**230**	**15.78**	**94.89**	**-**	**-**	**-**	**-**	**15**
5451 Treated	4617	19.50	237	16.07	95.23	-	-	-	-	148
2761RZ Treated	**4601**	**19.43**	**230**	**15.69**	**95.13**	**-**	**-**	**-**	**-**	**148**
7172RZ Check	4601	20.64	223	15.25	95.09	-	-	-	-	17
963 Treated	**4466**	**18.57**	**241**	**16.41**	**94.97**	**-**	**-**	**-**	**-**	**97**
271 Check	4257	18.35	232	15.79	95.11	-	-	-	-	148
271 Treated	**4205**	**18.85**	**233**	**15.87**	**95.19**	**-**	**-**	**-**	**-**	**127**
5833R Treated	4163	19.24	217	14.86	95.08	-	-	-	-	73
2761RZ Check	**4130**	**17.97**	**230**	**15.61**	**95.27**	**-**	**-**	**-**	**-**	**216**
5833R Check	3886	17.39	223	15.20	95.27	-	-	-	-	128
5451 Check	**3851**	**16.95**	**227**	**15.53**	**95.04**	**-**	**-**	**-**	**-**	**196**
963 Check	3629	16.18	224	15.34	95.04	-	-	-	-	168
AVERAGE	**4256**	**18.61**	**229**	**15.62**	**95.11**	**-**	**-**	**-**	**-**	**123**
L S D (5%)	**468**	**1.94**	**9**	**.58**	**NS .43**	**-**	**-**	**-**	**-**	**59**
C.V. (%)	**9**	**8.18**	**3**	**2.89**	**.36**	**-**	**-**	**-**	**-**	**38**

Comments: Trial was conducted to look at the response of Amistar on six of the most commonly planted varieties. The lowest labeled rate is 3 oz. /acre for 22 inch rows. A paired trial was also established utilizing the recommended labeled rate of Amistar at 4.5 oz. /acre. Rhizoctonia infestation would be considered moderate. Generally an economical response occurred with most varieties. No response was seen with 7172RZ which is the most Rhizoctonia tolerant variety. The largest response of approximately 2 ½ tons was seen with some of the more susceptible varieties. The paired trial utilizing the highest labeled rate of Amistar produced similar results. (SEE AMISTAR TRIAL – HIGH RATE). This low rate of Amistar trial indicates that the lowest labeled rate of Amistar will give similar response in Rhizoctonia control and yield enhancement as the normal recommended rate. UNDER HEAVY RHIZOCTONIA PRESSURE IT WOULD BE ADVISED TO USE THE HIGHER RATE OF AMISTAR WHEN PLANTING A SUSEPTABLE VARIETY.

Trial Reliability: **Good**

Cooperating Agriculturist(s): **Tom Schlatter – Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTER HIGH/LOW RATE COMBINED
(3.0 and 4.5 oz. / acre – 22 Inch Rows)

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Schindler Farms, LLC.** **Location:** Bay County - Kawkawlin
Planting Date: 2005 **Fertilizer:** 5/27/05 – Amistar @ 4-6 Leaf Stage
Rate – 3.0 – 4.5 oz. /acre 7-9 Inch Band

AMISTAR TREATED	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
7172RZ Treated	**4731**	**20.86**	**227**	**15.56**	**95.0**	**-**	**-**	**-**	**-**	**12**
7172RZ Check	4553	20.25	225	15.38	95.68	-	-	-	-	19
2761RZ Treated	**4513**	**19.60**	**227**	**15.51**	**94.80**	**-**	**-**	**-**	**-**	**140**
5451 Treated	4491	19.16	234	15.91	94.84	-	-	-	-	156
271 Treated	**4338**	**19.20**	**231**	**15.74**	**94.69**	**-**	**-**	**-**	**-**	**112**
5833R Treated	4300	19.66	219	14.96	95.19	-	-	-	-	86
963 Treated	**4233**	**18.25**	**232**	**15.84**	**94.88**	**-**	**-**	**-**	**-**	**119**
2761RZ Check	4194	18.18	230	15.65	95.27	-	-	-	-	200
271 Check	**4131**	**18.17**	**228**	**15.53**	**94.45**	**-**	**-**	**-**	**-**	**164**
5451 Check	3854	17.30	223	15.26	95.17	-	-	-	-	207
963 Check	**3820**	**16.82**	**227**	**15.49**	**93.89**	**-**	**-**	**-**	**-**	**176**
5833R Check	3819	17.28	221	15.08	95.20	-	-	-	-	151
AVERAGE	**4248**	**18.73**	**227**	**15.49**	**95.13**	**-**	**-**	**-**	**-**	**128**
L S D (5%)	**386**	**1.51**	**8**	**.5**	**.29**	**-**	**-**	**-**	**-**	**42**
C.V. (%)	**10**	**9**	**4**	**4**	**.4**	**-**	**-**	**-**	**-**	**15**

Comments: Combined data from the lowest labeled rate trial 3 oz. /acre and recommended rate trial 4.5 oz. /acre (total of ten replications) together. High rate 4.5 oz. /acre and low rate 3.0 oz. /acre rates produced similar response in control of Rhizoctonia root rot and yield enhancement. This data indicates that economical yield improvement occurred with all varieties tested under moderate levels of Rhizoctonia infestation. Variety 7172RZ, our best Rhizoctonia tolerant variety, gave least yield response (.61 tons/acre) and Variety B-5833 gave the most response (2.38 tons/acre). On average, most varieties yield improved by about 1.5 tons/acre. **Economic analysis demonstrated a $15 acre application of Amistar would gross about $45.00/acre revenue and give a net return around $30.00/acre. MANY FIELDS IN MICHIGAN WOULD ECONOMICALLY RESPOND TO A AMISTAR APPLICATION.**

Trial Reliability: Good

Cooperating Agriculturist(s): Tom Schlatter – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTAR RATE / VARIETY INTERERACTION – B-5451

ON-FARM RESEARCH AND DEMONSTRATION

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
High Rate	**164**	**4365**	**18.82**
High Check	**218**	**3856**	**17.64**
Low Rate	**148**	**4617**	**19.50**
Low Check	**196**	**3851**	**16.95**
Combined High / Low	**156**	**4491**	**19.16**
Combined Check	**207**	**3854**	**17.30**

Comments: * Dead or Dying Beets per 1200 Ft. of Row

AMISTAR RATE / VARIETY INTERERACTION – B-5833R

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
High Rate	**98**	**4437**	**20.08**
High Check	**174**	**3752**	**17.17**
Low Rate	**73**	**4163**	**19.24**
Low Check	**128**	**3886**	**17.39**
Combined High / Low	**86**	**4300**	**19.66**
Combined Check	**151**	**3819**	**17.28**

Comments: * Dead or Dying Beets per 1200 Ft. of Row

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTAR RATE / VARIETY INTERERACTION – 2761RZ

ON-FARM RESEARCH AND DEMONSTRATION

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
High Rate	**132**	**4424**	**19.77**
High Check	**183**	**4258**	**18.39**
Low Rate	**148**	**4601**	**19.43**
Low Check	**216**	**4130**	**17.97**
Combined High / Low	**140**	**4513**	**19.60**
Combined Check	**200**	**4194**	**18.18**

Comments: * Dead or Dying Beets per 1200 Ft. of Row

AMISTAR RATE / VARIETY INTERERACTION – 7172RZ

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
High Rate	**8**	**4802**	**21.49**
High Check	**20**	**4504**	**19.87**
Low Rate	**15**	**4659**	**20.22**
Low Check	**17**	**4601**	**20.64**
Combined High / Low	**12**	**4731**	**20.86**
Combined Check	**19**	**4553**	**20.25**

Comments: * Dead or Dying Beets per 1200 Ft. of Row

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTAR RATE / VARIETY INTERERACTION – C-963

ON-FARM RESEARCH AND DEMONSTRATION

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
High Rate	**141**	**3999**	**17.93**
High Check	**183**	**4011**	**17.45**
Low Rate	**97**	**4466**	**18.57**
Low Check	**168**	**3629**	**16.18**
Combined High / Low	**119**	**4233**	**18.25**
Combined Check	**176**	**3820**	**16.82**

Comments: * Dead or Dying Beets per 1200 Ft. of Row

AMISTAR RATE / VARIETY INTERERACTION – C-271

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
High Rate	**96**	**4471**	**19.54**
High Check	**180**	**4004**	**17.98**
Low Rate	**127**	**4205**	**18.85**
Low Check	**148**	**4257**	**18.35**
Combined High / Low	**111**	**4338**	**19.20**
Combined Check	**164**	**4131**	**18.17**

Comments: * Dead or Dying Beets per 1200 Ft. of Row

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTAR AVERAGES COMBINING HIGH/LOW RATES AND ALL VARIETIES

ON-FARM RESEARCH AND DEMONSTRATION

	RHIZOCTONIA BEETS PER 1200 FT OF ROW*	RWSA	TONS
COMBINED TREATED	104	4434	19.46
CHECK	153	4062	18.00

* Dead or Dying Beets per 1200 Ft. of Row

Comments: This data combines all varieties, both the high rate (4.5 oz. /acre) and the low rate (3.0 oz. /acre) of Amistar band applied in the Schindler Trial. Both rates were similar in effectiveness under moderate Rhizoctonia infestation. Amistar applied in a 7-9 inch band reduced Rhizoctonia infestation by 33% increased RWSA by 372 lbs. /acre and increased tonnage 1.46 tons/acre. **At 14 cents per pound of sugar and/or $35 dollars per ton payment gross revenue was increased by $52.00/acre. Based on a $15/acre Amistar application cost – an estimated net return would be $37.00**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

RHIZOCTONIA TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Meylan Farms**
Location: Bay County, Linwood
Planting Date: 4/14/05
Previous Crop: Dry Beans
Soil Type: Clay Loam
Row Spacing: 30 Inches
Fertilizer: 15 Gallons 12-25-0
1 qt Mn. 1pt Boron, 4% Sulphur
60# N, PPI-28%
45# N, 28% Side Dress

Tillage: Fall: Chisel Spring: 1x Field Cult.
Harvest Date: 11/5/05; Sampled 10/4/05
Type of Harvester: Artsway
Herbicides: Split Rate Herbicide
Replicated: 4 x
# of Rows Harvested: 6
Fungicide: Amistar 3.3 oz./A Normal Rate
Amistar 2.2 oz./A Low Rate* - 4 Leaf
7/11/05 – Eminent – DSV 68
8/16/05 – Headline – DSV 86

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 21 DAY	31 DAY	40 DAY	HARVEST	1200 Ft. RHIZ
E-17 DSV 3	**5424**	**23.24**	**234**	**16.55**	**93.17**	**-**	**-**	**-**	**165**	**16**
E-17 (6-8 Leaf)	5364	22.58	238	16.72	93.43	-	-	-	168	33
RH-5 (2-4 Leaf)	**5357**	**23.53**	**228**	**16.07**	**93.47**	**-**	**-**	**-**	**177**	**13**
E-17 (4-6 Leaf)	5310	23.04	230	16.27	93.39	-	-	-	168	37
E-17 In Furrow	**5242**	**22.20**	**230**	**16.37**	**92.91**	**35**	**120**	**143**	**147**	**8**
E-17 Low Rate*	5172	21.86	237	16.75	93.25	-	-	-	159	39
E-17 Check	**5079**	**21.72**	**234**	**16.46**	**93.44**	**57**	**159**	**173**	**167**	**67**
E-17 DSV 1	5078	22.37	227	16.17	93.06	-	-	-	143	43
E-17 PRE	**5023**	**21.72**	**234**	**16.46**	**93.48**	**58**	**148**	**169**	**160**	**46**
E-17 (2-4 Leaf)	4996	21.42	234	16.45	93.41	-	-	-	165	45
RH-5 Check	**4980**	**22.54**	**221**	**15.42**	**94.07**	**99**	**186**	**200**	**193**	**16**
E-17 @ Emergence	4971	21.63	227	16.10	**93.25**	-	-	-	172	42
E-17 DSV 2	**4958**	**21.56**	**230**	**16.43**	**92.81**	**-**	**-**	**-**	**151**	**62**
RH-5 In Furrow	4802	21.98	219	15.35	**93.84**	65	157	171	170	6
AVERAGE	**5125**	**22.24**	**230**	**16.25**	**93.35**	**63**	**154**	**171**	**165**	**34**
L S D (5%)	430	1.26	12	.92	.65	32	25	25	25	24
C.V. (%)	**6**	**4**	**4**	**4**	**.5**	**34**	**11**	**10**	**10**	**50**

Comments: Rhizoctonia levels were rated as low. Trial was conducted to look at the effects of Amistar applied at different timings and methods of applications on control of Rhizoctonia Crown Rot. Two varieties were used: RH-5, a Rhizoctonia tolerant and E-17, a susceptible type. Emergence was slowed and approximately a 15% stand reduction occurred from Amistar sprayed In-Furrow. An approximate band width of seven inches was used for all treatments. Treatments labeled DSV 1-2-3 are timings based on soil temperature. Most effective treatments on Rhizoctonia control are In-Furrow (least amount of dead plants) Rhizoctonia resistant variety followed by a susceptible variety treated at the 4-8 leaf stage. Significant tonnage increase (1.32 tons) was achieved when comparing E-17 check to E-17 with Amistar applied at the 4-6 leaf stage. Rhizoctonia counts are based on dead or dying beets per 1200 foot of row. Leafspot control was poor/fair with some leaf tip burning.

Trial Reliability: Good

Cooperating Agriculturist(s): **Tom Schlatter - Michigan Sugar Company**
Dr. Willie Kirk – MSU Plant Pathology Department

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

AMISTAR TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**LAKKE-EWALD**	**Row Spacing:**	22 Inch
Location:	Tuscola County - Unionville	**Replicated:**	9x
Variety:	B-5451	**Fungicide:**	Amistar – 6-8 Leaf Stage 3.2 oz. /Acre – 11 Inch Band 4.5 oz. / Acre - Broadcast

AMISTAR	1200 Ft. RHIZ*
Banded 3.2 oz. / Acre – 11 Inch Band	**13**
Broadcast – 4.5 oz. / Acre	**82**
AVERAGE	**47**
L S D (5%)	**39**
C.V. (%)	**-**

Comments: Trial was conducted to look at the effects Amistar band applied in an 11-Inch band at 3.2 oz. / acre compared to a Broadcast rate of 4.5 oz. / acre on 22 inch rows. Trial was not harvested for yield but was evaluated for Rhizoctonia control* (dead or dying plants). No check strips (zero rate) were used as comparison. Rhizoctonia levels were low to moderate. Results indicate that Broadcast application at a rate of 4.5 oz / acre Amistar is not as effective as an 11-inch banded 3.2 oz. / acre rate. Both rates as applied would be considered below the labeled recommended rate of 3 to 4.5 oz. / acre in a 7 inch band for 22 inch rows. Trial indicates the most effective placement of Amistar is banded over the row. Applications to the crown of the plant seem to be most effective. BROADCAST APPLICATIONS OF AMISTAR ARE NOT RECOMMENDED AND NOT AS EFFECTIVE AS BAND APPLICATIONS.

Trial Reliability: FAIR / GOOD

Cooperating Agriculturist(s): Craig Rieman – Michigan Sugar Company

Michigan Sugar Company
Amistar Trial – 2005
Harbor Beach, MI

Cooperator:	**D & B Karg Farms**	**Tillage:**	Fall: Plowed / Spring: vertical tillage
Location:	Harbor Beach	**Harvest Date:**	11/8/2005
Planting Date:	4/11/05	**Type of Harvester:**	Artsway 692
Previous Crop:	Wheat	**Herbicides:**	Micro-rates 2x 8oz/A & 12 oz/A Betamix 1x 2.5 pt/A
Soil Type:	Kilmanagh loam	**Replicated:**	3x
Row Spacing:	28”	**# of Rows Harvested:**	12
Fertilizer:	Fall: 300 lbs 0-0-60 Spring: 250 lbs 7-33-9 + Micronutrients	**Fungicide:**	80 DSVs 7/20/05 – Headline 60 DSVs 8/15/05 – Eminent

Treatment	RWSA	TONS PER ACRE	Amino N	RWST	% SUGAR	% CJP
Amistar applied 2lf	8185	29.61	6.39	276	18.33	96.01
No Amistar	8610	30.55	8.13	281	18.62	96.07
AVERAGE	8397	30.08	7.26	277	18.47	96.03
L S D (5%)	NS 1402	NS 2.31	NS 3.72	NS 27	NS 1.22	NS 1.58
C.V. (%)	4.75	2.19	14.59	2.78	1.88	0.47

Comments: Trial was conducted to compare the value of Amistar in low disease level situations. Amistar was applied to 2lf stage sugar beets at a rate of 3.3 oz/A. Few symptoms of Rhizoctonia crown rot were observed in the trial. Amino N is the amino nitrogen content of a sugarbeet. A lower Amino N number indicates a lower level of nitrogen impurities in the sugarbeet.

Trial Reliability: GOOD

Cooperating Agriculturist(s): Lew Parks and Corey Guza - Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NEMATODE TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Vader Farms**	**Tillage:**	Fall: Plow; Spring: Field Cult.
Location:	Tuscola County - Akron	**Harvest Date:**	10/21/05
Planting Date:	4/9/2005	**Type of Harvester:**	Artsway
Previous Crop:	Corn	**Herbicides:**	Micro rates
Soil Type:	Clay loam	**Replicated:**	4 x
Row Spacing:	30 Inch	**# of Rows Harvested:**	6
Fertilizer:	20 gals=20-10-0 + Mn & B; 10 gals = 28% Banded; 25 gal. = 28% Sidedress Fall - 500#=13 N-4 P-21 K-13 S	**Fungicide:**	7-11-05 - Eminent 8-9-05 - Headline

VARIETY	RWSA	T/A	AMINO N	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HAR.	1200 Ft. RHIZ
B-5534 N	6276	23.43	2.33	268	18.83	93.10	-	-	-	-	-
B-5833 R	3512	14.22	.87	247	16.76	95.03	-	-	-	-	-
AVERAGE	4894	18.82	1.60	257	17.80	94.07	-	-	-	-	-
L S D (5%)	589	1.20	.84	N.S. 29	1.77	.92	-	-	-	-	-
C.V. (%)	5	2.83	23	5	4.43	.44	-	-	-	-	-

Comments: Trial was conducted to look at the effects of Sugar Beet Cyst Nematodes on yield when comparing a Nematode tolerant variety B-5534N compared to a susceptible B-5833R. Nematode levels were very high. Variety B-5534 N is very susceptible to Cercospora Leafspot and did have very heavy leaf burning. THIS VARIETY IS NOT A MICHIGAN SUGAR APPROVED VARIETY. Significant differences were seen in most measured categories with utilizing the nematode tolerant variety in the presence of Nematodes. *SEE PICTURE IN CENTER OF BOOK.*

Trial Reliability: **EXCELLENT**

Cooperating Agriculturist(s): **Craig Rieman - Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NEMATODE TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**LAKKE-Ewald Farms, Inc.**	**Tillage:**	Fall: Chisel / Spring: Field Cultivate 1X
Location:	Tuscola County – Unionville	**Harvest Date:**	9/21/2005 (Sampled 9/19/05)
Planting Date:	4/5/2005	**Type of Harvester:**	Artsway 6812
Previous Crop:	Corn	**Herbicides:**	Micro-Rates 4x
Soil Type:	Tappan / Londo Loam	**Replicated:**	4x
Row Spacing:	22" / 4.2" seed spacing	**# of Rows Harvested:**	8
Fertilizer:	120# N (28%) Variable Rate – MAP & Potash	**Fungicide:**	7/9/05 – Eminent – DSV 58 8/8/05 – Headline – DSV 65

VARIETY	RWSA	TONS PER ACRE	AMINO N	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST
B-5534 N	4929	20.51	2.24	241	16.90	93.54	-	-	-	-
B-5833 R	2431	10.91	0.7	223	15.11	95.48	-	-	-	-
AVERAGE	3680	15.71	1.47	232	16.01	94.51	-	-	-	-
L S D (5%)	651	2.98	1.30	9	.94	1.36	-	-	-	-
C.V. (%)	8	8.42	39.47	2	2.60	.64	-	-	-	-

Comments: Trial was conducted to look at the effects of Sugar Beet Cyst Nematodes on yield when comparing a nematode tolerant Variety (B-5534 N) is very susceptible to (B-5833 R). Nematode levels were very high. Variety (B-5534 N) is very susceptible to Cercospora Leafspot and had heavy leaf burning. *THIS VARIETY IS NOT A MICHIGAN SUGAR APPROVED VARIETY*. Significant differences were seen in all measured categories when utilizing a nematode tolerant variety in the presence of nematodes.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Craig Rieman – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NEMATODE TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Schindler Farms, LLC.**	**Tillage:**	Fall: Chisel / Spring: 1x Danish Tine
Location:	Bay County – Kawkawlin	**Harvest Date:**	10/29/05
Planting Date:	4/14/2005	**Type of Harvester:**	692 Artsway
Previous Crop:	Corn	**Herbicides:**	Pre: Nortron / Post: Betamix 1x
Soil Type:	Clay Loam	**Replicated:**	2x
Row Spacing:	22" Inch	**# Rows Harvested:**	8
Fertilizer:	20 gal. – 19-17-0 + 2 Mn 220# 45-0-0	**Fungicide:**	7/19/05 - Eminent 8/11/05 - Headline

VARIETY	RWSA	T/A	Amino N	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST
B 5534 N	5503	24.51	2.46	225	15.86	93.44	-	-	-	-
B 5833 R	4223	18.40	0.86	230	15.58	95.39	-	-	-	-
AVERAGE	4863	21.45	1.66	227	15.72	94.41	-	-	-	-
L S D (5%)	-	-	-	-	-	-	-	-	-	-
C.V. (%)	-	-	-	-	-	-	-	-	-	-

Comments: Trial was conducted to look at the effects of Sugar Beet Cyst Nematodes on yield when comparing a Nematode tolerant Variety (B-5534 N) compared to a susceptible Variety (B-5833 R). Nematode levels were high. Variety B-5545 N is very susceptible to Cercospora Leafspot and did have very heavy leaf burning. THIS VARIETY IS NOT A MICHIGAN SUGAR APPROVED VARIETY. Large differences were seen in all tonnage and RWSA with utilizing the nematode tolerant variety in the presence of Nematodes.

Trial Reliability: **GOOD – (Only 2 Replications)**

Cooperating Agriculturist(s): **Tom Schlatter – Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NEMATODE AVERAGES

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **LAKKE-EWALD, SCHINDLER, VADER**

Location: Tuscola and Bay Counties

Date: 2005

VARIETY	RWSA	TONS PER ACRE	AMINO N	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST
B-5534 N	5580	22.82	2.34	245	17.20	93.36	-	-	-	-
B-5833 R	3288	14.51	0.81	233	15.82	95.30	-	-	-	-
AVERAGE	4434	18.66	1.58	239	16.51	94.33	-	-	-	-
L S D (5%)	2179	4.75	.17	NS 35	NS 2.39	.02	-	-	-	-
C.V. (%)	14	7.25	3.15	4	4.12	.01	-	-	-	-

Comments: **THREE LOCATION TRIALS WERE COMBINED.** All three locations had a high to very high level of Sugar Beet Cyst Nematodes. Nematode tolerant Variety B-5534 N; RWSA was about 2300 lbs. and eight tons to the acre better compared to B-5833 R. Variety B-5534 N has good nematode tolerance but is very poor in Cercospora Leafspot resistance. ***SUGAR BEET CYST NEMATODES ARE COMMON IN MICHIGAN. IT HAS BEEN ESTIMATED THAT 1/3 OF THE BEET ACREAGE MAY HAVE SOME LEVEL OF THIS PEST.*** VARIETY (B-5534 N) IS NOT A MICHIGAN SUGAR APPROVED VARIETY. Strategies to minimize impact include: four year or longer rotations, oil seed radish, and applications of manure.

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

BEET CAST / LEAFSPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **KENT AND OLAN HUMM**
Location: Gratiot County (Breckenridge)
Planting Date: 4/14/05
Variety: C-963
Previous Crop: Wheat
Soil Type: Clay / Loam
Row Spacing: 30 Inches; 3.8 Inch spacing
Fertilizer: 15 gallons of 19-17-0-Mn
375 # 45-0-0
200 # 0-0-60

Tillage: Summer: Plow/ Field Cult. Spring: 1x Field Cult.
Harvest Date: 10/21/05 Sampled: 9/11/05
Type of Harvester: John Deere
Herbicides: 1 x Post Upbeat/ Betamix/ Nortron/ Stinger/ Mustang / Dual
Replicated: 4 x
 # Rows Harvested: 8
Fungicide: Amistar applied 4-8 Leaf stage
7/11/05 Eminent - DSV 57
7/23/04 Eminent - DSV 87 – Delayed Spray
8/8/05 Headline - DSV 65

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	Leafspot Rating Taken on 9/30/05	1200 Ft. RHIZ
Two Sprays - DSV 57/65	6143	26.33	233	16.56	93.08	3.9	-
One Spray - Delay DSV 87	5515	24.42	226	16.19	92.70	6.6	-
No Spray - Check	4825	22.80	212	15.33	92.46	8	-
AVERAGE	**5494**	**24.52**	**224**	**16.03**	**92.75**	**-**	**-**
L S D (5%)	318	1.26	7	.4	.38	-	-
C.V. (%)	**4**	**3.2**	**2**	**1.5**	**.26**	**-**	**-**

Comments: Trial was conducted to look at the impact of following a BEETCAST spray program (2 spray) compared to a (1 spray) 12 day delayed application and check (0 Spray) program. Sugar beets were planted in a high yielding environment. Previous beet crop in field was 10 years ago. Foliage rating evaluation was conducted on 9/30/05 by Michigan Sugar Company Agronomist/Researcher on a scale of 1 to 9, 1 being no spots to 9 being equal to complete burn down. ECONOMIC THRESHOLD IS CALCULATED AT ABOUT 2.5 (MODERATELY SPOTTED), BEETCAST model recommended a third spray on August 18th but fungicide was not applied. Untreated checks burn down and re-grown new foliage, delayed application also had some burn down, and 2 spray program was heavily spotted to some leaf browning at harvest. Spray treatments significantly improved RWSA, Tons/acre, % sugar, and % CJP. Economics of each spray program is calculated based on sugar price of 14 cents per pound/Eminent @$19 per acre/ and Headline @ $17 per acre and application cost of $6 per application.

2 SPRAY RWSA = 6143 X $.14=$860 GROSS REVENUE/ACRE
1 SPRAY RWSA = 5515 X $.14=$772 GROSS REVENUE/ACRE
0 SPRAY RWSA = 4825 X $.14=$676 GROSS REVENUE/ACRE

2 SPRAY PROGRAM: $860 GROSS REVENUE/ACRE - $48 FUNGICIDE APPLICATION COST/ACRE = $812 NET REVENUE/ACRE

1 SPRAY PROGRAM: $772 GROSS REVENUE/ACRE - $25 FUNGICIDE APPLICATION COST/ACRE = $747 NET REVENUE/ACRE

NO SPRAY PROGRAM: $676 NET REVENUE/ACRE

Net Revenue $ Rankings:

2 Spray Program - $812 / Acre
1 Spray Program - $747 / Acre
0 Spray Program - $676 / Acre

Trial Reliability: **Excellent**

Cooperating Agriculturist(s): **Dave Bailey – Michigan Sugar Company**

Leafspot Ratings: **Jim Stewart, Research Agronomist – Michigan Sugar Company**
Corey Guza, Agronomist – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

LEAF SPOT / BEET CAST

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Sherwood Farms**	**Tillage:**	Fall: Chisel / Spring: 1x Field Cultivate
Location:	Gratiot County – St. Louis	**Harvest Date:**	10/30/05 (Sampled 10/13/05)
Planting Date:	4/15/2005	**Type of Harvester:**	Artsway
Variety:	Crystal 271	**Herbicides:**	Microrates 4x
Previous Crop:	Soybeans		
Soil Type:	Parkhill Loam	**Replicated:**	5x
Row Spacing:	30" Rows – 4.2 Inch Spacing	**# Rows Harvested:**	6
Fertilizer:	Starter= 220# 10-10-10 + Micros 30 gallons of 28% N	**Fungicide:**	7/11/05 – Eminent - DSV 56 8/7/05 – Headline - DSV 60 8/29/05 - Topsin + Dithane – DSV 44

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
3 Spray	**6898**	**27.39**	**251**	**17.44**	**94.00**	**-**	**-**	**-**	**-**	**-**
2 Spray	**6720**	**26.95**	**249**	**17.28**	**94.00**	**-**	**-**	**-**	**-**	**-**
AVERAGE	**6809**	**27.17**	**250**	**17.36**	**94.00**	**-**	**-**	**-**	**-**	**-**
L S D (5%)	NS 197	NS .44	NS 5.39	NS .42	NS .21	-	-	-	-	-
C.V. (%)	**2**	**.93**	**1.60**	**1.37**	**.13**	**-**	**-**	**-**	**-**	**-**

Comments: Trial conducted to look at the effects of leaf spot fungicides following a BEETCAST 55-55 spray program. Comparison is being made between a 2 spray program compared to a 3 spray program. Field had no history of beets in the rotation. Leafspot control would be considered excellent with the 3 spray program and only slightly more spots in the two spray program. All treatments did not exceed economic threshold of leaf spot (rating of 2.5). A slight positive trend occurred in % Sugar, RWST, Tons, and RWSA. Trends were not significant at the 95% confidence level. However RWSA was significant at the 90% confidence level (LSD.=151). **Three spray program produced an additional 178 pounds of sugar valued at $.14 a pound or $24.92 per acre. Final fungicide and application cost was equal to additional dollars generated by improved RWSA.** Note all treatments produced higher than Company average sugar even though quality samples were pulled on 10/13/05 approximately two weeks prior to harvest.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Dave Bailey – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

LATE LEAFSPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Thumb Swine Enterprise**	**Tillage:**	Fall: Chisel / Spring: 1x Field Cult.
Location:	Huron County - Bay Port	**Harvest Date:**	11/10/05 (Sampled 10/14/05)
Planting Date:	4/20/05	**Type of Harvester:**	John Deere
Previous Crop:	Corn	**Herbicides:**	Microrate 2x
Variety:	Prompt	**Replicated:**	3 x
Soil Type:	Kilmanaugh Loam	**# of Rows Harvested:**	8
Row Spacing:	30 Inch / 4.5" seed spacing	**Fungicide:**	7/6/05 – Headline - DSV 54
Fertilizer:	3 gallons 3-18-18 + Zn + B		8/16/05 – Eminent - DSV 71
	10 gallons 28% Pre		8/26/05 – GEM – DSV 17
	20 gallons 28% Side Dress		
	3000 gallons hog manure		

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
3 Spray Program	7370	30.66	241	16.79	93.79	-	-	-	-	-
2 Spray Program	7431	30.50	243	17.06	93.56	-	-	-	-	-
AVERAGE	7401	30.58	242	16.92	93.68	-	-	-	-	-
L S D (5%)	NS 1198	NS 1.30	NS 29.86	NS 1.96	NS .35	-	-	-	-	-
C.V. (%)	5	1.2	3.5	3.3	.11	-	-	-	-	-

Comments: Trial was conducted to compare a two spray Leafspot fungicide program to a three spray program on yield and quality. First application of fungicide was very timely (DSV 54), second application was applied 71 DSV later, and the third application was applied ten days (17 DSV) later. This application was made early because of the planned early harvest of part of the field. Leafspot did not reach economic threshold in any treatments. No significant difference occurred between the two or three spray program. ***THE FOUNDATION OF ANY GOOD FUNGICIDE SPRAY PROGRAM STARTS WITH A TIMELY FIRST APPLICATION.***

Trial Reliability: VERY GOOD

Cooperating Agriculturist(s): Roger Elston – Michigan Sugar Agronomist

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

LEAF SPOT

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Stoutenburg Farms**	**Tillage:**	Fall: Vee Chisel / Spring: 2x Field Cult.
Location:	Sanilac County – Sandusky	**Harvest Date:**	10/18/05
Planting Date:	4/5/2005	**Type of Harvester:**	Artsway
Previous Crop:	Navy Beans	**Herbicides:**	Microrates 3x
Soil Type:	Parkhill Loam	**Replicated:**	3x
Row Spacing:	28 Inch	**# Rows Harvested:**	8
Fertilizer:	Starter–13 gal. 10-34+Mn+Zn Sidedress = 125# of 82% Fall = 225# K_2O	**Fungicide:**	7/28/05 - GEM

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
No Spray	**2643**	**14.68**	**208**	**14.88**	**93.19**	**-**	**-**	**-**	**-**	**-**
One Spray	**2465**	**14.25**	**210**	**15.14**	**92.82**	**-**	**-**	**-**	**-**	**-**
AVERAGE	**2554**	**14.46**	**209**	**15.01**	**93.00**	**-**	**-**	**-**	**-**	**-**
L S D (5%)	**NS 273**	**NS 1.65**	**NS 17**	**NS .77**	**NS .99**	-	-	-	-	-
C.V. (%)	**3**	**3.25**	**2**	**1.47**	**.30**	**-**	**-**	**-**	**-**	**-**

Comments: ***THIS FIELD HAD A VERY THIN AND/OR AT BEST, A MARGINALLY ADAQUATE STAND.*** This Trial was conducted to look at the effects of one application of Leafspot Fungicide compared to no applications; on a thin stand. Because of the uneven marginal stands, larger blocks were harvested in each replication (32 rows). Leafspot infestation would be considered light with a sprinkling of Leafspot in the one spray program. Due to lack of canopy in thin beets and relatively early harvest, Leafspot pressure was relatively low. No significant differences were measured in any categories.

Trial Reliability: GOOD

Cooperating Agriculturist(s): Mike Leen – Michigan Sugar Company

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Pigeon, MI

Cooperator: Yoder **Trial Quality: Fair**

No.	Treatment DSV[1, 2]	# Applic	CLS[3] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	Amino
1	55/35 (54/35/35/36) (Jul 6, Jul 22, Aug 6, Aug 24)	4	1.3	5210	239.6	21.83	16.32	95.0	8.8
2	55/55 (54/60/51) (Jul 6, Aug 3, Sep 1)	3	1.8	4938	236.5	20.87	16.03	95.3	11.1
3	70/35 (73/33/37) (Jul 15, Jul 28, Aug 15)	3	1.2	4793	240.0	19.96	16.19	95.5	8.2
4	70/70 (73/70) (Jul 15, Aug 15)	2	2.4	4746	242.0	19.61	16.25	95.7	8.9
5	Scouting (89/71) (Jul 22, Aug 24)	2	2.8	4551	237.1	19.24	16.26	94.7	11.9
6	Reduced Spray (43/53) (Jun 30, Jul 29)	2	3.1	4308	235.1	18.39	16.02	95.0	9.5
7	UTC	0	6.4	3591	233.9	15.37	15.97	95.0	11.1
LSD (P=.05)		0	0.56	640	15.4	2.54	0.9	0.98	3.6
CV		0	13.9	9.3	4.4	8.8	3.8	0.7	24.7
Grand Mean		2.29	2.7	4592	237.7	19.32	16.15	95.19	9.94

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: The beet population and disease pressure was somewhat non-uniform in this trial. Leaf spot began showing up the middle of July. Disease levels were near normal in 2005 except that the disease progressed later into the season with the warm temperatures and rains this fall. The 70/35, 55/35 and 55/55 treatments gave good disease control at this location and the 70/70 and Scouting treatments were less effective. A significant yield loss resulted from the Reduced Application treatment and serious yield losses (4 1/2 tons/A) were sustained in the Untreated Check.

Date Planted: Plot Size: 4 rows X 50 ft
Date Harvested: Oct 11, 2005 Reps: 6
CLS 0-9 Rating Date: Oct 3, 2005

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Frankenmuth, MI

Cooperator: Uebler **Trial Quality: Good**

No.	Treatment DSV[1,2,3]	# Applic	CLS[4] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	Amino
1	55/35 (55/32/39) (Jul 14, Jul 29, Aug 16)	3	1.3	6712	254.7	26.36	17.77	93.6	12.7
2	55/55 (55/57) (Jul 14, Aug 10)	2	3	6884	261.4	26.35	17.9	94.4	13.7
3	70/35 (72/40/27) (Jul 20, Aug 10, Aug 24)	3	1.5	6758	262.9	25.71	18.08	94.2	13.1
4	70/70 (72/67) (Jul 20, Aug 24)	2	2.7	6673	260	25.66	17.88	94.3	14.9
5	Scouting / fb label (87/60) (Jul 28, Aug 31)	2	3.3	6428	257.0	25.02	17.72	94.1	14.8
6	Reduced Spray (147) (Aug 31)	1	5.6	6218	257.6	24.15	17.65	94.5	13.0
7	UTC	0	5.8	5881	249.9	23.54	17.41	93.7	14.4
LSD (P=.05)		0	0.56	341	8.7	1.05	0.47	0.89	2.4
CV		0	8.8	4.7	3.2	3.9	2.8	1.1	17.2
Grand Mean		1.86	3.29	6508	257.6	25.25	17.77	94.12	13.79

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **Means for each treatment are the average of 2 varieties (B 5451 and HM 7172Rz)**

[4] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o much coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: Good trial with low CV's and LSD's. Beet stand and Cercospora pressure was uniform within the plot area. Leafspot began showing up the 3rd weed of July. The disease level in the plots was moderate and the disease progressed late into the season due to warm weather in Sept and Oct. The 55/35 and 70/35 treatments provided good Cercospora control (both had 3 applications). With the 2 spray treatments, 70/70 was as effective as 55/55 or Scouting. The Reduced Spray treatment sustained significant Cercospora damage. B 5451 had 10% more leaf damage from Cercospora compared to HM 7172Rz. Yields in the Untreated Checks plots were reduced by approximately 2 1/2 Tons/A and 1/2 points of Sugar.

Date Planted:
Date Harvested: Oct 26, 2005
CLS 0-9 Rating Date: Oct 4, 2005

Plot Size: 4 rows X 50 ft
Reps: 4 X 2 varieties

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Sandusky, MI

Cooperator: Stoutenburg **Trial Quality: Good**

No.	Treatment DSV[1,2,3]	# Applic	CLS[4] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	NH2
1	55/35 (56/36/37/40) (Jul 6, Jul 22, Aug 6, Aug 23)	4	1.6	8207	221.6	37.1	15.56	93.8	17.6
2	55/55 (56/55/58) (Jul 6, Jul 29, Aug 23)	3	2.4	8267	221.9	37.3	15.57	93.8	20.5
3	70/35 (70/37/35/43) (Jul 15, Jul 28, Aug 11, Aug 31)	4	1.4	8311	221.2	37.6	15.53	93.8	18.9
4	70/70 (70/72) (Jul 15, Aug 11)	2	2.8	8164	219.7	37.2	15.45	93.7	22.2
5	Scouting / fb label (107/78) (Jul 20, Aug 31)	2	2.8	7807	217.3	36.00	15.21	94.0	20.5
6	Reduced Spray (41) (Jun 27)	1	4.6	7638	214.5	35.7	15.24	93.3	23.0
7	UTC	0	4.9	6528	205.7	31.80	14.59	93.6	22.1
LSD (P=.05)		0	0.5	557	8.6	2	0.51	0.7	3.4
CV		0	7.6	4.3	2.6	3.8	2	0.8	5
Grand Mean		2.57	2.92	7846	217.4	36.07	15.31	93.7	20.7

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **Means for each treatment are the average of 2 varieties (B 5451 and HM 7172Rz)**

[4] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o much coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: Good quality trial. Beet stand and Cercospora pressure was relatively uniform within the plot area. The first spot was found the middle of July. Disease pressure in the plots was about average, but it it progressed later into the season than normal due to the warm fall. The 70/35 treatment provided the best Cercospora control followed by 55/35 and 55/55. These treatments also had the highest yields. The 70/70 treatment gave somewhat better results than the Scouting treatment - both received 2 applications but it appeared that the first Scouting application was a little late. Cercospora control and yields in the Reduced Spray treatment were poor. Yields in the Untreated Plots were reduced by 5 tons per acre and nearly 1 point of Sugar.

Date Planted: Apr 13, 2005 Plot Size: 4 rows X 50 ft
Date Harvested: Oct 19, 2005 Reps: 4 X 2 varieties
CLS 0-9 Rating Date: Oct 4, 2005

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Quanicassee, MI

Cooperator: Sylvester **Trial Quality: Excellent**

No.	Treatment DSV[1,2,3]	# Applic	CLS[4] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	NH2
1	55/35 (57/35/38/27) (Jul 6, Jul 22, Aug 9, Aug 24)	4	2.1	8302	262.9	31.58	17.77	95.1	15.4
2	55/55 (57/50/58) (Jul 6, Jul 29, Sep 1)	3	2.8	8114	260.4	31.19	17.84	94.4	17.5
3	70/35 (72/35/38) (Jul 15, Jul 29, Aug 16)	3	2.9	8038	255.7	31.44	17.56	94.4	19.3
4	70/70 (72/73) (Jul 15, Aug 16)	2	3.5	8061	258.1	31.24	17.7	94.4	17.8
5	Scouting / fb label (72/58/35) (Jul 15, Aug 9, Sep 1)	3	3.7	7742	259.0	29.90	17.7	94.6	17.2
6	Reduced Spray (86/71) (Jul 20, Aug 24)	2	4.1	7445	248.6	29.97	17.33	93.7	17.3
7	UTC	0	8.0	6130	234.4	26.20	16.32	94.0	20.6
LSD (P=.05)		0	0.49	315	7.4	1.24	0.38	0.7	3.8
CV		0	7.6	4.3	2.6	3.8	2	0.8	16.4
Grand Mean		2.43	3.87	7690	254.1	30.22	17.46	94.36	17.9

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **Means for each treatment are the average of 2 varieties (B 5451 and HM 7172Rz)**

[4] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o much coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: An excellent test with low CV's and LSD's. Beet stand and Cercospora pressure was uniform within. the plot area. The first verified spot was found on Jul 15 (DSV = 72). The disease level in the plots was high and the disease progressed late into the season due to warm weather in Sept and Oct. The 55/35, 55/55 and to some extent the 70/35 treatments provided good Cercospora control. The 70/70 and Scouting treatments were somewhat less effective. Significant damage from Cercospora occurred in the Untreated Check and in the Reduced Spray treatment. B 5451 had 12% more leaf damage from Cercospora compared to HM 7172Rz. Yields in the Untreated Plots were reduced by approximately 5 Tons/A and 1 1/2 points of Sugar.

Date Planted:
Date Harvested: Oct 20, 2005
CLS 0-9 Rating Date: Oct 4, 2005

Plot Size: 4 rows X 50 ft
Reps: 4 X 2 varieties

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Breckenridge, MI

Cooperator: Bebow **Trial Quality: Good**

No.	Treatment DSV[1, 2]	# Applic	CLS[3] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	NH2
1	55/35 (55/38/36) (Jul 12, Jul 29, Aug 16)	3	1.2	8016	278.5	28.78	18.05	97.1	6.4
2	55/55 (55/59) (Jul 12, Aug 9)	2	1.8	7785	279.6	27.86	18.32	96.5	6.2
3	70/35 (75/39/28) (Jul 12, Aug 9, Aug 24)	3	2.2	7590	265.5	28.57	17.47	96.5	5.8
4	70/70 (75/67) (Jul 12, Aug 24)	2	2.5	7087	269.0	26.32	17.48	97.1	5.7
5	Scouting (114/38) (Aug 9, Aug 31)	2	3.7	6966	256.5	27.18	16.92	96.5	5.5
6	Reduced Spray (152) (Aug 31)	1	5.5	6345	255.2	24.78	16.93	96.2	7.6
7	UTC	0	6.3	5836	248.9	23.36	16.71	95.6	7.5
LSD (P=.05)		0	0.69	792	15.2	2.3	0.93	0.6	ns
CV		0	17.6	9.5	4.9	7.2	4.6	0.58	24
Grand Mean		1.86	3.3	7089	264.7	26.69	17.41	96.1	6.4

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: The beet population was somewhat uneven in places but the disease pressure was uniform throughout the plot area. Leafspot began showing up in the plot around the end of July. The infestation level was above normal in 2005 and the disease progressed late into the season. The 55/35, 55/55 and 70/35 treatments gave good leaf spot control and prevented economic damage from occuring. The 70/70 treatment also gave fairly good Cercospora control but the Scouting and Reduced Spray treatments failed to provide adequate control and resulted in significant leaf damage and yield loss. Yields and quality in the Untreated Control were reduced by approximately 5 tons/A, 1 1/4 point of sugar and 1 point of purity.

Date Planted: Apr 22, 2005 Plot Size: 4 rows X 50 ft
Date Harvested: Oct 28, 2005 Reps: 6
CLS 0-9 Rating Date: Sep 30, 2005

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
BB Farm - Saginaw, MI

Cooperator: Paul Horny **Trial Quality: Very Good**

No.	Treatment DSV[1,2,3]	# Applic	CLS[4] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	NH2
1	55/35 (57/47/25/35) (Jul 6, Jul 29, Aug 10, Aug 31)	4	1.5	6068	266.4	22.77	17.47	96.6	5.9
2	55/55 (57/56) (Jul 6, Aug 3)	2	2.0	5943	266.6	22.29	17.54	96.5	6.4
3	70/35 (74/30/39) (Jul 16, Jul 29, Aug 16)	3	1.2	6026	255.8	23.54	17.00	96.1	6.8
4	70/70 (74/69) (Jul 16, Aug 16)	2	2.2	5872	259.3	22.63	17.22	96.1	7.0
5	Scouting / fb label (86/78) (Jul 20, Aug 31)	2	3.7	5543	254.8	21.76	17.01	95.9	7.5
6	Reduced Spray (86) (Jul 20)	1	4.3	5320	255.7	20.81	17.03	95.9	7.1
7	UTC	0	5.4	5168	250.8	20.60	16.81	95.7	8.7
LSD (P=.05)		0	0.48	311	8.4	1.2	0.4	0.6	1.4
CV		0	12.0	6.0	2.4	5.6	1.5	0.58	16
Grand Mean		2	2.91	5706	258.5	22.06	17.15	96.1	7.05

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **Means for each treatment are the average of 2 varieties (B 5451 and HM 7172Rz)**

[4] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o much coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. common in stages 5 and above. Economic damage normally begins around 2.5

Summary: Very good trial with low CV's and LSD's. Beet stand and Cercospora pressure was uniform within the plot area. We began finding spots around the middle of July. Cercospora pressure was near normal to slightly above but the disease progressed later into the season than normal due to the warm fall. The 55/35, 55/55 and 70/35 treatments provided good control and prevented economic damage from occurring. The 70/70 treatment gave fair to good control but the Scouting and Reduced Spray treatment resulted in significant leaf damage and reduced yields. Disease pressure was approximately 15% higher in the B 5451 plots compared to the HM 7172Rz plots. Tons/A, % Sucrose and Quality (%CJP and Amino N) were all lower with the less effective spray programs. Yields in the Untreated Plots were reduced by approximately 2 1/4 Tons, 1/2 point of Sugar, 3/4 point of Purity and Amino N levels increased by 25%.

Date Planted: Apr 5, 2005 Plot Size: 4 rows X 50 ft
Date Harvested: Oct 21, 2005 Reps: 4 X 2 varieties
CLS 0-9 Rating Date: Sep 21, 2005

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Ruth, MI

Cooperator: Roggenbuck **Trial Quality: Very Good**

No.	Treatment DSV[1,2,3]	# Applic	CLS[4] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	NH2
1	55/35 (54/36/33/36) (Jul 6, Jul 22, Aug 6, Aug 23)	4	1.1	7110	245.0	29.02	16.83	94.5	9.4
2	55/55 (54/61/48) (Jul 6, Aug 3, Sep 1)	3	2.1	7188	245.3	29.3	16.92	94.3	9.4
3	70/35 (68/36/41) (Jul 15, Jul 29, Aug 16)	3	1.4	7214	245.2	29.42	16.87	94.4	9.8
4	70/70 (68/77) (Jul 15, Aug 15)	2	2.6	7016	244.8	28.67	16.79	94.6	8.4
5	Scouting / fb label (123/42) (Aug 6, Sep 1)	2	3.0	6785	242.5	27.97	16.8	94.1	9.9
6	Reduced Spray (54) (Jul 6)	1	4.5	6667	240.6	27.71	16.71	94.0	10.7
7	UTC	0	5.3	6284	233.1	26.98	16.2	94.1	10.7
LSD (P=.05)		0	0.48	299	6.1	0.9	0.3	0.5	ns
CV		0	11.7	3.9	2.2	2.5	1.4	0.5	27
Grand Mean		2.14	2.86	6895	242.4	28.44	16.73	94.29	9.7

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **Means for each treatment are the average of 2 varieties (B 5451 and HM 7172Rz)**

[4] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o much coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: Very good trial with low CV's and LSD's. Beet stand and Cercospora pressure was uniform. Leaf spot began showing up towards the end of July. The disease level was near normal to slightly above but the disease progressed late into the season due to the warm fall. The 55/35, 55/55 and 70/35 treatments provided good control and prevented economic damage from occuring. The 70/70 and Scouting treatments gave somewhat less effective leafspot control while the Reduced Spray treatment resulted in significant leaf damage and reduced yields. Disease pressure was approximately 25% higher in the B 5451 plots compared to the HM 7172Rz plots. Tons per acre and % Sucrose were lower with the less effective spray programs. Yields in the Untreated Plots were reduced by approx. 2 1/4 Tons and 3/4 points of Sugar.

Date Planted: Apr 15, 2005
Date Harvested: Oct 14, 2005
CLS 0-9 Rating Date: Oct 3, 2005

Plot Size: 4 rows X 50 ft
Reps: 4 X 2 varieties

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trial - 2005
Kawkawlin, MI

Cooperator: Schwab **Trial Quality: Visual Rating = Good**

No.	Treatment DSV[1,2,3]	# Applic	CLS[4] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP
1	55/35 (56/34/35/42) (Jun 30, Jul 16, Aug 3, Aug 23)	4	0.9	na	na	na	na	na
2	55/55 (56/60) (Jun 30, Jul 29)	3	1.7	na	na	na	na	na
3	70/35 (69/34/38/38) (Jul 6, Jul 22, Aug 10, Aug 31)	4	1.6	na	na	na	na	na
4	70/70 (69/72) (Jul 6, Aug 10)	2	2.4	na	na	na	na	na
5	Scouting / fb label (69/47/49) (Jul 6, Jul 29, Aug 31)	3	1.7	na	na	na	na	na
6	Reduced Spray (56/60) (Jun 30, Jul 29)	2	2.7	na	na	na	na	na
7	UTC	0	4.6	na	na	na	na	na
LSD (P=.05)		0	0.43					
CV		0	12.9					
Grand Mean		2.57	2.21					

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 p[si. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **Means for each treatment are the average of 2 varieties (B 5451 and HM 7172Rz)**

[4] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o much coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: The uniformity of the stand was poor in this trial and yields were not taken. However, we did take visual Cercospora ratings which were reliable. In general, plots which were sprayed earlier and more often had less disease. The Cercospora infection seemed to come in a little later in this plot than was expected and neighborning fields clearly had more disease than the plot.

Date Planted: Apr 13, 2005
Date Harvested:
CLS 0-9 Rating Date: Sep 30, 2005

Plot Size: 4 rows X 50 ft
Reps: 4 X 2 varieties

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Michigan Sugar Company
Beet Cast Cercorpora Trials - 2005
Average of 8 Replicated Trials

No.	Treatment DSV[1, 2]	# Applic	CLS[3] 0-9	RWSA Lb/Acre	RWST Lb/Ton	Tons/ Acre	% Suc	% CJP	NH2
1	55/35	3.8 a	1.4 f	7089 a	252.7 a	28.2 a	17.1 a	95.1 a	10.9 c
2	55/55	2.6 c	2.2 de	7017 ab	253.1 a	27.9 a	17.2 a	95.0 a	12.1 b
3	70/35	3.1 b	1.7 ef	6890 ab	250.0 ab	27.7 a	17.0 ab	95.1 a	11.7 bc
4	70/70	2.0 d	2.6 cd	6803 b	250.4 ab	27.3 ab	17.0 ab	95.1 a	12.1 b
5	Scouting	2.3 d	3.1 c	6546 c	246.3 bc	26.7 bc	16.8 b	94.8 ab	12.5 ab
6	Reduced Spray	1.4 e	4.3 b	6277 d	243.9 c	25.9 c	16.7 b	94.7 b	12.5 ab
7	UTC	0.0 f	5.8 a	5631 e	236.7 d	24.0 d	16.3 c	94.5 b	13.6 a
LSD (P=.05)		0.37	0.57	252	4.8	0.81	0.26	0.34	1.1
CV		16.8	18.6	3.5	1.8	2.8	1.4	0.3	8.6
Grand Mean		2.16	3.02	6608	247.6	26.82	16.86	94.9	12.2

[1] **DSV = Disease Severity Value From BeetCast Web Site**

[2] **Application Info:** Treatments applied with a high clearance tractor plot sprayer in 20 gallons of water at 100 psi. Within each treatment Gem (7 oz) was applied at the first timing, Eminent (13 oz) was applied second, Topsin + Penncozeb (8 oz + 2 lbs) was third and Supertin (5 oz) was applied at the fourth timing.

[3] **0-9 = Cercospora Infestation Rating Scale** 0 = No Infection, 1 = takes a few seconds to find spots, 2 = moderate, 3 = heavy (up to 100 spots) but w/o coalescing. 4 begins coalescing, 5 begins flagging and approx 50% leaf damage. Stages 6-9 dessication increases with 9 = leaf completely dessicated. Regrowth common in stages 5 and above. Economic damage normally begins around 2.5

Summary: In general the quality of the BeetCast trials was very good in 2005. Beet stands were adequate and the disease infestation in the plots was uniform for the most part. Accurate yield data was obtained from 7 of the 8 locations. The Cercospora disease levels were near normal to somewhat above normal at most locations. Spots began showing up at around 70 DSV's at the Quanicassee site (similar to the past 4 years of testing). The DSV levels at first spot were somewhat higher at several other locations. Averaged over the 8 locations the 55/35 DSV treatment returned the most yield and had the lowest disease level. The 55/55 and 70/35 treatments also provided good leafspot control and yields while 70/70 was intermediate. All of the BeetCast treatments were superior to Scouting. Significant yield and sugar losses resulted from the Reduced Spray treatment (2 tons/A and .4 pt sugar) and from the Untreated Check (4 tons/A and .8 pts of sugar). Quality factors (Clear Juice Purity and Amino Nitrogen) were negatively affected in the Untreated Check plots.

Researchers: J Stewart, C Guza, L Hubbell, M Anderson, D Wishowski

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Ridgeview Farms – Jeff Gulick**	**Tillage:**	Mold Board Plow / 1X Spring Field Cult.
Location:	Gratiot County - Breckenridge	**Harvest Date:**	10/20/2005
Planting Date:	4/16/2005	**Type of Harvester:**	Artsway
Previous Crop:	Corn	**Replicated:**	3x
Variety:	C-963	**# Rows Harvested:**	6 / # Defoliated: 6
Row Spacing:	30" Seed Spacing 4.5 Inch Rows	**Herbicide:**	Pre – Nortron – Micro Rate 3x
Fertilizer:	214 lbs. 13-6-6 + Micros		Amistar 4-8 Leaf Stage
	5/31/05 – Side dress N	**Fungicide:**	7/9/05 – Eminent
	Nitrate tested 5/17/06, avg. 10 ppm		8/9/05 - GEM

NITROGEN PER ACRE	RWSA	T/A	AMINO N	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY
98#	**4680**	**18.48**	**1.15**	**254**	**17.37**	**94.51**	**-**	**-**	**-**
128#	**4717**	**19.63**	**1.61**	**240**	**16.63**	**94.23**	-	-	-
178#	**4828**	**20.87**	**2.01**	**232**	**16.13**	**93.98**	**-**	**-**	**-**
AVERAGE	**4742**	**19.66**	**1.59**	**242**	**16.71**	**94.27**	**-**	**-**	**-**
L S D (5%)	**NS 446**	**1.24**	**.48**	**15**	**.87**	**.41**	-	-	-
C.V. (%)	**4**	**2.79**	**13.36**	**3**	**2.29**	**.19**	**-**	**-**	**-**

Comments: Trial was conducted to look at the impact of Nitrogen application on yield, quality, and net revenue of sugar beets. 28 lbs. of nitrogen was applied in a 2 x 2 starter. Additional Nitrogen was applied in May to bring total N comparisons to 98, 128, and 178 pounds per acre. Tonnage and Amino N increased as Nitrogen rates became higher. Recoverable sugar per ton, % sugar, and Clear juice purity declined as N rates increased. There was no significant difference in Recoverable White Sugar per Acre between treatments. Economic analysis base on 14 cents per pound (approximately ½ the current value of white sugar) and Nitrogen cost at 40 cents per pound. ***Most economical nitrogen rate was 98 pounds/acre.***

COST OF NITROGEN	GROSS REVENUE	NET REVENUE
(98#) x .40 = $39.20/acre	(98#) $.14 x 4680 - RWSA= $655.20	(98#) $655.20 gross/acre-$39.20 N Cost/acre=**$616.00 /acre**
(128#) x .40 = $51.20/acre	(128#)$.14 x 4717 - RWSA= $660.38	(128#) $660.38 gross/acre-$51.20 N Cost/acre=**$609.18 /acre**
(178#) x .40=$71.20/acre	(178#)$.14 x 4828 - RWSA= $675.92	(178#) $675.92 gross/acre-$71.20 N Cost/acre=**$604.72 /acre**

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): **David Bailey – Michigan Sugar Company**
Steve Wendzel - Crop Production Services

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Yoder Farms**
Location: Huron County – Bay Port
Planting Date: 4/11/2005
Previous Crop: Black Beans
Soil Type: Shebeon Loam
Row Spacing: 20" / 5.5" seed spacing
Fertilizer: 4 gals. Thiosul +20 gallon 28-0-0; Side dress – 25 gals, 28% + 5# Sol-u-bor
N – Credit 21 lbs. / Acre

Tillage: Fall: Chisel / Spring: Field Cultivate 1X
Harvest Date: 10/20/2005
Type of Harvester: Artsway 692
Herbicides: Micro-rates 4x
Replicated: 3x
# of Rows Harvested: 16
Fungicide: 7/28/05 – Eminent
8/23/05 - Headline

NITROGEN RATE	RWSA	TONS PER ACRE	AMINO	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST
Base Rate (60 lbs)	**4712**	**18.35**	**1.17**	**256**	**17.49**	**94.67**	**-**	**-**	**-**	**-**
Base + 50 (110 lb)	4701	19.09	1.38	246	16.86	94.67	-	-	-	-
Base + 150 (210 lbs)	**4563**	**19.67**	**2.49**	**231**	**16.23**	**93.62**	**-**	**-**	**-**	**-**
Base + 100 (160 lbs)	4502	19.22	2.17	234	16.33	93.92	-	-	-	-
AVERAGE	**4620**	**19.08**	**1.80**	**242**	**16.73**	**94.22**	**-**	**-**	**-**	**-**
L S D (5%)	**NS 629**	**NS 2.28**	**.33**	**9**	**.56**	**.44**	-	-	-	-
C.V. (%)	**7**	**6**	**9.09**	**2**	**1.68**	**.23**	**-**	**-**	**-**	**-**

Comments: Trial was conducted to look at the impact of different nitrogen rates on yield, quality, and economics in sugar beet production. Soil nitrate sample was pulled pre-plant and indicated a 21 lb/acre credit. Recommendation for a 22 ton beet crop was 67 lbs/acre. Base rate N was pre-plant applied 28% at approximately 60 lbs actual Nitrogen/acre. Additional Nitrogen was side dressed on 6/21/05 at 50, 100 and 150 pound increments. Higher Nitrogen rates than optimum 60 lbs/acre reduced RWST, % sugar, % CJP and increase Amino Nitrogen, which is an impurity. Only small tonnage improvements occurred with increasing Nitrogen rates**. BASE RATE (60 lbs N/acre) PROVIDED THE BEST RETURN AND PRODUCED THE HIGHEST QUALITY BEETS.**

COST OF NITROGEN	GROSS REVENUE	NET REVENUE
(60#) x $.40 = $24.00/acre	(60#) $.14 X 4712 RWSA=$659.68	(60#) $659.68 GROSS/ACRE-$24.00=$635.68
(110#) x $.40 = $44.00/acre	(110#) $.14 X 4701 RWSA=$658.14	(110#) $658.14 GROSS/ACRE-$44.00=$614.14
(160#) x $.40 = $64.00/acre	(160#) $.14 X 4502 RWSA=$630.28	(160#) $630.28 GROSS/ACRE-$64.00=$566.28
(210#) x $.40 = $84.00/acre	(210#) $.14 X 4563 RWSA=$638.82	(210#) $638.82 GROSS/ACRE-$84.00=$554.82

Trial Reliability: Good

Cooperating Agriculturist(s): Roger Elston – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NITROGEN RATE
Previous Crop Corn / Wheat
2000-2005

Low Rate 70 – 100 lbs./Acre							
Trial #	**Total N/Acre**	**RWSA**	**T/A**	**RWST**	**% Sugar**	**% CJP**	**Year/ Crop**
1	110	6652	22.76	292	20.10	93.90	2004
2	80	5194	17.55	296	20.00	94.80	2004
3	110	5923	20.70	286	20.01	94.30	2003
4	100	7370	26.71	276	19.24	93.40	2003
5	100	6787	24.39	278	19.40	93.40	2003
6	70	6375	24.21	263	17.97	95.20	2003
7	100	5376	21.70	248	17.20	93.90	2000
8	98	4680	18.48	254	17.37	94.51	2005
AVE	**96**	**6045**	**22.06**	**274**	**18.91**	**94.18**	

Moderate Rate 130 – 170 lbs./Acre							
Trial #	**Total N/Acre**	**RWSA**	**T/A**	**RWST**	**% Sugar**	**% CJP**	**Year/ Crop**
1	160	6456	22.64	285	19.80	93.40	2004
2	130	5108	16.96	301	20.60	94.20	2004
3	160	5951	20.71	287	19.63	94.40	2003
4	150	7290	26.44	276	19.46	92.90	2003
5	150	6859	24.17	284	19.73	93.50	2003
6	170	6625	25.00	265	17.54	94.70	2003
7	150	5467	22.90	240	16.9	93.30	2000
8	128	4717	19.63	240	16.63	94.23	2005
AVE	**150**	**6059**	**22.31**	**272**	**18.79**	**93.83**	

High Rate 175 – 220 lbs./Acre							
Trial #	**Total N/Acre**	**RWSA**	**T/A**	**RWST**	**% Sugar**	**% CJP**	**Year/ Crop**
1	210	6251	22.01	284	19.90	93.10	2004
2	180	5032	17.25	292	20.10	93.70	2004
3	210	5987	21.51	278	19.18	94.10	2003
4	175	6753	26.25	257	18.49	92.20	2003
5	175	6614	24.00	276	19.34	93.10	2003
6	220	7006	25.32	277	18.39	94.90	2003
7	200	5513	22.50	245	17.10	93.80	2000
8	178	4828	20.87	232	16.13	93.98	2005
AVE	**194**	**5998**	**22.46**	**268**	**18.58**	**93.61**	

8 Total Trials Average of Low/Moderate and High Rate Nitrogen 2000 - 2005					
Total N	**RWSA**	**T/A**	**RWST**	**% Sugar**	**% CJP**
96	6045	22.06	274	18.91	94.18
150	6059	22.31	272	18.79	93.83
194	5998	22.46	268	18.58	93.61

Notes: Look at the impact of quality as Nitrogen Rates increase.

Comments: This is the Sugarbeet Advancement Nitrogen Trials from 2000-2005 where the previous crops were Corn and Wheat. The Low-Mid-High Rates are separated by approximately 50 lbs. /acre increments of Nitrogen. For Example: Trial #1 Low Rate should be compared to Trial #1 in the Moderate and High Nitrogen Rates.

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

NITROGEN RATE
Previous Crop Soybeans / Dry Beans
1997-2005

Low Rate 50 – 90 lbs./Acre							
Trial #	Total N/Acre	RWSA	T/A	RWST	% Sugar	% CJP	Year/ Crop
9	50	7571	27.57	275	19.60	93.20	2002
10	90	7926	27.85	285	19.90	93.40	2002
11	90	4462	17.20	257	18.40	92.60	1997
12	75	2823	10.55	268	18.10	95.00	2004
13	80	9196	30.53	292	20.74	92.34	2004
14	60	6203	22.02	282	19.00	95.00	2004
15	60	6038	22.29	271	18.80	95.10	2003
16	70	3524	12.81	275	18.90	93.50	2003
17	90	5991	25.71	233	16.20	93.10	2001
18	60	4712	18.35	256	17.49	94.67	2005
AVE	**73**	**5845**	**21.49**	**269**	**18.71**	**93.79**	

Moderate Rate 100 – 135 lbs./Acre							
Trial #	Total N/Acre	RWSA	T/A	RWST	% Sugar	% CJP	Year/ Crop
9	100	7658	28.04	273	19.10	93.20	2002
10	135	7701	27.35	282	19.60	93.20	2002
11	120	4327	17.40	249	17.90	92.40	1997
12	125	3037	11.31	268	18.30	94.50	2004
13	110	8926	29.73	291	20.64	92.47	2004
14	110	6591	23.36	282	19.10	94.80	2004
15	110	6020	22.54	268	18.70	94.50	2003
16	120	3464	12.55	276	18.92	93.60	2003
17	120	5499	25.41	217	15.70	93.10	2001
18	110	4701	19.09	246	16.80	94.67	2005
AVE	**116**	**5792**	**21.67**	**265**	**18.48**	**93.64**	

High Rate 150 – 180 lbs./Acre							
Trial #	Total N/Acre	RWSA	T/A	RWST	% Sugar	% CJP	Year/ Crop
9	150	7485	28.05	267	18.90	92.40	2002
10	180	7353	27.42	269	18.80	92.60	2002
11	150	4381	17.50	250	17.80	92.60	1997
12	175	2985	11.51	259	17.90	94.00	2004
13	170	8764	29.56	288	20.49	92.26	2004
14	160	6602	23.93	276	18.70	94.70	2004
15	160	5840	22.57	258	18.10	94.20	2003
16	170	3284	12.67	259	18.28	92.80	2003
17	150	5754	26.95	214	15.15	92.60	2001
18	160	4502	19.22	234	16.33	93.92	2005
AVE	**163**	**5695**	**21.94**	**257**	**18.05**	**93.21**	

10 Total Trials Average of Low/Moderate and High Rate Nitrogen 1997 - 2005					
Total N	RWSA	T/A	RWST	% Sugar	% CJP
73	5845	21.49	269	18.71	93.79
116	5792	21.67	265	18.48	93.64
163	5695	21.94	257	18.05	93.21

Notes: : Look at the impact of quality as Nitrogen Rates increase.

Comments: This is the *Sugarbeet Advancement* Nitrogen trial data since 1997 where the previous crops were soy and dry beans. The Low-Mid and High Rates are separated by approximately 50 lbs. /acre increments of Nitrogen. For example: Trial #9 Low Rate should be compared to Trial #9 in the Moderate and High Rates.

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

Previous Crop – Corn/Wheat – 8 Total Trials
Average Nitrogen Rate – 2000-2005

Total N/Acre	RWSA	T/A	RWST	% Sugar	% CJP
96	6045	22.06	274	18.91	94.18
150	6059	22.31	272	18.79	93.83
194	5998	22.46	268	18.58	93.61

Previous Crop – Soy/Dry Bean – 10 Total Trials
Average Nitrogen Rate – 1997-2005

Total N/Acre	RWSA	T/A	RWST	% Sugar	% CJP
73	5845	21.49	269	18.71	93.79
116	5792	21.67	265	18.48	93.64
163	5695	21.94	257	18.05	93.21

Comments: Trials have been combined over multiple years. Increased Nitrogen Rates only slightly improved tonnage but reduced RWST, % Sugar and CJP. Most Economical Nitrogen Rate was 96 lbs. /acre for corn and 73 lbs. /acre for soybeans. **Suggested Nitrogen Rates range depends on previous crop for soybeans/dry beans 80 – 100 lbs. /acre and for a previous crop of corn/wheat 100 – 120 lbs. /acre for beets.**

Michigan Sugar Company
Nitrogen Trial using PSNT – 2005
Harbor Beach, MI

Cooperator:	**D & B Karg Farms**	**Tillage:**	Fall: Plowed / Spring: vertical tillage
Location:	Harbor Beach	**Harvest Date:**	11/8/2005
Planting Date:	4/11/05	**Type of Harvester:**	Artsway 692
Previous Crop:	Wheat	**Herbicides:**	Micro-rates 2x 8oz/A & 12 oz/A Betamix 1x 2.5 pt/A
Soil Type:	Kilmanagh loam	**Replicated:**	3x
Row Spacing:	28”	**# of Rows Harvested:**	12
Fertilizer:	Fall: 300 lbs 0-0-60 Spring: 250 lbs 7-33-9 + Micronutrients	**Fungicide:**	80 DSVs 7/20/05 – Headline 60 DSVs 8/15/05 – Eminent

Nitrogen program	RWSA	TONS PER ACRE	Amino N	RWST	% SUGAR	% CJP
PSNT recommendation **Sidedress N -70 lbs/A** **Total N - 88 lbs/A**	**8239**	**29.73**	**5.30**	**277**	**18.33**	**96.06**
General recommendation **Sidedress N -110 lbs/A** **Total N -128 lbs/A**	**8398**	**30.14**	**5.85**	**278**	**18.46**	**95.95**
AVERAGE	**8318**	**29.94**	**5.57**	**277**	**18.40**	**96.00**
L S D (5%)	**NS 769**	**NS 0.6**	**NS 4.84**	**NS 21**	**NS 1.63**	**NS 0.96**
C.V. (%)	**2.63**	**0.55**	**24.72**	**2.19**	**2.52**	**0.28**

Comments: Trial was conducted to compare a standard nitrogen recommendation to a PSNT (Pre Sidedress Nitrogen Test) recommendation. Sidedress nitrogen was applied as 28% UAN. Nitrogen rates are expressed as lbs of actual N per acre. Amino N is the amino nitrogen content of a sugarbeet. A lower Amino N number indicates a lower level of nitrogen impurities in the sugar beet.

Trial Reliability: Excellent

Cooperating Agriculturist(s): Lew Parks and Corey Guza - Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

STARTER FERTILIZER TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Bernia Family Farms**
Location: Tuscola County – Akron
Planting Date: 4/9/05
Previous Crop: Corn
Soil Type: Clay Loam
Row Spacing: 22 Inch
Fertilizer: **119 lbs. N/Acre All Treatments PPI**
Check - Broadcast = 40 gal. 28% - Pre
Mix - 2x2 22 gal. – 49-17-0-10 Sul./Acre
28% - 2x2 28% + Water – 22 gal. = 40 lbs. Total N/Acre
Soil Test – Ph 7.8 – P 143 lbs. – K 342 lbs. – CA 6188

Tillage: Fall: Plow / Spring: 1x Field Cult.
Harvest Date: 11/3/05
Type Harvester: Artsway 6812
Herbicides: 2 Modified Micro Rate
Replicated: 3x
 # Rows Harvested: 8
Fungicide: Amistar – 6 Leaf Stage – 3 oz. 10
Eminent – 55 DSV
Topsin + EDBC – 55 DSV
Eminent – 55 DSV

FERTILIZER RATE PLACEMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	40 DAY	HAR.	1200 Ft. RHIZ
Mix – 2x2 49-17-0-10 Sulfur	5645	23.08	245	16.87	94.33	-	-	168	-	-
28% - 2x2 40-0-0 *(40 lbs. N)*	5533	22.93	241	16.56	94.62	-	-	175	-	-
Check *(No 2x2 Fertilizer)*	5296	21.51	246	16.90	94.57	-	-	188	-	-
AVERAGE	**5492**	**22.51**	**244**	**16.78**	**94.51**	**-**	**-**	**177**	**-**	**-**
L S D (5%)	**258**	**.92**	**NS 5**	**.21**	**NS 1.33**	**-**	**-**	**7**	**-**	**-**
C.V. (%)	**2**	**1.81**	**1**	**.55**	**.62**	**-**	**-**	**3**	**-**	**-**

Comments: Trial was conducted to evaluate the effects of 2x2 Starter Fertilizers that contain Nitrogen alone from 28% (40 lbs. N/acre), 10-34-0 + ThioSol + 28% Mix (49-17-0-10 Sulfur lbs./acre) compared to a Check (0 nutrients/acre). There was a total of 119 lbs. Nitrogen Broadcast PPI on all Treatments. Application of 2x2 – 28% Nitrogen was mixed with water to give similar Nitrogen amounts when all treatments were applied at 22 gallons per acre. Data indicates significant improvement in RWSA and tonnage from either 2x2 application when compared to Check. Data also suggests that the major yield improvement is mainly coming from the additional Nitrogen in the Starter, not the additional Phosphorous and/or Sulpher. If using a 2x2 Starter, the general recommendation would be 30-40 pounds of Nitrogen in the band.

Trial Reliability: **EXCELLENT**

Cooperating Agriculturist(s): **Craig Rieman – Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

ALPINE 6-24-6 In Furrow

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Gerstenberger Farms**
Location: Sanilac County – Sandusky
Planting Date: 4/9/2005
Previous Crop: Soybeans
Variety: B-5451
Soil Type: Parkhill Loam
Row Spacing: 28" Rows / 3.75 Inch Seed Spacing
Fertilizer: 200# 15-29-9 + B & Zn 2x2 placement
30 gals. 28%
0-0-60 VRT
2 ½ gal. 6-24-6 + K Tonic In Furrow

Tillage: Fall: Chisel / Spring: 1x Field Cult.
Harvest Date: 10/26/05
Type of Harvester: Artsway 692
Herbicides: Microrates 5x

Replicated: 4x
 # Rows Harvested: 6
Fungicide: 7/12/05 – Gem
8/6/05 - Eminent

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
Starter	6808	27.71	245	16.98	94.16	-	-	-	-	-
No Starter	5777	24.14	239	16.52	94.26	-	-	-	-	-
AVERAGE	6293	25.92	242	16.75	94.21	-	-	-	-	-
L S D (5%)	NS 1564	NS 5.74	NS 13	NS .79	NS .35	-	-	-	-	-
C.V. (%)	14	12.79	3	2.74	.22	-	-	-	-	-

Comments: Trial was conducted to look at the impacts of Alpine 6-24-6 plus Ktonic applied in furrow at planting time. Fertilizer was applied at approximately 2 ½ gallons per acre which includes 2 quarts of Ktonic. Dry fertilizer was also applied at a 2x2 placement (see fertilizer above). Beet plants were stressed due to excessive rains and a high level of Rhizoctonia infection. Variation in harvest strips was high (C.V. 14%) indicating reliability of trial may be poor. Early season visual growth response was seen with the in-furrow fertilizer strips. Growth response was not apparent later in the season.

Trial Reliability: POOR

Cooperating Agriculturist(s): Paul Wheeler – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

Manganese Foliar

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Schindler Farms**	**Tillage:**	Fall: Chisel / Spring: 1x Danish Tine
Location:	Bay County - Kawkawlin	**Harvest Date:**	10/29/05 (Sampled 10/3/05)
Planting Date:	4/14/2005	**Type of Harvester:**	Artsway 692
Previous Crop:	Corn	**Herbicides:**	Pre: Nortron / Post: 1x Betamix
Soil Type:	Clay Loam	**Replicated:**	3x
Row Spacing:	22" Rows	**# Rows Harvested:**	8
Fertilizer:	20 gals = 19-17-0 + Mn Chelate 220# = 45-0-0 Mn Foliar Manganese Sulphate – 2 lbs. /Acre (Applied 6/24/05)	**Fungicide:**	7/19/05 – Eminent 8/11/05 - Headline

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
Mn Foliar	**4462**	**19.49**	**229**	**15.57**	**95.20**	-	-	-	-	-
Check	**4146**	**18.36**	**225**	**15.36**	**95.25**	-	-	-	-	-
AVERAGE	**4304**	**18.93**	**227**	**15.46**	**95.23**	-	-	-	-	-
L S D (5%)	**NS**	**NS**	**NS**	**NS**	**NS**	-	-	-	-	-
C.V. (%)	**7**	**6.26**	**1**	**.87**	**.04**	-	-	-	-	-

Comments: Trial was conducted to compare the effects of a foliar Manganese application compared to no application. Trial had visual symptoms similar to manganese/nitrogen deficiency in late June (slight yellowing of leaves including new growth). Foliar application of Manganese Sulphate was applied on 6/24/05. Slight visual difference noted between the check and foliar applied. Cooperator had applied Manganese Chelate in 2x2 Starter. Manganese Chelate is not known to be effective when soil applied. Trend for yield response was noted but not significant at the 95% confidence level.

Trial Reliability: **GOOD**

Cooperating Agriculturist(s): **Tom Schlatter – Michigan Sugar Company**
Jim Stewart – Research Agronomist; MI Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

Mn & Zn Coating Trial

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Bean and Beet Research Farm**	**Tillage:**	Fall: Chisel / Spring: 1x Field Cult.
Location:	Saginaw County	**Harvest Date:**	10/5/05
Planting Date:	4/6/2005	**Type of Harvester:**	-
Previous Crop:	Corn	**Herbicides:**	3x Micro Rate
Soil Type:	Silty Clay	**Replicated:**	4x
Row Spacing:	30 Inch	**# Rows Harvested:**	2
Variety:	C-963	**Fungicide:**	7/8/05 – Topsin + Tin
Fertilizer:	125 lbs. 46-0-0		8/3/05 – Headline
			8/22/05 - Pennecozeb

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 15 DAY	19 DAY	26 DAY	33 DAY	40 DAY
Teprosyn Mn & Zn / P	5055	18.65	271	18.63	94.10	8	49	87	118	170
Check	4855	17.78	273	18.72	94.19	24	70	106	160	182
Teprosyn Mn	4726	17.28	274	18.80	94.16	5	47	91	99	163
AVERAGE	4879	17.91	273	18.72	94.15	12	55	94	126	172
L S D (5%)	NS 689	NS 247	NS 5	NS .32	NS .36	11	48	52	14	18
C.V. (%)	8	7.98	1	.99	.22	51	50	32	6	6

Comments: Trial was conducted to look at the effect of nutritional seed treatments called Teprosyn Mn and Teprosyn Mn+Zn/P applied with the pellet coating. Small amounts of Zinc and/or Manganese on the seed coating has the potential to alleviate any early season deficiency from these nutrients. Studies conducted by Sugarbeet Advancement and ACH Seeds, Inc. indicate no significant difference in yield or quality with the seed treatments. There was an interaction with the treatments which slowed emergence. Both the Mn and the Mn+Zn/P treatments slowed emergence and reduced stands slightly when compared to the Check. Always use caution when applying anything in furrow or on the seed that may cause slowed emergence or stand reductions.

Trial Reliability: **FAIR**

Cooperating Agriculturist(s): **Paul Horny – Bean and Beet Research Farm Manager**
Dennis Fleishman – Bean and Beet Research Farm Assistant Manager

Helena Nutritional Seed Treatment Study

Sahr

Treatment	Stand	% Sugar	TPA	RST	RWSA
Check	173.0	17.2	21.0	321	6741
Teprosyn Mn	168.7	16.9	21.0	316	6636
Teprosyn Mn + Zn/P	166.0	16.9	20.2	315	6363
AVERAGE	**169.2**	**17.0**	**20.7**	**317**	**6580**

Roggenbuck

Treatment	Stand	% Sugar	TPA	RST	RWSA
Check	197.0	18.3	28.0	341	9548
Teprosyn Mn	176.0	17.9	27.3	331	9036
Teprosyn Mn + Zn/P	161.5	18.3	27.5	339	9323
AVERAGE	**178.2**	**18.2**	**27.6**	**337**	**9302**

Combined

Treatment	Stand	% Sugar	TPA	RST	RWSA
Check	185.0	17.8	24.5	331	8145
Teprosyn Mn	172.4	17.4	24.2	324	7836
Teprosyn Mn + Zn/P	163.8	17.6	23.9	327	7843
AVERAGE	**173.7**	**17.6**	**24.2**	**327**	**7941**

Trials conducted by ACH Seeds – Andy Bernia

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

CROP ROTATION TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Burk Farms**
Location: Bay County – Bay City
Planting Date: 4/5/05
Previous Crop: Corn / Soybeans
Variety: B-5451
Row Spacing: 30" Rows 3 ¾ Inch Spacing
Fertilizer: 150# 0-0-60
15 gal. 16-22-0
¼% Boron – 2% Mn
30 gal. 28% Sidedress

Tillage: Fall: Chisel / Spring: 1x Field Cult.
Harvest Date: 11/1/05
Type of Harvester: Amity
Herbicides: Micro Rate 5x
Replicated: 4x
 # Rows Harvested: 4
Fungicide: 8/4/05 – Eminent
8/28/05 – Headline
Amistar – 10-Inch Band

PREVIOUS CROP	RWSA	T/A	AMINO N	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HAR.
Corn	6372	26.29	2.1	242	17.08	93.21	-	-	-	-
Soybeans	6303	27.90	2.9	226	16.21	92.62	-	-	-	-
AVERAGE	6338	27.09	2.5	234	16.64	92.91	-	-	-	-
L S D (5%)	NS 773	NS 2.59	.2	8	.56	.47	-	-	-	-
C.V. (%)	5	4.24	4	2	1.49	.22	-	-	-	-

Comments: Trial was conducted to look at the effects of previous crop on yield and quality of sugar beets. Alternating strips of corn and soybeans were the previous crops. High residue corn previous crop did produce a higher quality beet than soybeans. However, corn residue did tend to suppress tonnage. Amino nitrogen in soybean previous crop was higher when compared to corn. This is an indication that extra nitrogen may be a factor in reducing quality and improving yield. RWSA was almost identical when comparing both previous crops. General Nitrogen recommendations would be ranged from 80 to 120 lbs. of Nitrogen per acre. Current suggested rate would be 80 to 100 lbs. N/acre when soybeans/dry beans are previous crop and 100 to 120 lbs. if corn-wheat is the previous crop.

Trial Reliability: **VERY GOOD**

Cooperating Agriculturist(s): **Tom Schlatter – Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

Tarnish Plant Bug Trial

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Weburg Farms**	**Tillage:**	Fall: Chisel / Field Cultivate / Stale Seed Bed Planted
Location:	Gratiot County – Ithaca	**Harvest Date:**	10/28/05
Planting Date:	4/18/05	**Type of Harvester:**	Artsway
Variety:	C-963	**Herbicides:**	2x Split Rate
Soil Type:	Parkhill Loam	**Replicated:**	3x
Row Spacing:	30 Inch	**# Rows Harvested:**	6
Fertilizer:	10 gal. 10-34-0 100 lbs. N from 28% VRT = Potash	**Fungicide:**	8/10/05 – Headline + Mustang Max

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
Check	**3539**	**14.79**	**239**	**16.66**	**93.89**	**-**	**-**	**-**	**-**	**-**
Sprayed	**3432**	**14.95**	**229**	**15.96**	**94.08**	**-**	**-**	**-**	**-**	**-**
AVERAGE	**3486**	**14.87**	**234**	**16.31**	**93.99**	**-**	**-**	**-**	**-**	**-**
L S D (5%)	**NS 569**	**NS .67**	**NS 28**	**NS 1.74**	**NS .64**	-	-	-	-	-
C.V. (%)	**5**	**1.29**	**3**	**3.04**	**.19**	**-**	**-**	**-**	**-**	**-**

Comments: Trial was conducted to evaluate the effect of an insecticide treatment (Mustang Max) on sugar beets with a heavy infestation of Tarnish Plant Bug. Almost every plant had symptoms of the feeding (leaf tips browning). Mustang was applied with Headline Fungicide in strips, compared to Headline applications alone. Harvest population in field was low (thin stand). No significant yield or visual differences were seen between the sprayed and unsprayed strips. It is suspected that timing of insecticide treatment was late; symptoms/damage was already done. Economic control of Tarnish Plant Bug has been difficult to document because of the sporadic nature of the pest.

Trial Reliability: GOOD

Cooperating Agriculturist(s): Wayne Davis – Michigan Sugar Company
Steve Wendzel – Crop Production Services

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

POPULATION / TOPPING TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Schuette Farms**	**Tillage:**	Fall: Plow / Spring: 1x Field Cultivate
Location:	Huron County – Elkton	**Harvest Date:**	11/11/05
Planting Date:	4/1/05	**Type of Harvester:**	Artsway 6812
Variety:	B-5310	**Herbicides:**	2x Betamix Upbeet Stinger
Soil Type:	Sandy Loam	**Replicated:**	3x
Row Spacing:	30 Inch	**# of Rows Harvested:**	6
Fertilizer:	20 gal. 28% N 240# Starter	**Fungicide:**	Field

Planted Seed Spacing Inches - Topping Speed	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
3.75 Fast	**8566**	**28.92**	**296**	**19.08**	**97.20**	**-**	**-**	**-**	**-**	**-**
3.75 Slow	8170	27.90	292	18.90	97.07	-	-	-	-	-
6.0 Slow	**8152**	**28.81**	**283**	**18.58**	**96.36**	**-**	**-**	**-**	**-**	**-**
4.5 Slow	8133	28.67	284	18.53	96.57	-	-	-	-	-
4.5 Fast	**8124**	**29.01**	**274**	**17.89**	**96.88**	**-**	**-**	**-**	**-**	**-**
5.25 Slow	8072	28.21	286	18.70	96.62	-	-	-	-	-
6.0 Fast	**7995**	**28.63**	**279**	**18.39**	**96.23**	**-**	**-**	**-**	**-**	**-**
5.25 Fast	7676	27.70	278	18.26	96.34	-	-	-	-	-
AVERAGE	**8111**	**28.48**	**284**	**18.54**	**96.66**	**-**	**-**	**-**	**-**	**-**
L S D (5%)	**805**	**NS 1.92**	**NS 20**	**.99**	**NS 1.05**	**-**	**-**	**-**	**-**	**-**
C.V. (%)	**6**	**3.85**	**4**	**3.04**	**.62**	**-**	**-**	**-**	**-**	**-**

Comments: Trial was conducted to look at the effect of topping speed and plant population on quality and yield of sugar beets. Four populations of beets were planted in twelve row strips. Six rows were topped at three mph and six rows at five mph each replicated three times. Final plant populations were taken at peak emergence and are as follows:

SEED SPACING	PLANTS PER 100 FT.	PLANTS PER ACRE
3 ¾	200	35,000
4 ½	174	30,000
5 ¼	149	27,000
6	138	24,000

Visual differences were seen on the effectiveness of topping as related to population and harvest speed. High population beets (3.75 inch spacing) at five mph were the poorest topped beets. Slowing the topper to three mph was better but not as good as beets spaced 4.5 inches and wider. Best topped beets were the wider spaced beets (4.5 + Inches) at three mph. General observations indicate three mph topping speeds provided better topping and quality than five mph. Lower population beets top better than high populations. High population beets generally trended to give the highest % sugar, CJP and RWST.

Trial Reliability: VERY GOOD

Cooperating Agriculturist(s): Roger Elston – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

POPULATION TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Schuette Farms**	**Tillage:**	Fall: Plow / Spring: 1x Field Cultivate
Location:	Huron County – Elkton	**Harvest Date:**	11/11/05
Planting Date:	4/1/05	**Type of Harvester:**	Artsway 6812
Variety:	B-5310	**Herbicides:**	2x Betamix Upbeet Stinger
Soil Type:	Sandy Loam	**Replicated:**	3x
Row Spacing:	30 Inch	**# of Rows Harvested:**	6
Fertilizer:	20 gal. 28% N 240# Starter 9-31-8	**Fungicide:**	1st Application – Eminent 2nd Application - GEM

Planted Seed Spacing Inches	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
3.75	**8368**	**28.41**	**295**	**18.99**	**97.14**	-	-	-	-	-
4.5	**8129**	**28.84**	**279**	**18.21**	**96.73**	-	-	-	-	-
6.0	**8074**	**28.72**	**281**	**18.49**	**96.30**	-	-	-	-	-
5.25	**7874**	**27.95**	**282**	**18.48**	**96.48**	-	-	-	-	-
AVERAGE	**8111**	**28.48**	**284**	**18.54**	**96.66**	-	-	-	-	-
L S D (5%)	**NS 667**	**NS 1.26**	**NS 23**	**NS 1.06**	**NS 1.07**	-	-	-	-	-
C.V. (%)	**4**	**2.2**	**4**	**2.87**	**0.55**	-	-	-	-	-

Comments: Trial combined treatment (fast and slow topping) with the below populations (see chart below). Final population was taken approximately 40 days after planting. Trial indicates excellent yield can be achieved with populations ranging from 24,000 – 35,000 plants/acre. Populations up to 35,000 plants per acre show no detrimental effect on yield. At the highest population a trend for better RWST, % Sugar and CJP does occur. This trend occurs even though the highest beet population had the poorest topping and the lowest population beets had the best topping.

SEED SPACING	PLANTS PER 100 FT.	PLANTS PER ACRE
3 ¾	200	35,000
4 ½	174	30,000
5 ¼	149	27,000
6	138	24,000

Trial Reliability: **EXCELLENT**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

POPULATION / TOPPING TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	**Bill Meylan**	**Tillage:**	Fall: Chisel / Spring: 1x Danish Tine
Location:	Bay County - Auburn	**Harvest Date:**	10/18/2005
Planting Date:	4/11/2005	**Type of Harvester:**	-
Variety:	B-5451	**Herbicides:**	1.5# Pyramin; 1 pt. Nortron; 12 oz. Betamix
Soil Type:	Loam	**Replicated:**	3 x
Row Spacing:	30 Inch	**# of Rows Harvested:**	-
Fertilizer:	Starter 17gal. 19-17-0; 30 gal. 28%	**Fungicide:**	7/20/05 – Eminent 8/17/05 – Headline Amistar @ 4-8 Leaf

Planted Seed Spacing Inches - Topping Speed	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
4.5 Slow	**6737**	**25.38**	**266**	**18.39**	**93.81**	**-**	**-**	**-**	**-**	**-**
3.75 Fast	6596	25.45	259	18.09	93.53	-	-	-	-	-
4.5 Fast	**6411**	**25.48**	**252**	**17.77**	**93.05**	**-**	**-**	**-**	**-**	**-**
5.25 Fast	6326	25.20	252	17.70	93.21	-	-	-	-	-
3.75 Slow	**6322**	**24.78**	**255**	**17.80**	**93.56**	**-**	**-**	**-**	**-**	**-**
5.25 Slow	6299	25.09	251	17.72	93.14	-	-	-	-	-
6.0 Slow	**6157**	**24.63**	**250**	**17.62**	**93.16**	**-**	**-**	**-**	**-**	**-**
6.0 Fast	5891	23.71	248	17.57	93.02	-	-	-	-	-
AVERAGE	**6342**	**24.97**	**254**	**17.78**	**93.30**	**-**	**-**	**-**	**-**	**-**
L S D (5%)	**387**	**1.54**	**13**	**NS .68**	**.72**	**-**	**-**	**-**	**-**	**-**
C.V. (%)	**3**	**3.5**	**3**	**2.17**	**.44**	**-**	**-**	**-**	**-**	**-**

Comments: Trial was conducted to look at the effect of topping speed and plant population on quality and yield of sugar beets. Four populations of beets were planted in twelve row strips. Six rows were topped at three mph and six rows at five mph each replicated three times. Final plant populations were taken at peek emergence and are as follows:

SEED SPACING	PLANTS PER 100 FT.	PLANTS PER ACRE
3 ¾	242	42,000
4 ½	197	35,000
5 ¼	177	31,000
6	154	27,000

Visual differences were seen on the effectiveness of topping as related to population and harvest speed. High population beets (3.75 inch spacing) at five mph were the poorest topped beets. Slowing the topper to three mph was better but not as good as beets spaced 4.5 inches and wider. Best topped beets were the wider spaced beets (5 ¼ + inches) at three mph. General observations indicate three mph topping speeds provided better topping and quality than five mph. Lower population beets top better than high populations. High population beets tended to give the highest % sugar, CJP and RWST.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Tom Schlatter – Michigan Sugar Company

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

POPULATION TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Meylan Farms**
Location: Bay County - Auburn
Planting Date: 2005
Row Spacing: 30 Inch

Planted Seed Spacing Inches	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
4.5	6574	25.43	259	18.08	93.43	-	-	-	-	-
3.75	6459	25.11	257	17.94	93.54	-	-	-	-	-
5.25	6313	25.14	252	17.71	93.17	-	-	-	-	-
6.0	6024	24.17	249	17.59	93.09	-	-	-	-	-
AVERAGE	6343	24.92	254	17.83	93.31	-	-	-	-	-
L S D (5%)	197	NS 1.63	NS 12	NS .60	NS .7	-	-	-	-	-
C.V. (%)	2	3	2	2	.4	-	-	-	-	-

Comments: Trial combined treatments (fast and slow topping) with the below populations (see chart below). Final population was taken at approximately 40 days after planting. Trial indicates excellent tonnage can be achieved with populations ranging from 27,000 – 42,000 plants/acre. Populations up to 42,000 plants per acre show little or no detrimental effect on yield. As population increased a trend for better RWST, % sugar and CJP does occur. This trend occurs even though the highest population beets had the poorest topping and the lowest population beets had the best topping. Trial would suggest optimum population of 197 beets per 100 ft. of row or 35,000 plants per acre.

SEED SPACING	PLANTS PER 100 FT.	PLANTS PER ACRE
3 ¾	242	42,000
4 ½	197	35,000
5 ¼	177	31,000
6	154	27,000

Trial Reliability: **EXCELLENT**

Cooperating Agriculturist(s): **Tom Schlatter - Michigan Sugar Company**

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

POPULATION / TOPPING TRIAL COMBINED AVERAGE

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Schuette Farms / Meylan Farms**
Location: Huron and Bay Counties
Planting Date: 2005

Planted Seed Spacing Inches – Topping Speed	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
3.75 Fast	**7581**	**27.19**	**278**	**18.59**	**95.37**	**-**	**-**	**-**	**-**	**-**
4.5 Slow	7435	27.02	275	18.46	95.19	-	-	-	-	-
4.5 Fast	**7267**	**27.25**	**263**	**17.83**	**94.96**	**-**	**-**	**-**	**-**	**-**
3.75 Slow	7246	26.34	274	18.35	95.32	-	-	-	-	-
5.25 Slow	**7186**	**26.65**	**269**	**18.21**	**94.88**	**-**	**-**	**-**	**-**	**-**
6.0 Slow	7154	26.72	266	18.10	94.76	-	-	-	-	-
5.25 Fast	**7001**	**26.45**	**265**	**17.98**	**94.78**	**-**	**-**	**-**	**-**	**-**
6.0 Fast	6943	26.17	264	17.98	94.63	-	-	-	-	-
AVERAGE	**7227**	**26.72**	**269**	**18.19**	**94.98**	**-**	**-**	**-**	**-**	**-**
L S D (5%)	**417**	**NS 1.14**	**11**	**.56**	**NS .58**	**-**	**-**	**-**	**-**	**-**
C.V. (%)	**5**	**3.66**	**4**	**2.64**	**.52**	**-**	**-**	**-**	**-**	**-**

Comments: Trial was conducted to look at the effect of topping speed and plant population on quality and yield of sugar beets. Four populations of beets were planted in twelve row strips. Six rows were topped at three mph and six rows at five mph each replicated three times. Final plant populations were taken at peek emergence and are as follows:

SEED SPACING	PLANTS PER 100 FT.	PLANTS PER ACRE
3 ¾	221	38,500
4 ½	186	32,500
5 ¼	163	29,000
6	146	25,500

Visual differences were seen on the effectiveness of topping as related to population and harvest speed. High population beets (3.75 inch spacing) at five mph were the poorest topped beets. Slowing the topper to three mph was better but not as good as seeds spaced 4.5 inches and wider. Best topped beets were the wider spaced beets at three mph. General observations indicate three mph topping speeds provided better topping and quality than five mph. Lower population beets top better than high populations, particularly as plant populations increased. Average population of 186 plants per 100 ft. of row (32,500 plants/acre) at 3 mph topping gave the best compromise of yield and quality.

Trial Reliability: VERY GOOD

Sugarbeet Advancement

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

POPULATION / TOPPING TRIAL COMBINED AVERAGE

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: **Schuette Farms / Meylan Farms**
Location: Huron and Bay Counties
Planting Date: 2005
Row Spacing: 30 Inch

Planted Seed Spacing Inches	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 16 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
3.75	7414	26.76	276	18.47	95.34	-	-	-	-	-
4.5	7352	27.12	269	18.15	95.08	-	-	-	-	-
5.25	7094	26.55	267	18.09	94.83	-	-	-	-	-
6.0	7049	26.45	265	18.04	94.69	-	-	-	-	-
AVERAGE	7227	26.72	269	18.19	94.99	-	-	-	-	-
L S D (5%)	319	NS .91	11	NS .55	.51	-	-	-	-	-
C.V. (%)	4	2.75	3	2.44	NS .44	-	-	-	-	-

Comments: Data combined from both trials suggest that optimum seed spacing would be 4.5 inches with a peak stand between 175 and 200 beets per 100 foot of row. This is between 30 and 35,000 plants per acre. Higher populations over 200 beets per 100 foot do not seem to be detrimental in RWSA but can be difficult to remove tops and may have storage implications.

SEED SPACING	PLANTS PER 100 FT.	PLANTS PER ACRE
3 ¾	221	38,500
4 ½	186	32,500
5 ¼	163	29,000
6	146	25,500

Trial Reliability: **EXCELLENT**

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

SIMPLE EFFECTS OF TOPPING SPEED / POPULATION

ON-FARM RESEARCH AND DEMONSTRATION

Fast Topping Speed = 5 MPH
Slow Topping Seed = 3 MPH

Topping Speed / Population	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARV.	1200 Ft. RHIZ
3.75 Fast	7581	27.19	278	18.59	95.37	-	-	-	-	-
3.75 Slow	7246	26.34	274	18.35	95.32	-	-	-	-	-
Difference	**335**	**.85**	**4**	**.24**	**.05**	**-**	**-**	**-**	**-**	**-**
4.5 Fast	7267	27.25	263	17.83	94.96	-	-	-	-	-
4.5 Slow	7435	27.02	275	18.46	95.19	-	-	-	-	-
Difference	**-168**	**.23**	**-12**	**-.63**	**-.23**	**-**	**-**	**-**	**-**	**-**
5.25 Fast	7001	26.45	265	17.98	94.78	-	-	-	-	-
5.25 Slow	7186	26.65	269	18.21	94.88	-	-	-	-	-
Difference	**-185**	**-.2**	**-4**	**-.23**	**-.10**	**-**	**-**	**-**	**-**	**-**
6.0 Fast	6943	26.17	264	17.98	94.63	-	-	-	-	-
6.0 Slow	7154	26.72	266	18.10	94.76	-	-	-	-	-
Difference	**-211**	**-.55**	**-2**	**-.12**	**-.13**	**-**	**-**	**-**	**-**	**-**
AVERAGE FAST	**7198**	**26.77**	**268**	**18.1**	**94.94**	**-**	**-**	**-**	**-**	**-**
AVERAGE SLOW	**7255**	**26.68**	**271**	**18.3**	**95.04**	**-**	**-**	**-**	**-**	**-**
DIFFERENCE	**-57**	**.09**	**-3**	**-.2**	**-.1**	**-**	**-**	**-**	**-**	**-**

Comments: Sugar beets planted at 3 ¾ inch spacing generally topped poorly at both fast (5 MPH) and slow (3 MPH) speeds. However fast topping was worse for all populations. Impact of increased speed producing poorer topping was less evident as beet populations became thinner. Beets planted at 4 ½, 5 ¼, and 6 inch spacing topped at 5 MPH produced a lower quality beet in RWST, % Sugar and CJP when compared to 3 MPH. High population beets planted at 3 ¾ inch spacing had the highest RWST, % sugar and CJP. This occurred even though poorest topping occurred at this spacing. Previous research (Dr. Tim Harrigan, MSU) indicates smaller beets are of a higher quality than larger beets. POORLY TOPPED BEETS DO NOT STORE WELL. This concern must be weighed against benefits of very high populations. Speeds definitely should be slowed when populations are very high. **GENERAL RECOMMENDATIONS ARE THAT TOPPING SPEEDS SHOULD NEVER EXCEED 4 MPH AND OPTIMUM PLANT STAND SHOULD BE BETWEEN 175-200 BEETS PER 100 FOOT OF ROW FOR 30 INCH ROWS.**