January 2008

On Farm Research

AND DEMONSTRATION

Partnership of:

Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

Sugarbeet Advancement

Saginaw County MSU Extension
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Saginaw MI 48607-1287

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Sugarbeet Advancement

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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 agri-business.

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

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PREFACE

The Sugarbeet Advancement Committee is pleased to present you with the 11th edition of the "Sugar Beet Research and Demonstration Report." The 24 member Advancement Committee identifies current constraints to sugar beet yields, new products and other researchable issues that may affect sugar beet profitability. This year 32 trials were established throughout the growing area, of which only 4 were abandoned due to stand establishment or weather adversities. Michigan is unique in its efforts in conducting field scale strip trial research. A recent 10 year evaluation conducted by Michigan State University indicates that 71% of growers rely heavily on Sugarbeet Advancement research information.

In 2007 Michigan Sugar Company growers produced 3.7 million tons of beets. A record yield of 23.6 tons per acre and 18.1% sugar was achieved in spite of mid-summer drought and early harvest of September 20th. The average yield of the Sugarbeet Advancement variety trials was 28.39 tons and 19.2% sugar from 12 varieties in 7 locations. This year some varieties topped 40 ton/acre on one trial. We have come a long way from the 15 ton average yields that occurred a decade ago. Improvements in varieties, management, and changes in production practices have made a difference. Sugarbeet Advancement has played a significant role in the changes that have occurred.

As you study this year's SBA research book, pay particular attention to the comments section on each page. These trials are not conducted in a small plot ideal environment. They are conducted in your fields and encounter all the issues you do when producing beets. This can increase the variability due to uneven soil type, disease issues, nematodes, emergence, or other constraints. Pay attention to the statistical analysis as it is extremely important in understanding if the differences are real or just trial variability. If variability is extremely high we will abandon those trials rather than produce unreliable data.

As we look into the future of the Sugarbeet Advancement program, we have set our yield goals to higher levels. Many improvements in yields have occurred by minimizing production constraints; however, major researchable issues still lay ahead. With the introduction of Round-Up ready varieties, we may be able to re-think the need for traditional tillage methods. Positive gains are being made with varieties including Round-Up Ready, nematode resistance, and other improved disease traits. Barring natural disaster, this industry should be able to achieve a 25 ton average in the next 2-3 years.

Sugarbeet Advancement will continue to be a catalyst for change in its research and educational efforts.

Sincerely,

Alan Sherwood
Sugarbeet Advancement Chair

Steve Poindexter
Sugarbeet Extension Educator

Sugarbeet Advancement

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ACH Seeds – Andy Bernia
Hilleshog Seeds– Doug Ruppal
GTG – Randy Hemb
Tri County Equipment
Sugarbeet Advancement Committee
Tom Wenzel – Sugarbeet Advancement
B & B Research Farm – Paul Horny & Dennis Fleishman

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Chairman – Alan Sherwood
Vice Chairman – Mark Lumley
Treasurer – Kevin Hecht
Secretary – Corey Guza
Fifth Member – Paul Pfenninger

SUGARBEET ADVANCEMENT COMMITTEE
2007 VOTING MEMBERSHIP

24 Voting Members

Company	Name	Terms
Michigan Sugar Company	Paul Pfenninger (5th Member)	4
	Corey Guza (Secretary)	2
	Jim Stewart	1
	Dave Ganton	3
	Ralph Fogg	4
	Dave Bailey	2
	Lee Hubbell	1
	Mike Leen	3
Michigan Sugar Company District Growers	Mike Richmond	1
	Mark Lumley (Vice Chairman)	1
	Dave Helmreich	1
Michigan Sugar Company At Large Growers	Alan Sherwood (Chairman)	3
	Scott Roggenbuck	2
	Kurt Ewald	1
	Clay Crumbaugh	3
	Kevin Hecht (Treasurer)	1
Michigan State University	Mark Seamon	1
	Ron Gehl	2
	Christy Sprague	3
Sugar Beet Seed Company	Andy Bernia	1
Agri-Business	Dennis Bischer	2
	Randy Hemb	1
Michigan Sugar Beet Growers Co-Op Board	Rick Gerstenberger	1
	Charlie Bauer	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	Gene Meylan
CEO of Michigan Sugar Company	Mark Flegenheimer

TERMINOLOGY

The data in the 2007 *Sugarbeet Advancement* Research and Demonstration Book can be a valuable tool for making production decisions on your farm. Producers must understand the terminology to draw correct conclusions. Most of the research demonstration trials are replicated three or four times, either in a randomized format or complete randomized block. These trials have a statistical analysis run on them. Trials, which were not randomized and/or replicated, are considered as demonstrations with no statistical analysis run. The following comments should be helpful in your understanding of the results.

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

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

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

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

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

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

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

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

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

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

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

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

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

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2007 VARIETY TRIAL AVERAGES

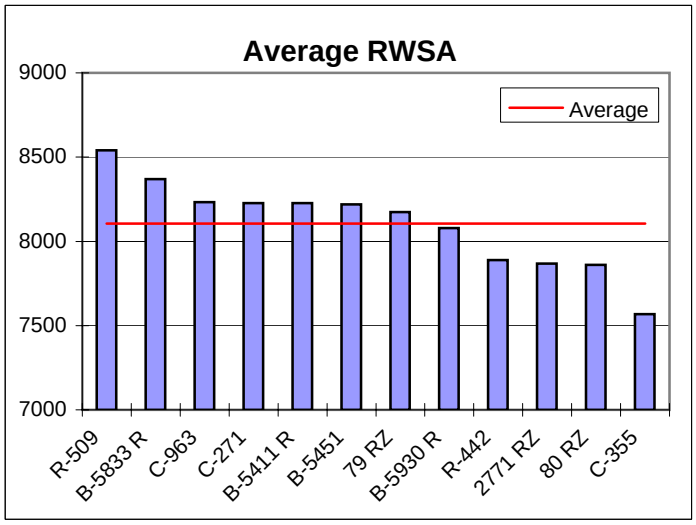
Cooperator: **Average of 7 Variety Trials**
Location: **Ontario, Ruth, Sandusky, St. Louis, Bay City, Pigeon, Akron**

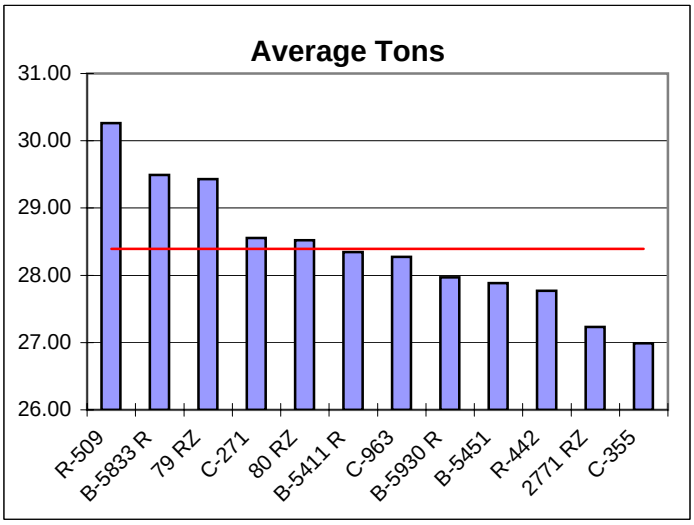
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW EARLY	MID	FINAL	HARVEST	1200 Ft. RHIZ
R-509	**8541**	**30.26**	**281**	**19.1**	**94.7**	*	**233**	**244**	**225**	**6**
B-5833 R	8370	29.49	283	19.0	95.1	*	231	241	218	32
C-963	**8233**	**28.27**	**290**	**19.6**	**94.8**	*	**194**	**207**	**181**	**56**
C-271	8228	28.55	287	19.4	94.9	*	202	209	174	50
B-5411 R	**8226**	**28.35**	**290**	**19.6**	**94.6**	*	**177**	**185**	**162**	**62**
B-5451	8218	27.88	293	19.6	95.1	*	186	199	172	72
79 RZ	**8175**	**29.43**	**275**	**18.7**	**94.7**	*	**209**	**225**	**204**	**16**
B-5930 R	8078	27.97	288	19.5	94.6	*	196	201	181	33
R-442	**7889**	**27.77**	**283**	**19.2**	**94.5**	*	**174**	**181**	**163**	**25**
2771 RZ	7868	27.23	287	19.2	95.3	*	216	226	201	37
80 RZ	**7862**	**28.52**	**274**	**18.5**	**94.9**	*	**194**	**211**	**184**	**67**
C-355	7568	26.99	279	19.0	94.6	*	171	178	162	11
AVERAGE	**8105**	**28.39**	**284**	**19.2**	**94.8**		**199**	**209**	**186**	**39**
LSD (5%)	**561**	**1.65**	**8**	**0.4**	**0.4**		**13**	**18**	**17**	**50**
C.V. (%)	**6**	**5.44**	**3**	**2.2**	**0.4**		**6**	**8**	**9**	**121**

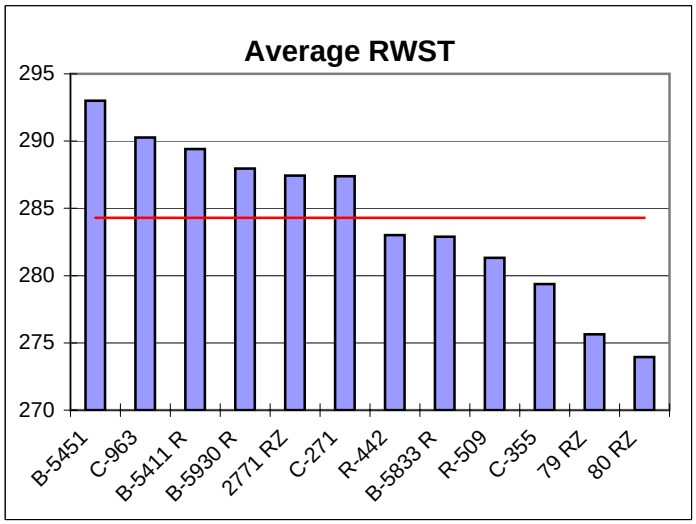
Comments: * See individual trials for early emergence data.

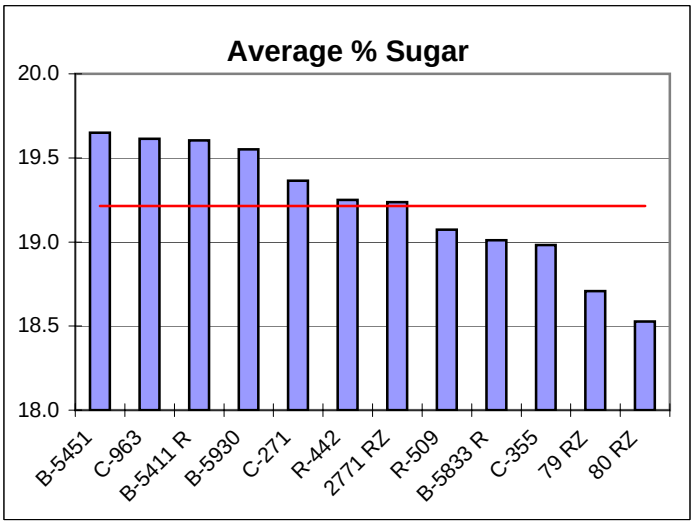
Trial Reliability: VERY GOOD

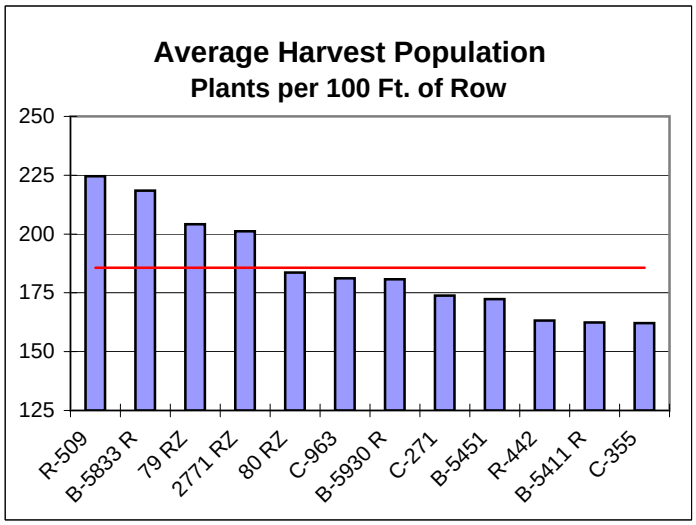
2007 VARIETY TRIAL AVERAGES
AVERAGE OF 7 TRIALS

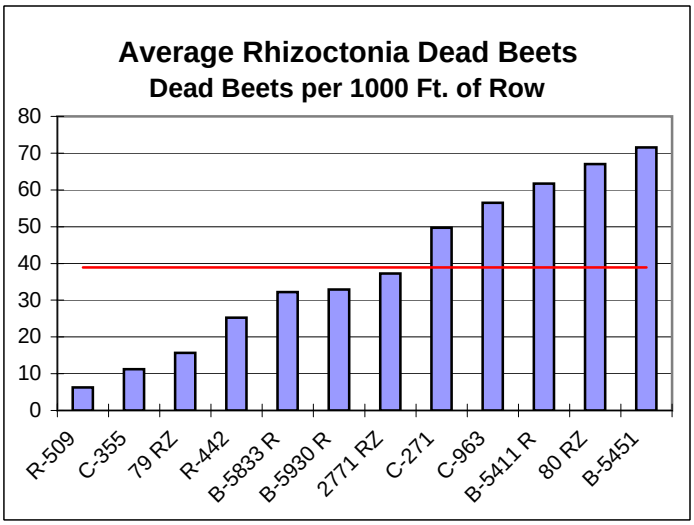












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2007 VARIETY TRIAL EMERGENCE AND RHIZOCTONIA RESULTS

Variety	% Emergence				Suggested Seed Spacing / Inch*
	2004	2005	2006	2007	
R-509	--	--	--	81	4.5
B-5833 R	--	59	66	80	4.5
79 RZ	--	--	--	75	4.5
2771 RZ	--	63	74	75	4.5
80 RZ	--	--	--	70	4.25
C-271	68	60	69	70	4.25
C-963	66	54	69	69	4.25
B-5930 R	--	--	--	67	4.25
B-5451	72	59	63	66	4.25
B-5411 R	--	--	63	62	4.0
R-442	72	58	63	60	4.0
C-355	--	--	66	59	4.0
7172 RZ	64	53	63	--	4.0

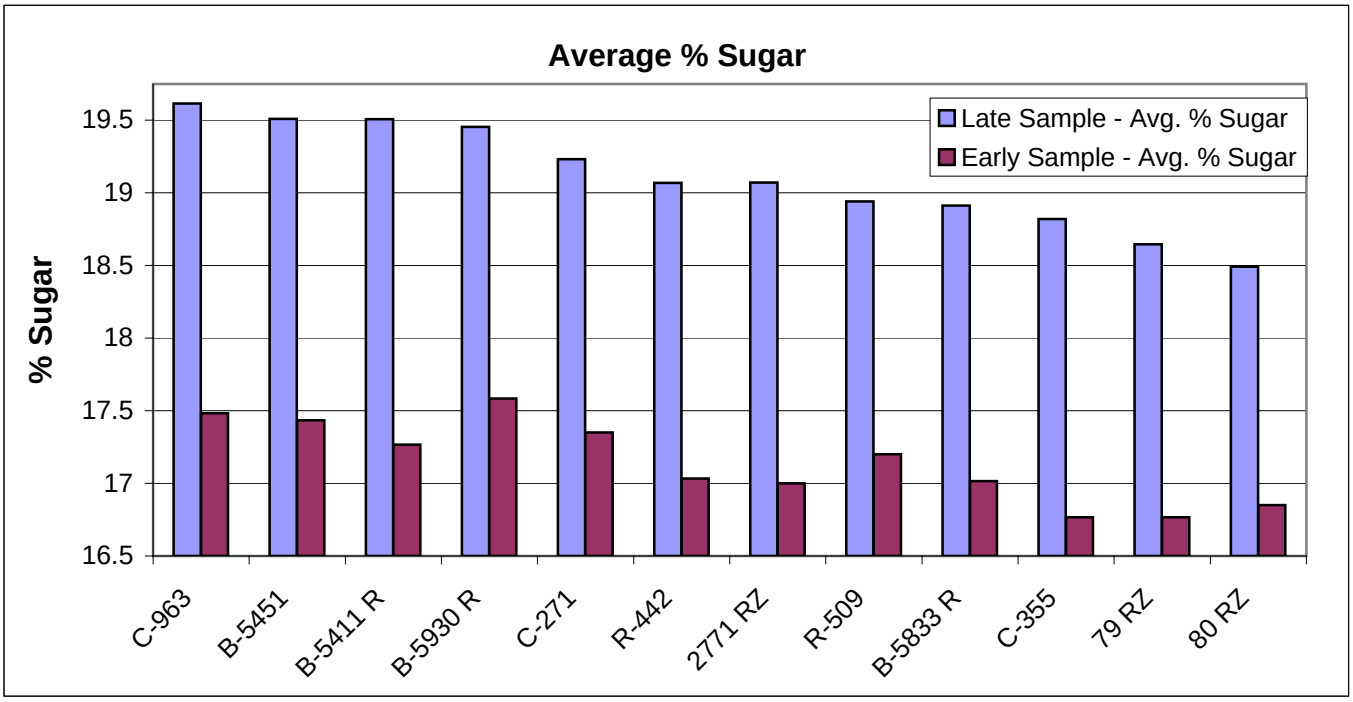
* Based on Average Emergence Conditions

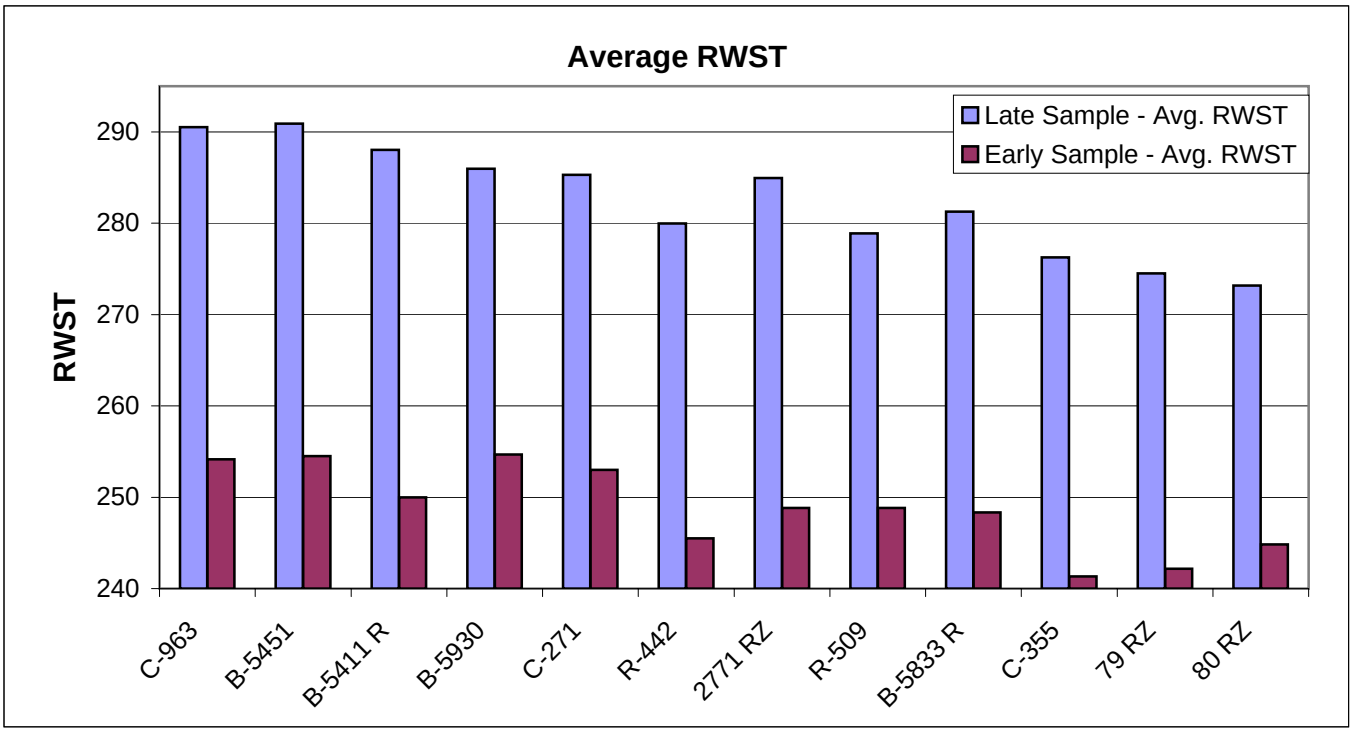
Variety	Rhizoctonia Dead Beets / 1200 Ft. *		
	2005	2006	2007**
7172 RZ	16*	4*	--
R-509	--	--	42*
C-355	--	18*	58*
79 RZ	--	--	90*
R-422	--	43*	137*
B-5833 R	50*	39*	181*
B-5930 R	--	--	184
2771 RZ	116	58	205
C-271	83	77	279
C-963	80	63	307
80 RZ	--	--	355
B-5411 R	--	34*	392
B-5451	76	58	413

* Average of 2005-2007 Variety Trials – Not Significantly Different from Best Variety

** 2007 Data is from Crumbaugh Variety Trial

% SUGAR & RWST OF 6 TRIALS
2007 VARIETY TRIALS
LATE SUGAR SAMPLE COMPARED TO EARLY SUGAR SAMPLE





Note: Early samples taken between September 17 & 20. Late samples taken between October 10 & November 4.

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VARIETY TRIAL

Cooperator: **Mowry Farms Inc.**
Location: Tuscola County
Planting Date: March 30, 2007
Previous Crop: Corn
Soil Type: Clay Loam
Row Spacing: 30 in. – 4 1/16" Seed Spacing
Fertilizer: 2x2 Starter with 40-20-0 + Micros
25 gal. 28% Sidedress

Tillage: Mold Board Plow - Field Cult. 1x
Harvest Date: November 6, 2007
Sample Date: October 9, 2007
Herbicides: 3x Split Application
Replicated: 3x
 # Rows Harvested: 6
Fungicide: **Eminent-Topsin+Pennecozeb-Headline Quadris applied 2-8 Leaf Stage**

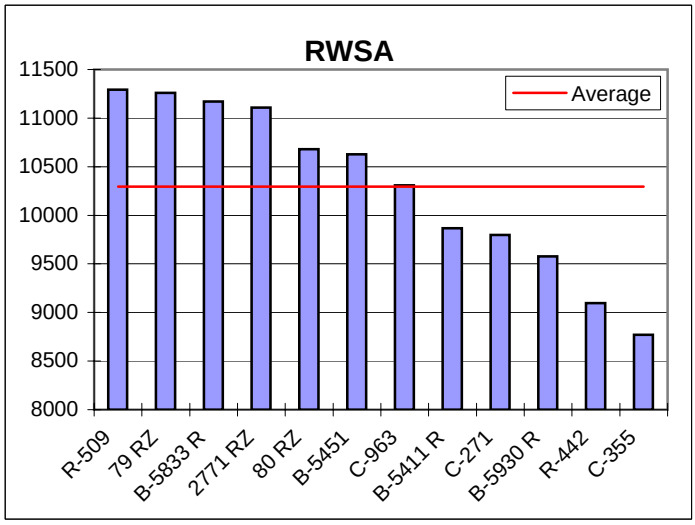
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 23 DAY	25 DAY	34 DAY	HARVEST	1200 Ft. RHIZ
R-509	**11,294**	**41.08**	**275**	**18.6**	**94.9**	**30**	**136**	**238**	**233**	**0**
79 RZ	11,261	40.08	281	19.0	94.9	5	104	242	229	1
B-5833 R	**11,171**	**40.12**	**279**	**18.9**	**94.7**	**42**	**109**	**207**	**201**	**2**
2771 RZ	11,107	37.81	294	19.5	95.6	7	120	241	229	13
80 RZ	**10,679**	**38.46**	**278**	**18.6**	**95.3**	**2**	**55**	**183**	**193**	**28**
B-5451	10,627	37.25	285	19.1	95.2	16	88	202	187	3
C-963	**10,306**	**35.89**	**287**	**19.4**	**95.0**	**27**	**100**	**201**	**184**	**0**
B-5411 R	9,866	34.80	284	19.2	94.7	15	51	113	113	3
C-271	**9,796**	**35.24**	**278**	**18.8**	**94.7**	**27**	**66**	**152**	**148**	**20**
B-5930 R	9,577	34.21	280	19.0	94.7	29	95	165	155	11
R-442	**9,098**	**33.61**	**271**	**18.6**	**94.1**	**14**	**48**	**111**	**119**	**0**
C-355	8,769	32.73	268	18.5	94.1	15	67	132	129	7
AVERAGE	**10,296**	**36.77**	**280**	**18.9**	**94.8**	**19**	**87**	**182**	**177**	**9**
LSD 5%	**830**	**2.77**	**12**	**0.7**	**0.7**	**17**	**40**	**25**	**22**	**NS**
CV %	**5**	**4.45**	**3**	**2.0**	**0.5**	**54**	**28**	**8**	**7**	**- -**

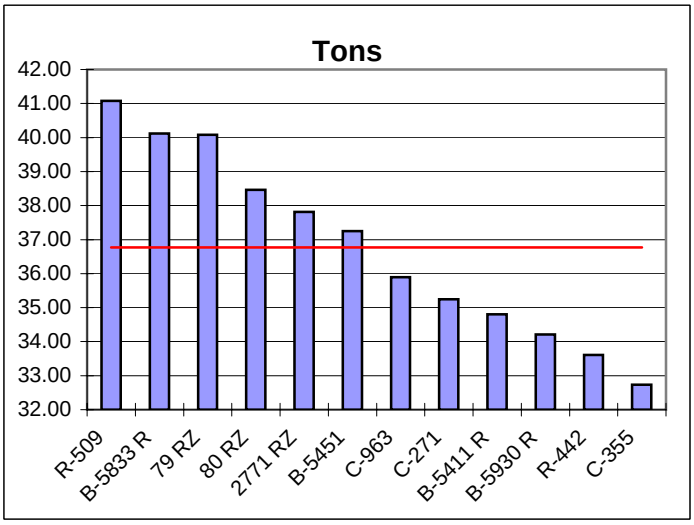
Comments: HIGH YIELDING FIELD. Trial was planted March 30th under good field conditions. Soil froze shortly after planting. First stand count was taken 23 days after planting. Leaf spot control was good and relatively low levels of Rhizoctonia were present. Low level of Sugarbeet Cyst Nematode was detected. Three varieties did not emerge well and had significantly lower stands than the other varieties: B-5411 R, R-442 and C-355. Average harvest population was 31,000 plants per acre.

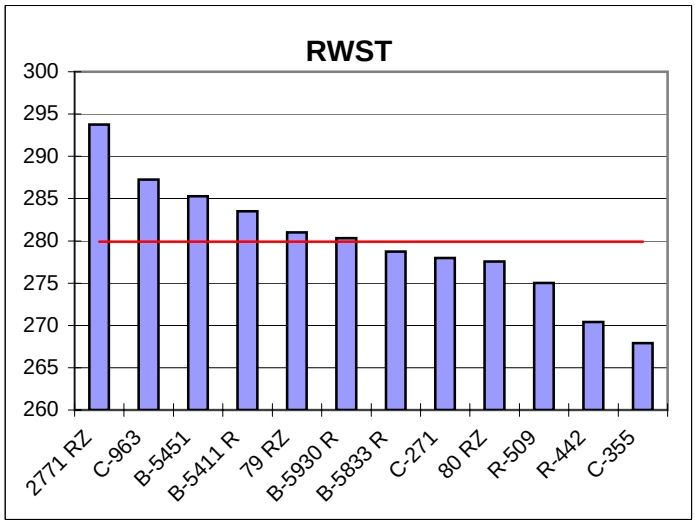
Trial Reliability: Excellent.

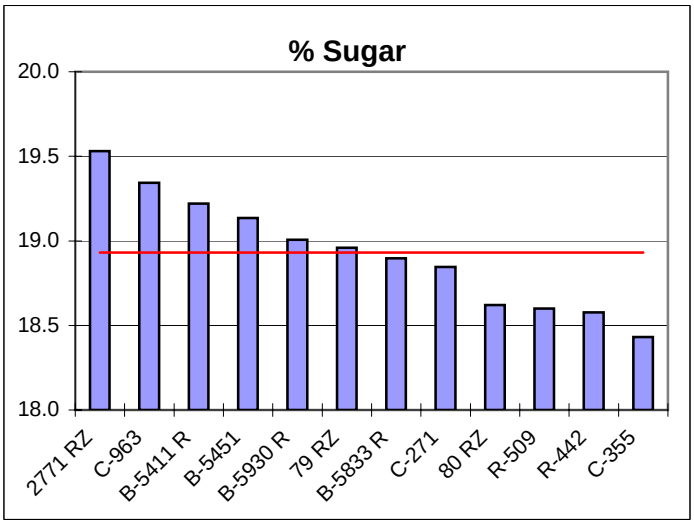
Cooperating Agriculturist(s): Craig Rieman, Michigan Sugar Company

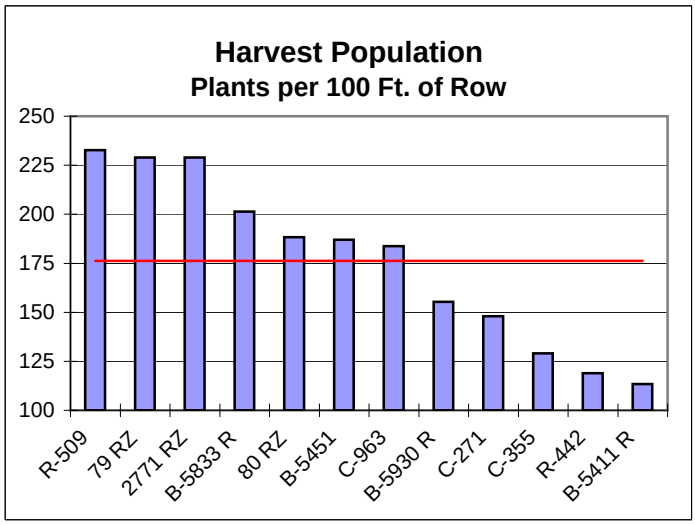
2007 MOWRY VARIETY TRIAL

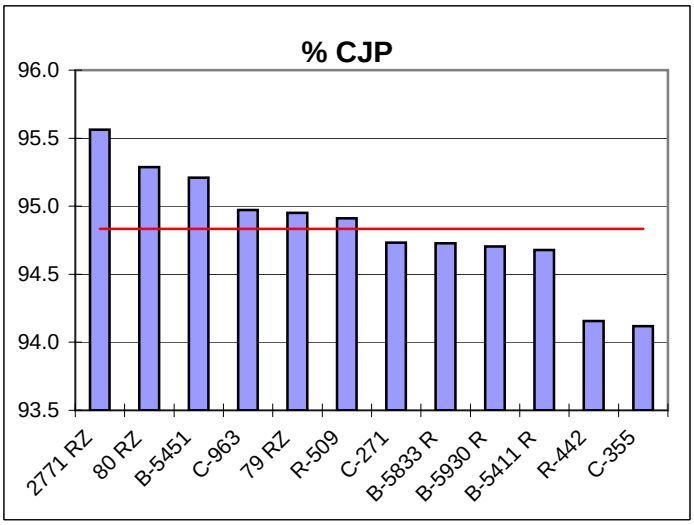












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VARIETY TRIAL

Cooperator: **Randy Sturm**
Location: Huron County
Planting Date: May 4, 2007
Previous Crop: Dry Beans
Soil Type: Clay Loam
Row Spacing: 28 Inch – Seed Spacing 4.0"
Fertilizer: 460 lbs. 3-17-35 + Micro
15 gal. Thio-Sul plus 28% Broadcast
20 gal. 28% Sidedress

Tillage: Chisel – 1x Danish Tine
Harvest Date: October 22, 2007
Sample Date: October 15, 2007
Herbicides: Pyramin Pre, Split Rate Post
Replicated: 3x
 # Rows Harvested: 4
Fungicide: GEM (85 DSV)

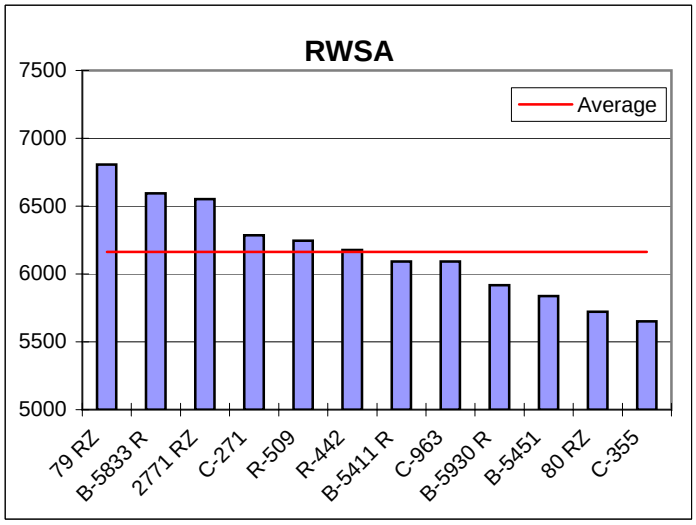
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 14 DAY	19 DAY	34 DAY	HARVEST	1200 Ft. RHIZ
79 RZ	**6,805**	**26.76**	**254**	**17.7**	**93.7**	**235**	**232**	**229**	**216**	**9**
B-5833 R	6,595	26.03	253	17.5	94.2	251	240	230	203	9
2771 RZ	**6,552**	**24.77**	**265**	**18.1**	**94.6**	**254**	**247**	**236**	**221**	**2**
C-271	6,284	24.58	256	17.8	93.8	215	206	188	160	12
R-509	**6,245**	**25.52**	**245**	**17.5**	**92.7**	**253**	**247**	**243**	**236**	**1**
R-442	6,175	24.45	253	17.8	93.1	183	194	189	165	13
B-5411 R	**6,092**	**24.22**	**251**	**17.8**	**92.8**	**182**	**188**	**189**	**167**	**4**
C-963	6,091	23.41	260	18.1	93.7	212	207	202	183	25
B-5930 R	**5,916**	**23.14**	**256**	**17.8**	**93.7**	**192**	**194**	**186**	**173**	**11**
B-5451	5,836	23.24	251	17.5	93.9	206	204	198	174	11
80RZ	**5,723**	**24.73**	**231**	**16.4**	**93.1**	**229**	**222**	**208**	**180**	**20**
C-355	5,651	22.85	247	17.4	**93.2**	191	193	191	184	7
AVERAGE	**6,164**	**24.48**	**252**	**17.6**	**93.5**	**217**	**215**	**208**	**188**	**11**
LSD 5%	**507**	**0.96**	**17**	**1.0**	**1.0**	**25**	**26**	**32**	**38**	**14**
CV%	**5**	**2.31**	**4**	**3.5**	**0.7**	**7**	**7**	**9**	**12**	**77**

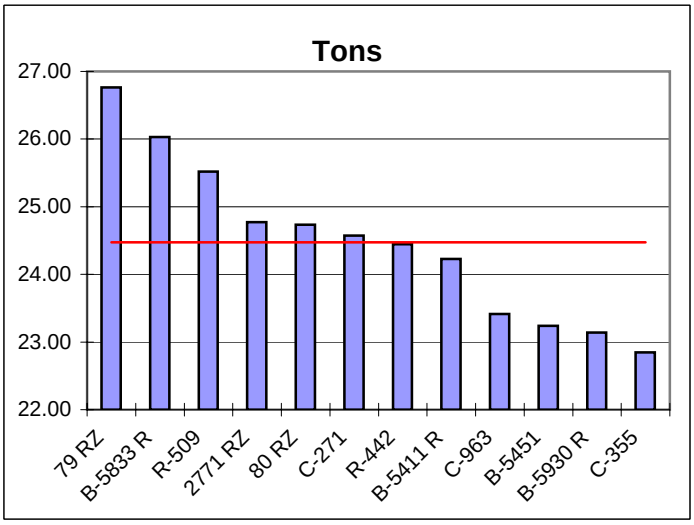
Comments: FIELD PLANTED LATE DUE TO MULTIPLE RAIN EVENTS. Trial was planted under good field conditions. Emergence was very rapid under warm conditions. This field had not grown sugarbeets in recent history. Rhizoctonia levels were low and leaf spot control was good. Hail storm partially defoliated crop in September. This may have lowered beet sugar content due to re-growth of beet leaves. Average harvest population was 33,000 plants per acre.

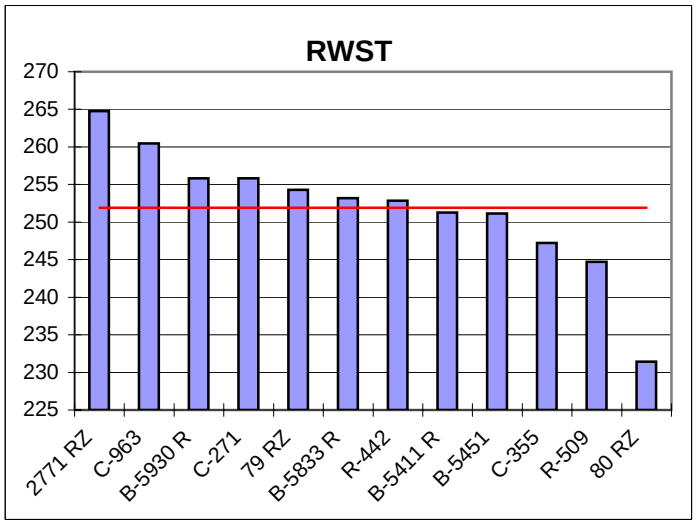
Trial Reliability: Excellent

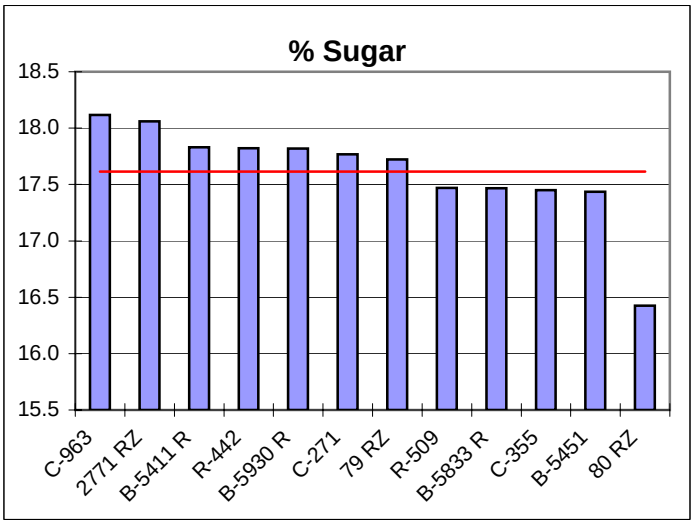
Cooperating Agriculturist(s): Roger Elston, Michigan Sugar Company

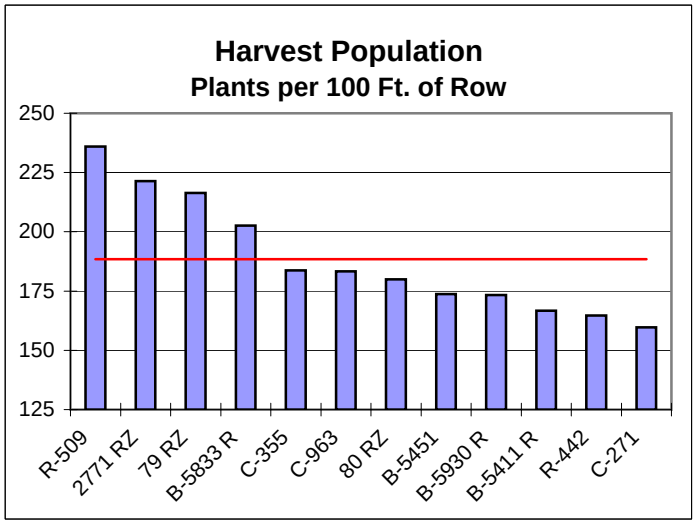
2007 STURM VARIETY TRIAL

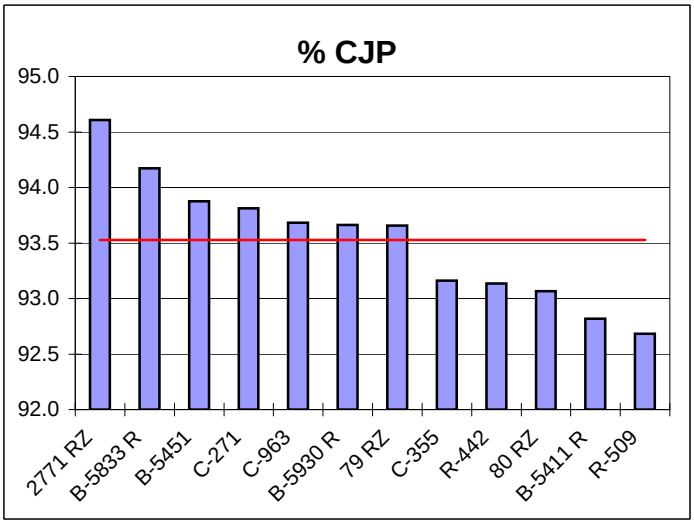












Sugarbeet Advancement

On Farm Research and Demonstration

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

VARIETY TRIAL

Cooperator: **Cedar Pond Farms**
Location: Huron County
Planting Date: April 21, 2007
Previous Crop: Wheat
Soil Type: Loam
Row Spacing: 30 Inch - 4" Seed Spacing
Fertilizer: 18 gal. 14-22-0 + Micros
50 lbs N from Anhydrous,
Variable rate 0-0-60

Tillage: Fall Chisel – 1x Field Cultivator
Harvest Date: October 24, 2007
Sample Date: October 15, 2007
Herbicides: Split-rate
Replicated: 3x
 # Rows Harvested: 4
Fungicide: Eminent (50 DSV)
Headline (108 DSV)
Kocide 3000 (160 DSV)
Quadris 2-8 Leaf Stage

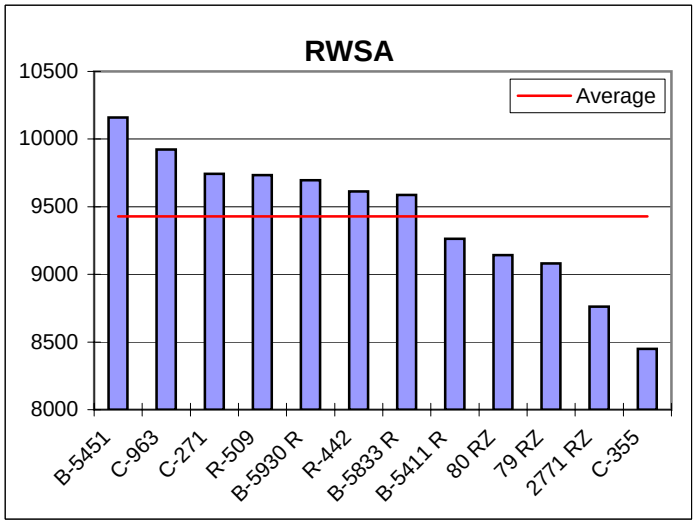
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 11 DAY	24 DAY	32 DAY	HARVEST	1200 Ft. RHIZ
B-5451	**10,160**	**31.77**	**320**	**21.1**	**95.7**	**74**	**190**	**182**	**167**	**1**
C-963	9,923	31.36	317	21.0	95.5	82	196	192	169	13
C-271	**9,743**	**31.70**	**307**	**20.6**	**95.0**	**173**	**232**	**219**	**178**	**7**
R-509	9,733	32.26	302	20.4	94.7	116	238	230	214	0
B-5930 R	**9,696**	**32.44**	**299**	**20.2**	**94.6**	**134**	**214**	**208**	**185**	**1**
R-442	9,614	31.82	302	20.2	95.2	135	203	196	176	11
B-5833 R	**9,587**	**32.69**	**293**	**19.6**	**95.3**	**177**	**249**	**241**	**230**	**1**
B-5411 R	9,262	31.44	295	19.8	95.0	116	209	200	182	12
80 RZ	**9,144**	**31.00**	**295**	**19.7**	**95.2**	**53**	**209**	**204**	**184**	**19**
79 RZ	9,080	30.78	295	19.8	95.0	46	216	210	199	1
2771 RZ	**8,761**	**30.22**	**290**	**19.3**	**95.6**	**82**	**242**	**228**	**212**	**3**
C-355	8,449	29.80	283	18.9	**95.3**	146	207	203	180	3
AVERAGE	**9,429**	**31.44**	**300**	**20.1**	**95.2**	**111**	**217**	**209**	**190**	**6**
LSD 5 %	**731**	**1.93**	**19**	**1.2**	**0.8**	**34**	**27**	**27**	**32**	**16**
CV %	**5**	**3.63**	**4**	**3.5**	**0.5**	**18**	**7**	**8**	**10**	**163**

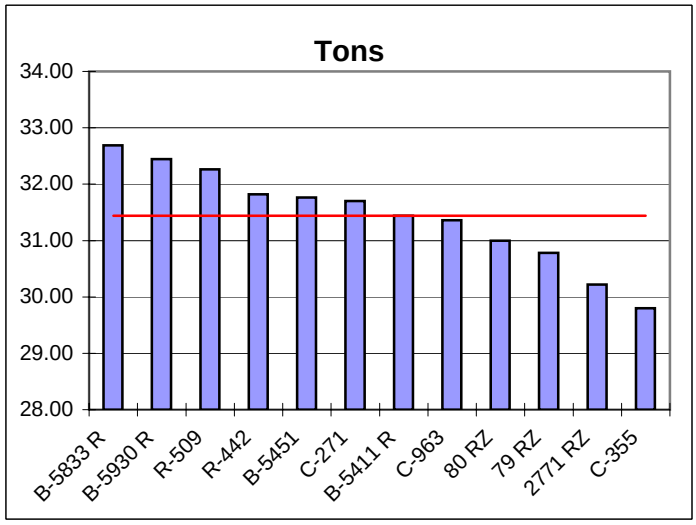
Comments: HIGH YIELDING FIELD. Sugarbeets were planted under excellent field conditions. Good early season growth followed by prolonged drought period which caused loss of lower leaves. Root aphid was detected during sample dig. Low levels of Rhizoctonia were present. Leaf spot control was good. Average harvest population was 33,000 plants per acre.

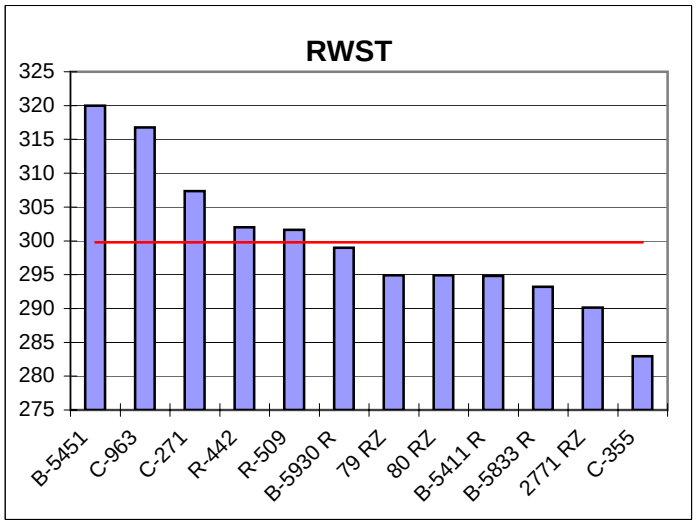
Trial Reliability: Excellent

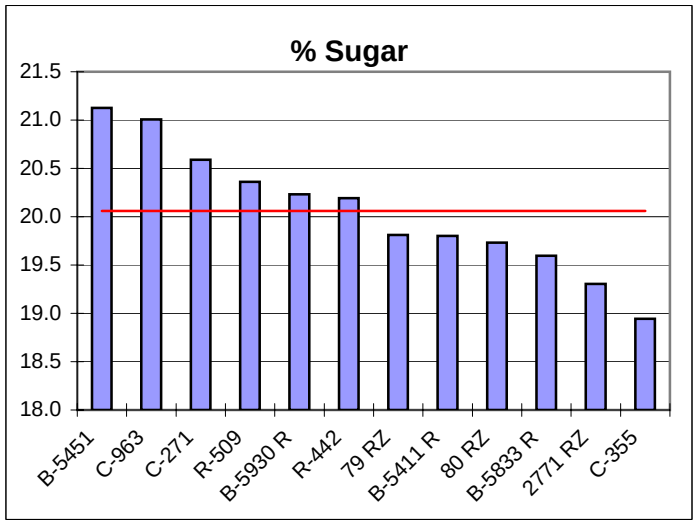
Cooperating Agriculturist(s): Bob Corrigan, Michigan Sugar Company

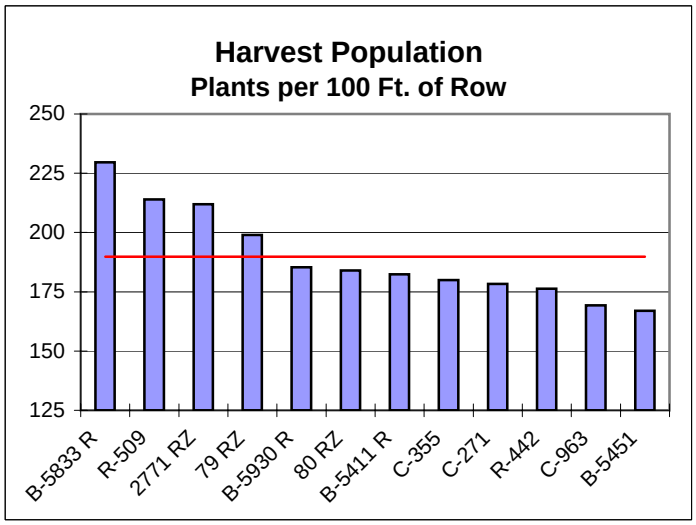
2007 CEDAR POND VARIETY TRIAL

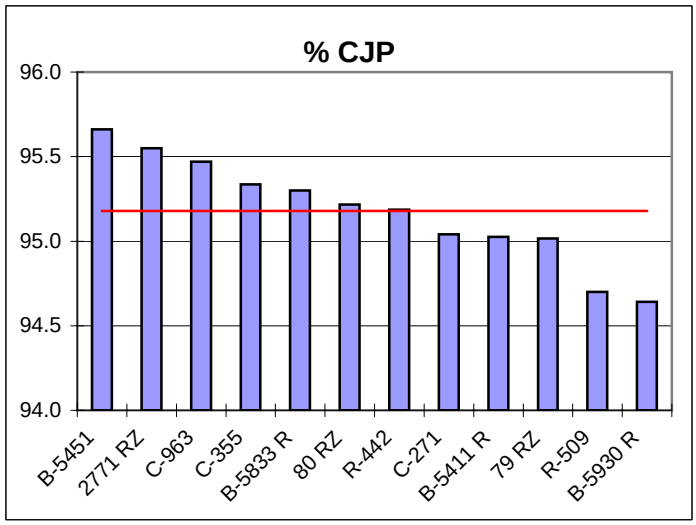












Sugarbeet Advancement

On Farm Research and Demonstration

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

VARIETY TRIAL

Cooperator: **Rick Gerstenberger**
Location: Sanilac County
Planting Date: April 24, 2007
Previous Crop: Soybeans
Soil Type: Parkhill Loam
Row Spacing: 28 In. – 3 ½" Seed spacing
Fertilizer: 200# 13-9-10 + Micros
21 gal. 28%

Tillage: Chisel – 1x Field Cult.
Harvest Date: October 29, 2007
Sample Date: October 16, 2007
Herbicides: Split Rate 2x
Replicated: 3x
 # Rows Harvested: 6
Fungicide: Eminent (56 DSV)
Headline (111 DSV)
Quadris 2-8 Leaf Stage

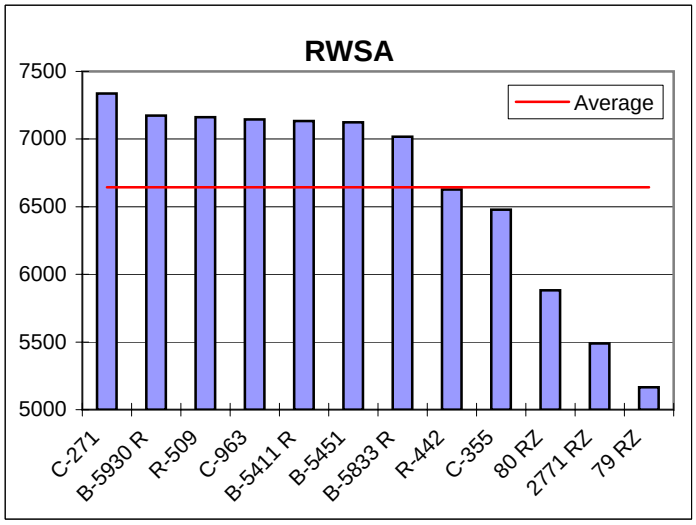
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	21 DAY	29 DAY	HARVEST	1200 Ft. RHIZ
C-271	**7,336**	**24.58**	**298**	**20.0**	**95.1**	**98**	**195**	**188**	**173**	**23**
B-5930 R	7,174	24.29	295	20.1	94.4	62	186	182	170	6
R-509	**7,163**	**25.20**	**284**	**19.3**	**94.6**	**40**	**225**	**228**	**195**	**0**
C-963	7,146	24.23	295	19.9	94.8	71	185	183	170	26
B-5411 R	**7,134**	**24.22**	**294**	**19.9**	**94.7**	**64**	**159**	**162**	**150**	**15**
B-5451	7,123	24.24	293	19.8	94.7	43	152	158	152	27
B-5833 R	**7,019**	**24.74**	**284**	**19.3**	**94.6**	**100**	**238**	**230**	**211**	**2**
R-442	6,626	24.01	276	18.9	94.2	65	166	166	153	6
C-355	**6,479**	**22.69**	**285**	**19.4**	**94.4**	**69**	**145**	**145**	**132**	**2**
80 RZ	5,882	21.63	272	18.5	94.7	29	176	183	172	27
2771 RZ	**5,489**	**19.71**	**278**	**18.8**	**94.9**	**11**	**166**	**156**	**149**	**32**
79 RZ	5,166	20.61	250	17.5	**93.4**	3	184	178	163	5
AVERAGE	**6,645**	**23.35**	**284**	**19.3**	**94.5**	**55**	**181**	**180**	**166**	**14**
LSD 5%	**893**	**2.16**	**20**	**1.0**	**1.1**	**39**	**41**	**35**	**36**	**23**
CV%	**8**	**5.47**	**4**	**3.2**	**0.7**	**42**	**13**	**12**	**13**	**95**

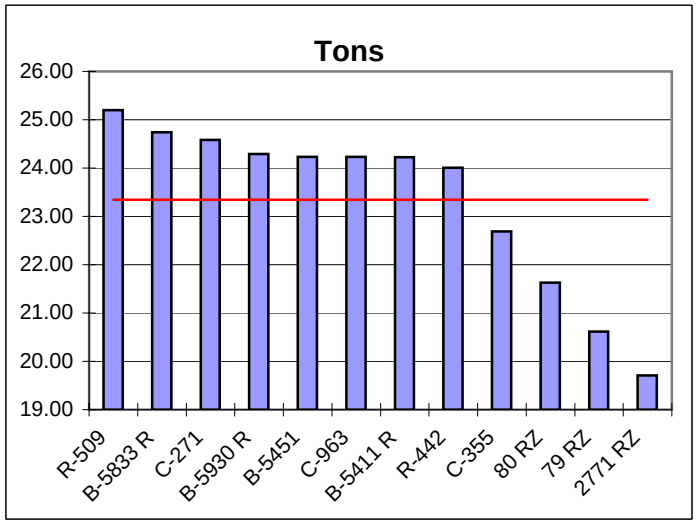
Comments: HEAVY RAINFALL OCCURRED AFTER PLANTING CAUSING CRUSTING. Field was crust busted. Fastest emerging varieties established and generally had more early vigor than very slow emerging varieties. Variety 79 RZ was visually slower in recovery after stress of crusting/excessive rainfall. Leaf spot control was good and Rhizoctonia levels were generally low. Average harvest population was 29,000 plants per acre.

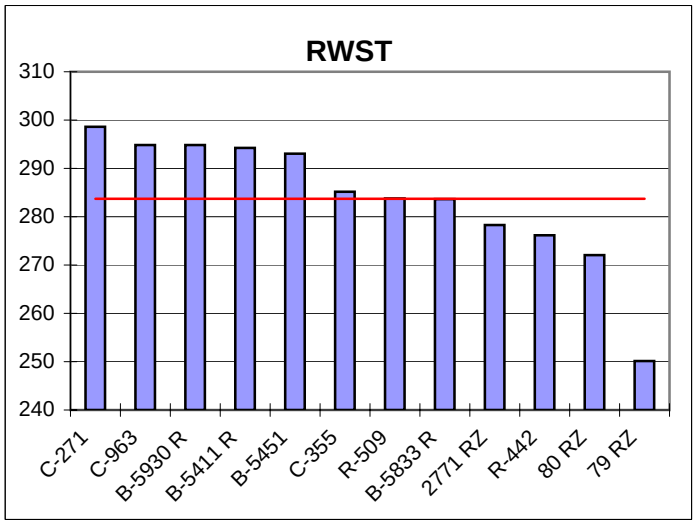
Trial Reliability: Fair

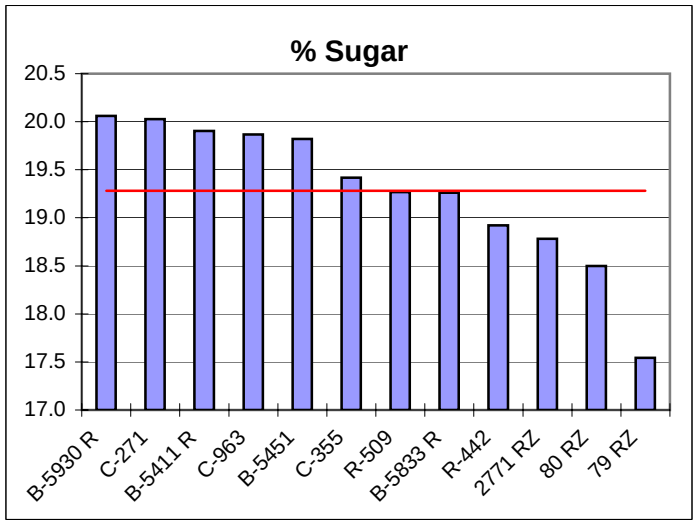
Cooperating Agriculturist(s): Paul Wheeler, Michigan Sugar Company

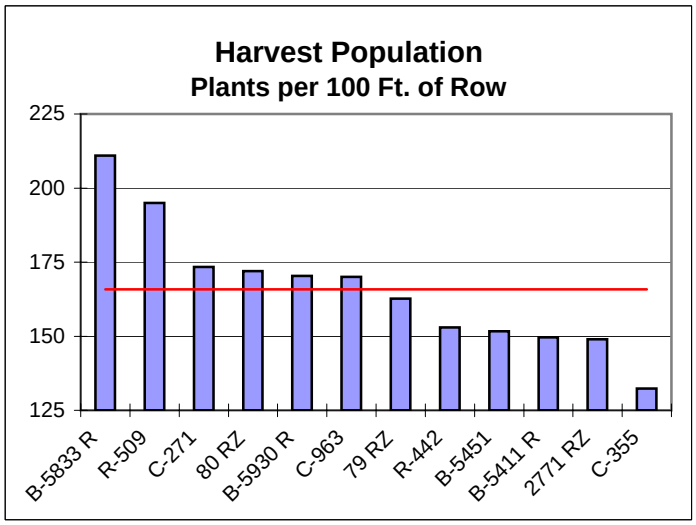
2007 GERSTENBERGER VARIETY TRIAL

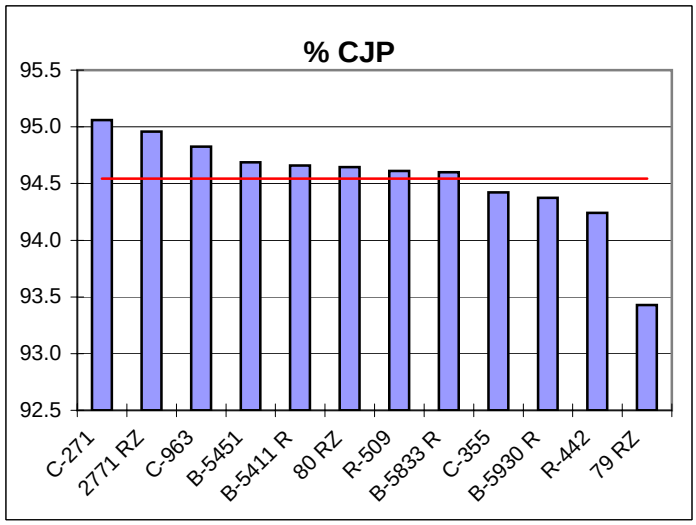












Sugarbeet Advancement

On Farm Research and Demonstration

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

VARIETY TRIAL

Cooperator: **Brian Fox**
Location: Ontario, Canada
Planting Date: April 18, 2007
Previous Crop: Corn
Soil Type: Clay Loam
Row Spacing: 30 Inch – 4 1/8" Seed Spacing
Fertilizer: Starter 350 lbs. 3.6-14.3-10
10 gal. 28% Banded
60 lbs. N/ NH_3 Sidedress

Tillage: Fall Plow / 2x Danish Tine
Harvest Date: November 1, 2007
Sample Date: November 1, 2007
Herbicides: Dual/Nortron with 28% at Planting
Replicated: 3x
 # Rows Harvested: 6
Fungicide: Headline (55 DSV)
Senator/Mancozeb (110 DSV)

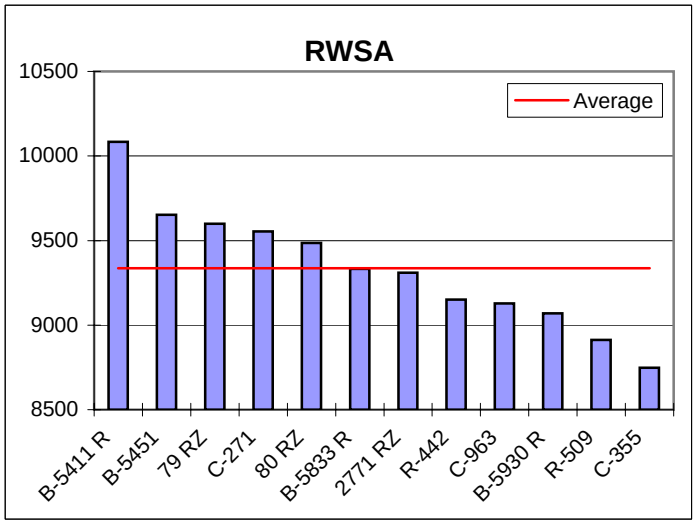
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 12 DAY	21 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
B-5411 R	**10,084**	**33.88**	**298**	**20.2**	**94.5**	**74**	**208**	**216**	**211**	**0**
B-5451	9,652	31.60	306	20.5	95.0	97	225	230	224	1
79 RZ	**9,599**	**34.09**	**282**	**19.1**	**94.9**	**94**	**251**	**258**	**260**	**2**
C-271	9,554	31.88	300	20.1	95.0	127	256	264	244	2
80 RZ	**9,486**	**34.00**	**279**	**18.8**	**95.1**	**98**	**253**	**261**	**238**	**8**
B-5833 R	9,332	31.93	293	19.6	95.2	130	271	274	266	1
2771 RZ	**9,310**	**30.80**	**302**	**20.3**	**95.2**	**87**	**250**	**256**	**255**	**0**
R-442	9,152	30.46	301	20.3	94.7	102	209	213	206	1
C-963	**9,128**	**31.67**	**289**	**19.6**	**94.6**	**112**	**229**	**240**	**228**	**3**
B-5930 R	9,070	30.26	300	20.1	95.0	108	230	232	226	1
R-509	**8,912**	**30.13**	**296**	**19.8**	**95.1**	**113**	**265**	**278**	**276**	**0**
C-355	8,748	29.40	298	20.0	**95.1**	79	201	205	201	1
AVERAGE	**9,336**	**31.68**	**295**	**19.9**	**94.9**	**102**	**237**	**244**	**236**	**2**
LSD 5%	**570**	**2.07**	**12**	**0.7**	**0.7 NS**	**28**	**24**	**23**	**24**	**6 NS**
CV%	**4**	**3.86**	**2**	**2.1**	**0.5**	**16**	**6**	**6**	**6**	**201**

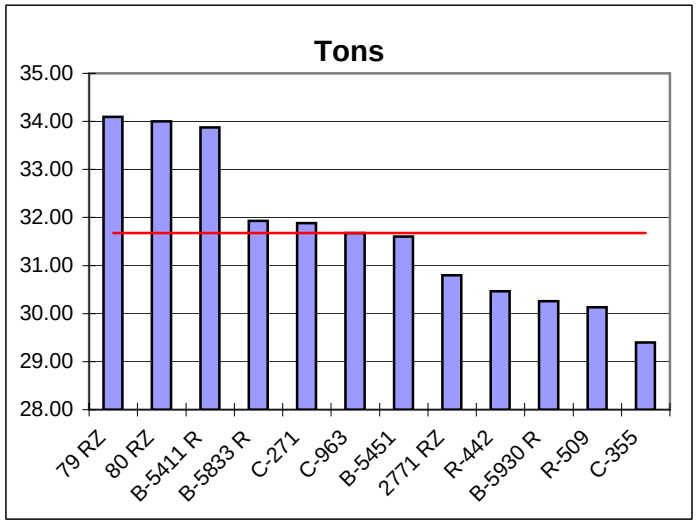
Comments: TRIAL PLANT POPULATIONS WERE VERY HIGH. Field was planted under ideal conditions. However, very dry conditions existed during the growing season. Rhizoctonia levels were extremely low. Some leaf spot and powdery mildew present at harvest. Average harvest population was 42,000 plants per acre.

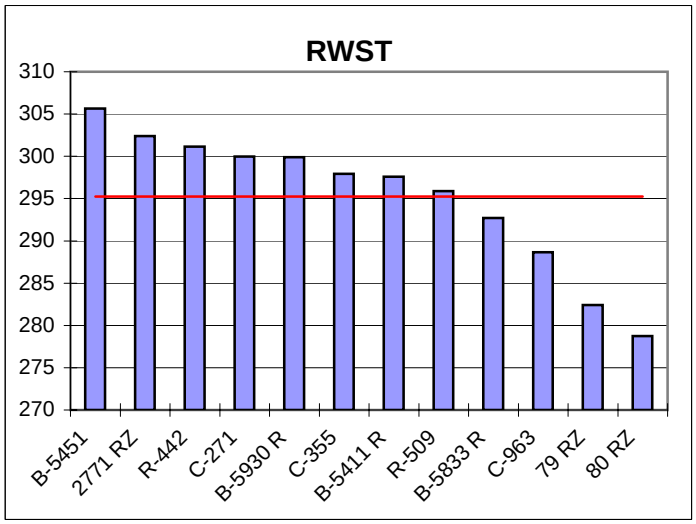
Trial Reliability: Excellent

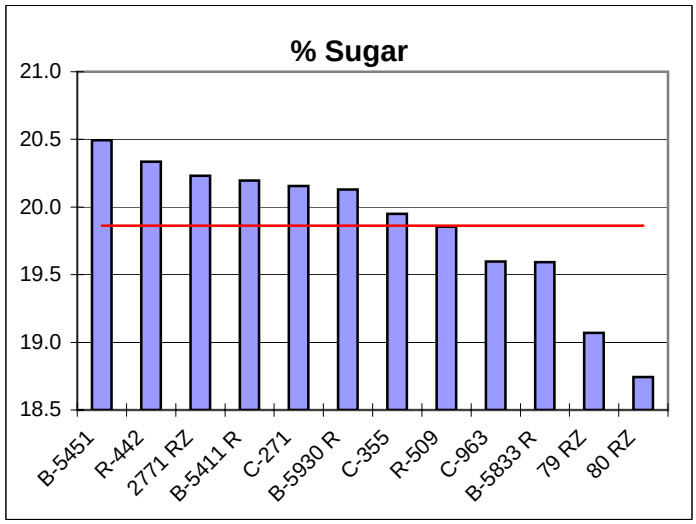
Cooperating Agriculturist(s): Wayne Martin, Michigan Sugar Company and
Janice LeBoeuf, Minister of Agriculture, Food and Rural Affairs

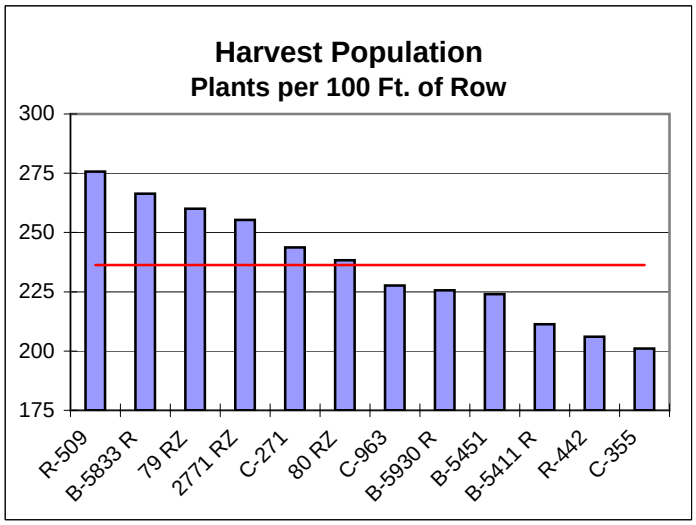
2007 FOX VARIETY TRIAL

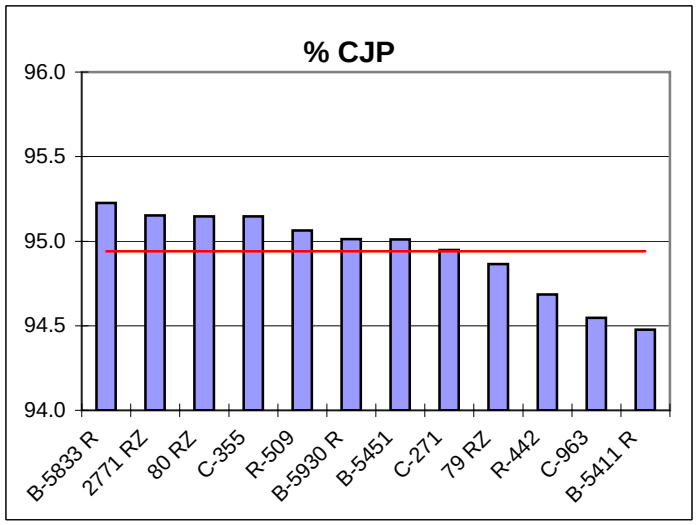












Sugarbeet Advancement
On Farm Research and Demonstration

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

VARIETY TRIAL

Cooperator: **Clay Crumbaugh**
Location: Gratiot County
Planting Date: April 20, 2007
Previous Crop: Dry beans
Soil Type: Parkhill Loam
Row Spacing: 30 Inch - 3 7/8" Seed Spacing
Fertilizer: 269 lbs. 12-12-12 + Micros
8 gal. 28% Banded Planting
10 gal. 28% Broadcast

Tillage: Fall Chisel / Fall Field Cult. 1x
Harvest Date: November 4, 2007
Herbicides: Round-Up Pre-Emergence
Microrates 4x
Replicated: 3x
 # Rows Harvested: 6
Fungicide: Eminent (42 DSV)
Headline (109 DSV)
Quadris - 2-8 Leaf Stage

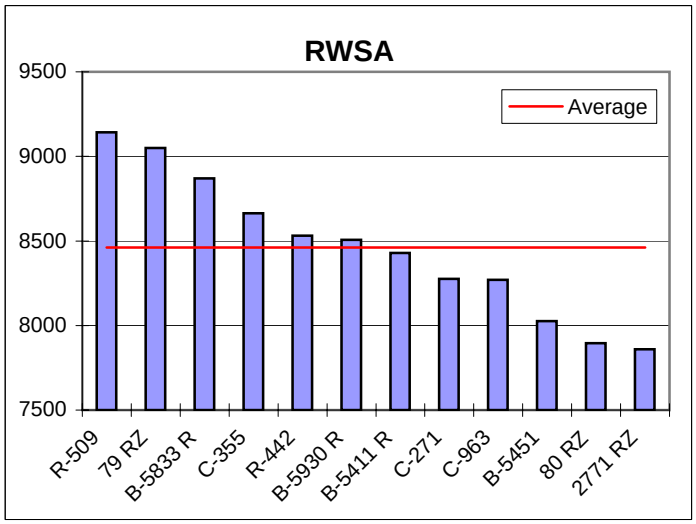
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	21 DAY	31 DAY	HARVEST	1200 Ft. RHIZ
R-509	**9,143**	**30.69**	**298**	**20.1**	**94.8**	**213**	**280**	**264**	**205**	**42**
79 RZ	9,050	30.86	293	19.9	94.5	137	259	253	187	90
B-5833 R	**8,870**	**29.12**	**305**	**20.4**	**95.2**	**240**	**271**	**270**	**219**	**181**
C-355	8,664	28.42	305	20.6	94.5	166	221	208	170	58
R-442	**8,531**	**28.19**	**303**	**20.6**	**94.2**	**177**	**224**	**224**	**169**	**137**
B-5930 R	8,507	28.18	302	20.7	93.9	199	240	230	176	184
B-5411 R	**8,429**	**26.65**	**316**	**21.2**	**94.8**	**193**	**232**	**223**	**149**	**392**
C-271	8,276	27.95	296	20.1	94.5	202	259	255	152	279
C-963	**8,271**	**27.48**	**301**	**20.6**	**94.1**	**186**	**250**	**249**	**180**	**307**
B-5451	8,026	25.69	313	21.0	94.8	151	247	239	163	413
80 RZ	**7,896**	**26.73**	**295**	**20.0**	**94.6**	**165**	**249**	**243**	**165**	**355**
2771 RZ	7,860	26.00	302	20.3	**94.8**	214	268	259	164	205
AVERAGE	**8,460**	**28.00**	**302**	**20.5**	**94.6**	**187**	**250**	**243**	**175**	**220**
LSD 5%	**740**	**1.92**	**16**	**0.9**	**0.7**	**37**	**15**	**20**	**28**	**155**
CV%	**5**	**4.06**	**3**	**2.5**	**0.4**	**12**	**4**	**5**	**10**	**42**

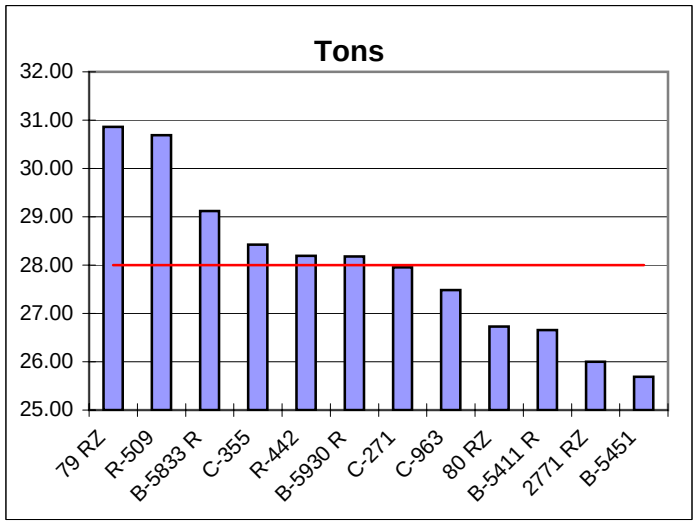
Comments: TRIAL HAD A MODERATE AMOUNT OF RHIZOCTONIA CROWN AND TIP ROT INFESTATION. Rhizoctonia dead or dying plants are based on 1200 foot of row. Trial was planted into a stale seed bed and emerged EXTREMELY fast under ideal conditions. Leaf spot control was good but some powdery mildew was present. Rhizomania was identified at low levels. Average harvest population was 30,000 plants per acre.

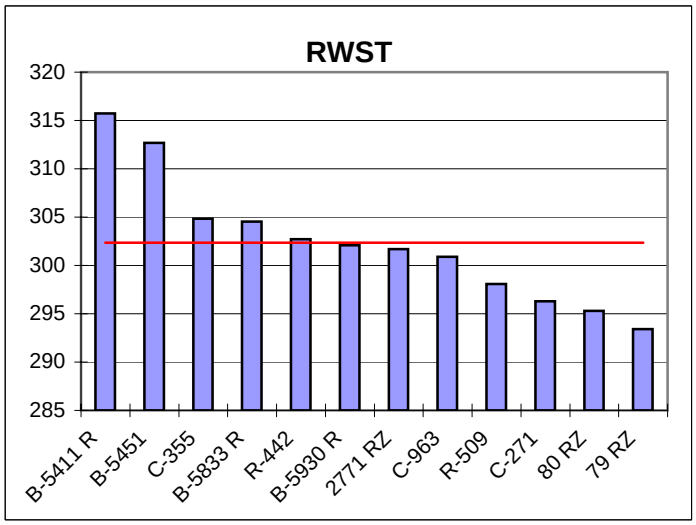
Trial Reliability: Excellent

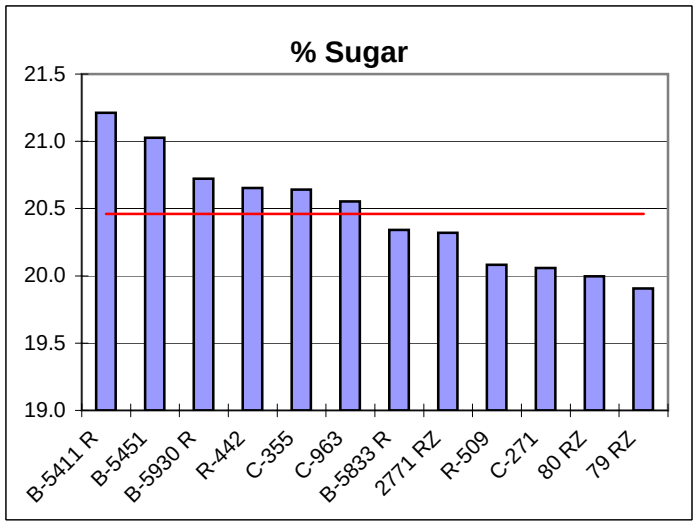
Cooperating Agriculturist(s): Dave Bailey, Michigan Sugar Company

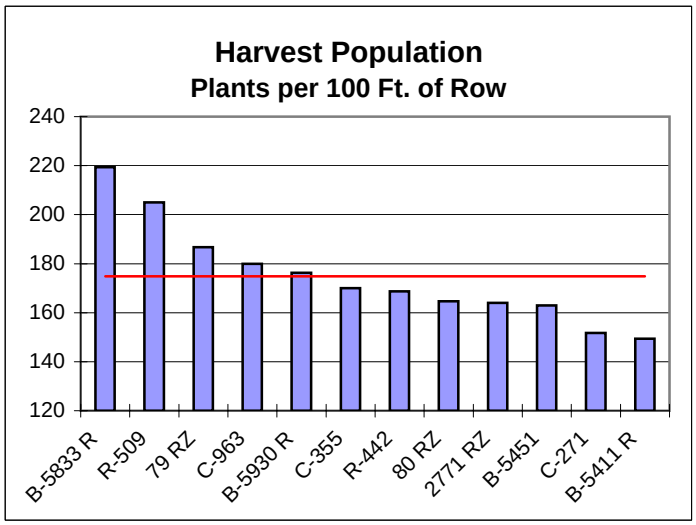
2007 CRUMBAUGH VARIETY TRIAL

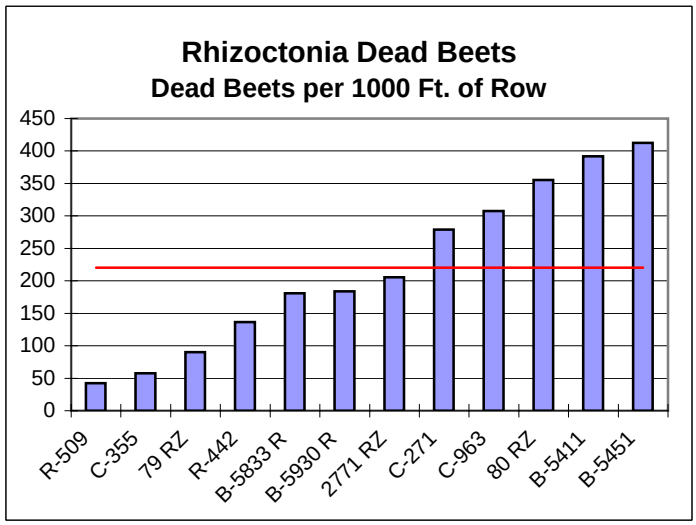












Sugarbeet Advancement

On Farm Research and Demonstration

Partnership of: Sugar Beet Growers
Michigan Sugar Company
Michigan State University
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VARIETY TRIAL

Cooperator: **Paul Knoerr**
Location: Bay County
Planting Date: April 17, 2007
Previous Crop: Dry Beans
Soil Type: Tappan Loam
Row Spacing: 30 Inch – 4.2" Seed Spacing
Fertilizer: 200# 13-20-16 + Micros
25 gal. 28%

Tillage: Chisel – 1x Field Cultivator
Harvest Date: October 30, 2007
Sample Date: October 11, 2007
Herbicides: Microrate 2x – 1x Split rate
Replicated: 3x
 # Rows Harvested: 6
Fungicide: Eminent (58 DSV)
Headline (116 DSV)
Quadris 2-8 Leaf Stage

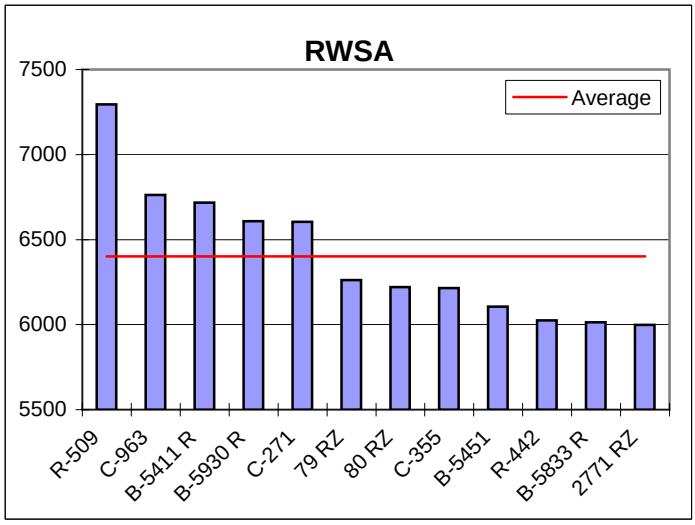
VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 13 DAY	20 DAY	31 DAY	HARVEST	1200 Ft. RHIZ
R-509	**7,296**	**26.96**	**270**	**17.9**	**96.1**	**227**	**239**	**229**	**213**	**0**
C-963	6,762	23.85	283	18.8	95.7	190	191	182	154	21
B-5411 R	**6,716**	**23.20**	**288**	**19.1**	**96.0**	**189**	**194**	**192**	**164**	**6**
B-5930 R	6,609	23.27	284	18.9	95.7	201	210	201	179	16
C-271	**6,605**	**23.95**	**276**	**18.1**	**96.5**	**202**	**198**	**197**	**162**	**5**
79 RZ	6,261	22.81	273	18.0	96.5	206	220	205	176	2
80 RZ	**6,221**	**23.11**	**267**	**17.6**	**96.3**	**176**	**197**	**196**	**158**	**12**
C-355	6,215	23.03	270	18.1	95.5	163	165	159	139	1
B-5451	**6,105**	**21.42**	**283**	**18.5**	**96.6**	**174**	**194**	**182**	**140**	**28**
R-442	6,025	21.84	276	18.2	96.1	180	171	171	155	9
B-5833 R	**6,013**	**21.83**	**274**	**17.9**	**96.8**	**240**	**239**	**237**	**199**	**30**
2771RZ	5,998	21.31	281	18.4	**96.5**	201	222	208	178	6
AVERAGE	**6,402**	**23.05**	**277**	**18.3**	**96.2**	**196**	**203**	**196**	**168**	**11**
LSD 5%	**1,116**	**3.42**	**14**	**1.0**	**1.0**	**20**	**17**	**18**	**31**	**22**
CV %	**10**	**8.76**	**3**	**3.2**	**0.6**	**6**	**5**	**5**	**11**	**112**

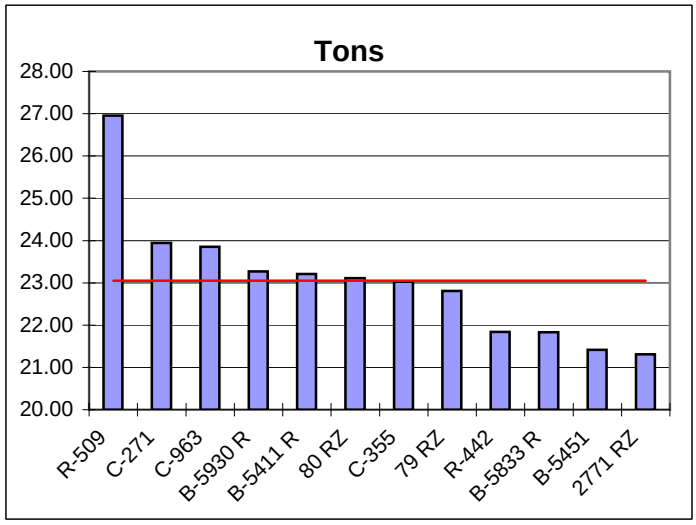
Comments: FIELD HAD SUGARBEET CYST NEMATODE AND SIGNIFICANT LATE SEASON RHIZOCTONIA. Field did not completely canopy due to dry conditions and nematodes. Some weed issues occurred from lack of canopy. Soil structure was also very tight. Rhizoctonia levels increased in September/October after Rhizoctonia dead beet count was done in August. Average harvest population was 29,000 plants per acre.

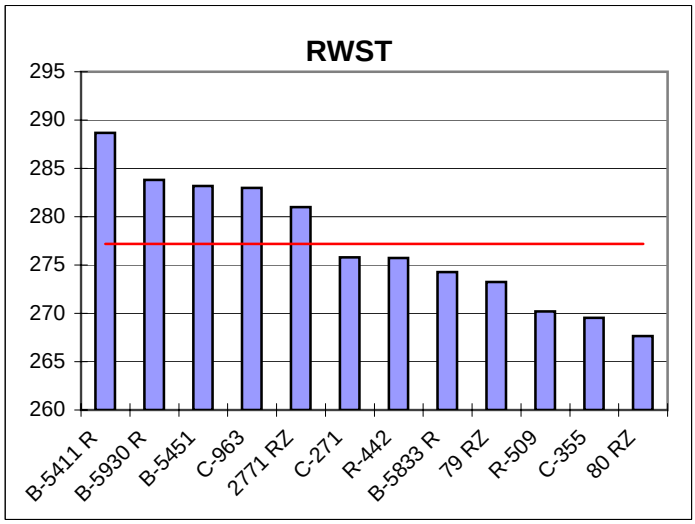
Trial Reliability: Fair

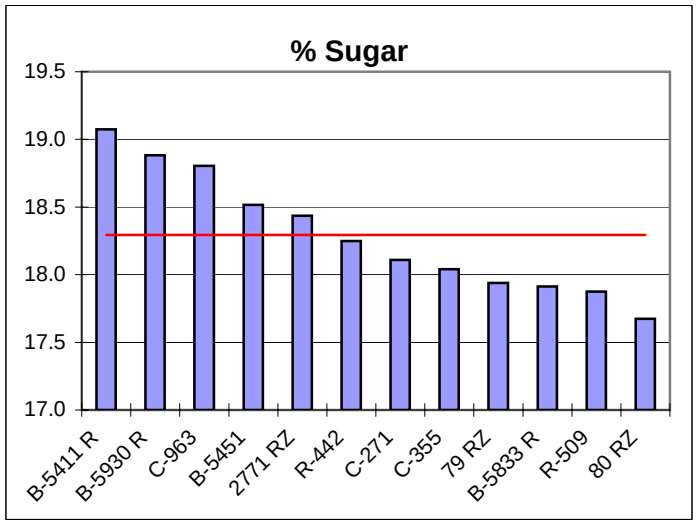
Cooperating Agriculturist(s): Rick List, Michigan Sugar Company

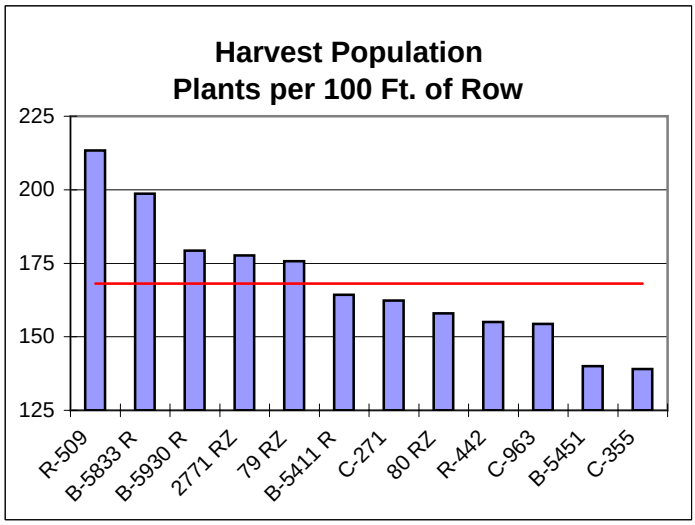
2007 KNOERR VARIETY TRIAL

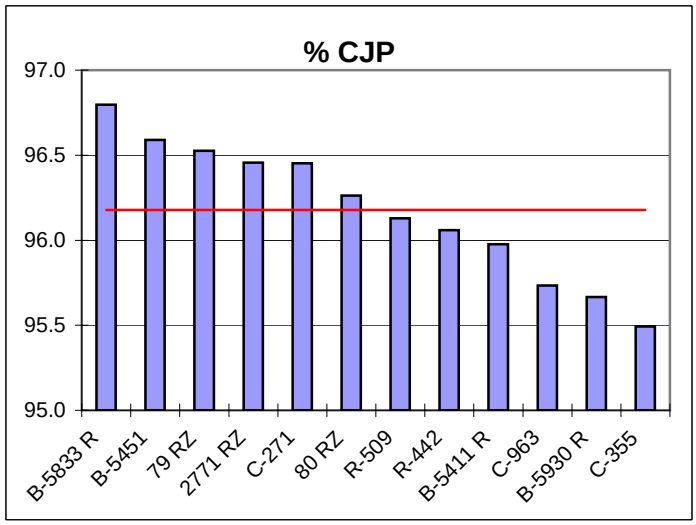










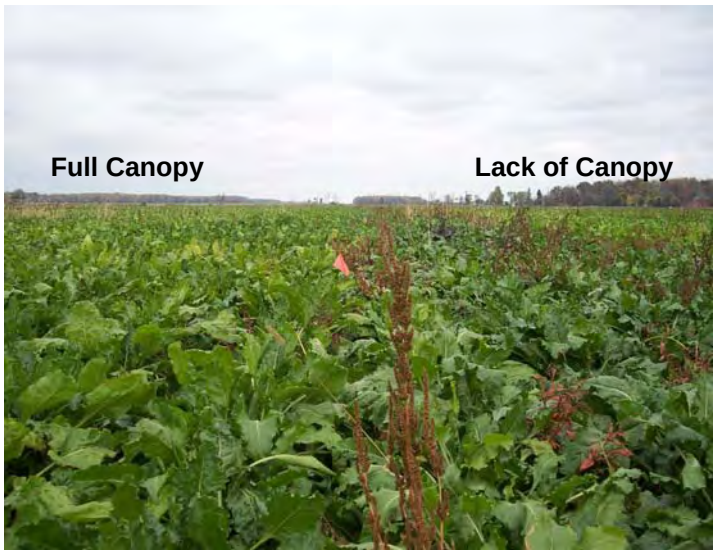


2007 VARIETY TRIAL RAINFALL DATA (INCHES)
NEAREST LOCATION

LOCATION COOPERATOR	April	May	June	July	Aug.	Sept.	Oct.	Season Total
Breckenridge **Clay Crumbaugh**	2.55	1.55	1.97	1.35	4.50	1.35	2.70	15.97
Bay City **Paul Knoerr**	3.82	2.45	2.12	2.76	4.53	2.20	2.50	20.38
Akron **Mowry Farms Inc.**	2.78	2.90	1.02	2.12	4.71	2.86	3.20	19.59
Pigeon **Randy Sturm**	3.82	3.71	2.20	2.01	2.23	3.40	3.83	21.20
Ruth **Cedar Pond Farms**	2.03	2.70	1.75	1.70	3.30	2.20	2.20	15.88
Sandusky **Rick Gerstenberger**	2.53	3.40	0.85	2.25	4.00	1.90	2.25	17.18
Dover **Brian Fox**	2.75	2.47	0.95	2.07	3.45	1.10	2.60	15.39
Average	2.90	2.74	1.55	2.04	3.82	2.14	2.75	17.94

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

Rhizoctonia Root / Tip Root



Difference in Variety Canopy / Weed Suppression

Bean and Beet Farm Research Tour

Slurry Manure Application

Oilseed Radish in Slurry Manure

Slurry Manure, Oil Seed and Mustard

Planting into Stale Seed Bed

Crystal R-509 -- Excellent Emerging Variety

Stale Seed Bed Emergence

Strip Tillage – Preparing for Roundup Ready in 2008

Ideal Beet Population for High Tonnage

Conventional Beets – Roundup Ready

Topping Speed 3 MPH

Topping Speed 4 MPH

Topping Speed 5 MPH

Unacceptable Topping

Scalping / Topping Trial

Mouse Loading Trucks

Rhizomania Foliage Symptoms

Rhizomania (Bearded Root)

Late Season Powdery Mildew

Root Comparison of Nematode Resistant (L) to Susceptible Variety (R)

Nematode Resistant (L); Susceptible (R)

Nematode Susceptible Variety (see center strip)

Michigan Sugar Company
Official Variety Trial 2007
2007
Average of 2 Years

	Variety	RWSA	RWST	% Suc	% CJP	Tons/ Acre	% Emerg	CLS* Rating	Nurseries: Root Aphid	Nurseries: Rhizoc-tonia	Nurseries: Aphano-myces	Nurseries: Rhizo-mania
	Crystal 271	7477	255.4	17.59	94.18	29.11	68.3	2.92	Fair	Poor	Excel.	NA
	Beta 5451	7463	257.5	17.72	94.20	28.86	61.6	2.66	Fair	Poor	Excel.	NA
	Beta 5930R(1531R)	7406	256.0	17.81	93.68	28.66	59.1	2.89	Fair	Poor	Good	Fair
Fully	Crystal R442 CK	7306	250.7	17.47	93.65	29.10	64.1	2.70	Good -	Fair	Excel.	Fair
Approved	Beta 5833R CK	7290	248.9	17.06	94.51	29.16	66.9	3.49	Excel.	Good -	Good	Good
	Crystal 963	7280	252.9	17.44	94.17	28.60	66.7	2.92	Good -	Fair -	Excel.	NA
	Beta 5411R	7216	252.0	17.55	93.66	28.42	59.1	2.94	Good -	Poor	Good	Fair
	Crystal 355	7106	248.0	17.22	93.88	28.48	61.9	1.82	Good -	Good -	Excel.	NA
	HM 7172RZ CK	6756	244.5	17.14	93.49	27.52	62.1	3.10	Fair -	V Good	Fair	Good
Limited	HM 81RZ(2781RZ)	7276	251.0	17.34	94.12	28.88	65.8	3.19	Good	Poor	Excel.	Good
Approval	SX 1233	7026	251.9	17.34	94.24	27.69	66.0	3.36	Fair -	Poor	Good	V Good
	Beta 1643N	7966	257.2	17.62	94.46	30.79	77.0	4.64	Excel.	Poor	Excel.	Good
	HM 28RR(9028RR)	7683	245.4	16.97	94.12	31.19	65.3	3.50	Fair -	Good -	Good	V Good
Specialty	HM 29RR(9029RR)	7428	244.2	16.97	93.91	30.19	59.7	3.53	Fair	Fair	Fair	Good
Varieties	HM 27RR(9027RR)	7398	242.3	16.89	93.81	30.38	65.2	3.34	Fair	Good	Fair	V Good
	HM 79RZ(2779RZ)	7256	245.4	17.12	93.69	29.49	66.3	3.29	Fair	Good	Fair	Excel.
	Crystal R509(Z589)	6957	244.3	17.01	93.80	28.22	64.9	3.20	Good	Excel.	Good	Good
	Mean	7311	249.9	17.31	93.97	29.10	64.7	3.15				

* Lower number indicates more resistance.

Rows: 2 Row Spacing: 30"

Sprayed with Amistar/Quadris for Rhizoctonia control.

RHIZOCTONIA VARIETY TRIAL WITH QUADRIS

Cooperator: **Sherwood Farm**
Location: Gratiot County
Planting Date: 4/20/07
Previous Crop: Soybeans
Soil Type: Parkhill Loam
Row Spacing: 30 Inch; Seed Spacing 4.25"
Fertilizer: 200 lbs. 11-11-11 + Micros
27 gal. 28% Broadcast

Tillage: Chisel – 1x Field Cultivator
Harvest Date: 10/28/07
Sample Date: 9/25/07
Herbicides: Ethotron Pre – Microrate 3x
Replicated: 3x
 # Rows: 6
Fungicide: Eminent (52 DSV)
Headline (106 DSV)
Quadris 2-6 Leaf

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 11 DAY	21 DAY	31 DAY	HARVEST	1200 Ft. RHIZ
R-509	**6842**	**27.44**	**250**	**17.3**	**94.0**	**123**	**214**	**198**	**--**	**5**
79 RZ	6554	26.99	243	16.9	94.0	67	194	178	--	39
C-355	**6284**	**24.31**	**258**	**17.9**	**93.9**	**118**	**180**	**173**	**--**	**50**
B-5833 R	6269	24.31	258	17.6	94.7	163	223	214	--	91
7172 RZ	**5857**	**25.06**	**234**	**16.6**	**93.1**	**70**	**181**	**172**	**--**	**4**
AVERAGE	**6361**	**25.62**	**248**	**17.2**	**93.9**	**108**	**198**	**187**	**--**	**38**
LSD (5%)	**810**	**3.08**	**13**	**.7**	**.7**	**23**	**19**	**20**	**--**	**46**
CV (%)	**7**	**6**	**3**	**2**	**.4**	**11**	**5**	**6**	**--**	**--**

Comments: TRIAL WAS CONDUCTED TO COMPARE RHIZOCTONIA RESISTANT VARIETIES WITH QUADRIS APPLIED AT THE 2-6 LEAF STAGE. Rhizoctonia dead beet counts were very low when Quadris was used in conjunction with a Rhizoctonia resistant variety. Leaf spot control was good.

Trial Reliability: Good

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

Sugarbeet Advancement

On Farm Research and Demonstration

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

RHIZOCTONIA VARIETY TRIAL WITHOUT QUADRIS

Cooperator:	**Sherwood Farms**	**Tillage:**	Chisel – 1x Field Cultivator
Location:	Gratiot County	**Harvest Date:**	10/28/07
Planting Date:	4/20/07	**Sample Date:**	9/25/07
Previous Crop:	Soybeans	**Herbicides:**	Ethotron Pre, Microrated 3x
Soil Type:	Parkhill Loam	**Replicated:**	3x
Row Spacing:	30 Inch, Seed Spacing 4.25"	**# Rows Harvested:**	6
Fertilizer:	200 lbs. of 11-11-11 + Micros 27 gal. 28% Broadcast	**Fungicide:**	Eminent (52 DSV) Headline (106 DSV) **No Quadris Applied**

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	DAY	30 HARVEST	1200 Ft. RHIZ
B-5833 R	**7333**	**27.31**	**268**	**18.1**	**94.9**	**163**	**223**	**214**	**--**	**149**
R-509	6909	26.01	265	18.2	94.4	123	214	198	--	75
79 RZ	**6376**	**25.39**	**251**	**17.3**	**94.2**	**67**	**194**	**178**	**--**	**137**
C-355	6289	23.86	264	18.1	94.3	118	180	173	--	164
7172 RZ	**6222**	**25.84**	**241**	**17.0**	**93.1**	**70**	**181**	**172**	**--**	**58**
AVERAGE	**6626**	**25.68**	**258**	**17.7**	**94.2**	**108**	**198**	**187**	**--**	**116**
LSD (5%)	**1330 NS**	**4.03 NS**	**16**	**.8**	**1**	**23**	**19**	**20**	**--**	**101**
C.V. (%)	**11**	**8**	**3**	**2**	**.5**	**11**	**5**	**6**	**--**	**--**

Comments: TRIAL WAS CONDUCTED TO COMPARE RHIZOCTONIA RESISTANT VARIETIES WITH NO QUADRIS APPLIED AT THE 2-6 LEAF STAGE. Rhizoctonia dead beat counts were LOW TO MODERATE AND SOMEWHAT PATCHY causing a large coefficient of variation. When heavy Rhizoctonia pressure is present the most resistant variety will perform better than a variety with moderate resistance. Leaf spot control was good.

Trial Reliability: Fair

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

Sugarbeet Advancement

On Farm Research and Demonstration

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

RHIZOCTONIA VARIETY TRIAL

Cooperator:	**Meylan Farms**	**Tillage:**	Chisel – 1x Triple K
Location:	Auburn/Bay County	**Harvest Date:**	November 1, 2007
Planting Date:	April 22, 2007	**Sample Date:**	September 23, 2007
Previous Crop:	Pickles	**Herbicides:**	Pyramin/Nortron at Planting; Betamix Post 1x
Soil Type:	Loam	**Replicated:**	3x
Row Spacing:	30 Inches; 4 ¾" Seed Spacing	**# Rows Harvested:**	6
Fertilizer:	17 gal. 19-17-0 30 gal. 28% Broadcast	**Fungicide:**	Eminent – Headline No Quadris

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 11 DAY	19 DAY	29 DAY	HARVEST	1200 Ft. RHIZ
79 RZ	**5709**	**23.88**	**238**	**16.2**	**95.2**	**138**	**206**	**206**	**--**	**11**
7172 RZ	5597	22.67	247	17.0	94.6	129	201	204	--	0
B-5833 R	**5397**	**21.36**	**252**	**17.0**	**95.6**	**198**	**224**	**223**	**--**	**11**
R-509	5106	20.64	247	16.6	95.6	172	217	217	--	4
C-355	**4984**	**19.71**	**254**	**17.1**	**95.5**	**150**	**181**	**182**	**--**	**7**
AVERAGE	**5359**	**21.65**	**248**	**16.8**	**95.3**	**157**	**206**	**206**	**--**	**7**
LSD (5%)	**1096 NS**	**3.27**	**23 NS**	**1.5 NS**	**.3**	**28**	**13**	**15**	**--**	**7**
CV (%)	**11**	**8**	**5**	**5**	**.6**	**10**	**3**	**4**	**--**	**--**

Comments: TRIAL HAD VERY LITTLE RHIZOCTONIA CROWN ROOT. This research was implemented to test varieties against one another that have Rhizoctonia resistance in Rhizoctonia fields. In the absence of Rhizoctonia, varieties performed similarly. Significant Sugar Beet Cyst Nematode pressure in this field, along with drought conditions, increased variability in the trial. Field did not canopy. Leaf spot control was good. Average beet population was 35,000 plants per acre.

Trial Reliability: Fair

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

TACHIGAREN TRIAL

Cooperator:	**Gruehn Farms, Inc.**	**Tillage:**	Chisel – 1x Field Cultivator
Location:	Huron County	**Harvest Date:**	October 25, 2007
Planting Date:	April 21, 2007	**Sampled:**	September 27, 2007
Previous Crop:	Wheat	**Herbicides:**	Pyramin & Dual Banded
Soil Type:	Tappan Loam	**Replicated:**	6x
Row Spacing:	22”	**# Rows Harvested:**	8
Fertilizer:	23 Gal. 28% Nursery Manure, 10,000 Gal. /Acre	**Fungicide:**	Gem

VARIETY / TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 17 DAY	27 DAY	30 DAY	HARVEST
B-5833 R No Tach	9162	31.06	295	19.9	94.9	178	188	--	--
B-5833 R w/Tach	9048	31.42	288	19.4	94.9	166	170	--	--
AVERAGE	9105	31.24	292	19.7	94.9	172	179	--	--
LSD (5%)	523 NS	.93 NS	15 NS	0.8 NS	0.5 NS	19 NS	18 NS	--	--
C.V. (%)	4	2.00	3	2.9	0.4	8	7	--	--

Comments: Trial was conducted to look at the effects of Tachigaren applied at the 20 gram rate to seed coating of B-5833 R. Tach 20 applied to seed can help control seedling disease such as Aphanomyces in sugarbeets. No or very little seedling disease was seen when emergence counts were taken. No significant differences in yield, quality, and stand of beets.

Trial Reliability: Excellent

Cooperating Agriculturist(s): Jeff Elston, Michigan Sugar Company

NEMATODE TRIAL

Cooperator:	**Yoder Farms**	**Tillage:**	Chisel – 1x Danish Tine
Location:	Bay Port, Huron County	**Harvest Date:**	10/26/07
Planting Date:	5/4/07	**Sample Date:**	9/28/07
Previous Crop:	Wheat	**Herbicides:**	Dual – Microrate 2x
Soil Type:	Loam	**Replicated:**	3x
Row Spacing:	20 Inch; Seed Spacing 5.5	**# Rows Harvested:**	8
Fertilizer:	Broadcast 25 gal. 28% Sidedress 20 gal. 28%	**Fungicide:**	Eminent (46 DSV) Headline (96 DSV)

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
B-5534 N	7827	32.87	238	17.2	92.0	-	-	171	-	-
B-1643 N	7221	28.27	255	17.8	93.5	-	-	93	-	-
79 RZ	7048	27.61	255	17.9	93.4	-	-	174	-	-
AVERAGE	7365	29.58	250	17.7	93.0			146		
LSD (5%)	1327 NS	2.43	25 NS	1.4 NS	.9			28		
C.V. (%)	8	4	4	4	.4			8		

Comments: FIELD HAD A LOW/MODERATE LEVEL OF SUGARBEET CYST NEMATODE. VARIETY B-1643 N POPULATION WAS APPROXIMATELY 50% LESS THAN VARIETIES COMPARED. Only a limited amount of UNPROCESSED seed of B-1643 N was available for planting. Because of this, the seed planted at ½ the rate of the commercially processed seed of 79 RZ and B-5534 N. Even though B-1643 N was very thin, it still yielded equal to 79 RZ, a nematode susceptible variety, and did very well in quality. B-1643 N with commercially processed seed should perform as well or better than B-5534 N when planted at the same population. Leaf spot control was good.

Trial Reliability: Good

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

NEMATODE TRIAL

Cooperator:	**Doug Vader**	**Tillage:**	Chisel – 1x Field Cultivator
Location:	Bay County	**Harvest Date:**	October 15, 2007
Planting Date:	April 7, 2007	**Sample Date:**	September 24, 2007
Previous Crop:	Corn	**Herbicides:**	Microrate 4x
Soil Type:	Tappan Loam	**Replicated:**	4X
Row Spacing:	30 In.; Seed Spacing 4.5".	**# Rows Harvested:**	6
Fertilizer:	20 gal. 19-11-0 + Micros 25 gal. 28% Sidedress Broadcast 0-30-200	**Fungicide:**	Eminent (38 DSV) GEM (74 DSV) Eminent (109 DSV)

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
B-5534 N	6934	29.52	235	16.3	94.3
B-5833 R	3439	14.28	241	16.2	95.7
AVERAGE	5187	21.90	238	16.2	95.0
LSD (5%)	848	1.86	21	1.5 NS	.7
C.V. (%)	7	3.78	4	4	.3

Comments: HEAVY INFESTATION OF SUGARBEET CYST NEMATODE. Trial was conducted to evaluate B-5534 N, a nematode resistant variety, compared to B-5833 R, a susceptible variety. Large differences occurred in yield and growth of the beets. Multiple year research indicates that a nematode resistant variety placed in a nematode infested field can improve yields from 5-15 tons per acre. Growers need to identify nematode infested fields in their rotations and utilize resistant varieties accordingly.

Trial Reliability: Excellent

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

X-BEET PRIMING TRIAL

Cooperator:	**Kevin Hecht**	**Tillage:**	Mold Board Plow – 1x Danish Tine
Location:	Tuscola County	**Harvest Date:**	11/4/07
Planting Date:	4/22/07	**Sample Date:**	9/24/07
Previous Crop:	Dry Beans	**Herbicides:**	Microrate 4x
Soil Type:	Clay Loam	**Replicated:**	4x
Row Spacing:	30 In.	**# Rows Harvested:**	4
Fertilizer:	100 lbs. 11-52-0 90# Nitrogen Broadcast	**Fungicide:**	Headline (52 DSV) Eminent (99 DSV)

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	13 DAY	20 DAY	30 DAY
X-BEET	8469	32.57	260	17.9	94.1	151	262	294	286
CHECK	8418	31.94	264	18.2	94.0	21	132	262	266
AVERAGE	8443	32.25	262	18.1	94.0	86	197	278	276
LSD (5%)	872 NS	1.82 NS	14 NS	.6 NS	1 NS	30	65	41 NS	31 NS
C.V. (%)	5	2.5	2	1.4	.5	15	15	7	5

Comments: TRIAL WAS CONDUCTED TO LOOK AT THE EFFECTS OF PRIMED (X-BEET BY GTG) COMPARED TO NON-PRIMED SEED OF THE SAME LOT. X-BEET primed seed emerged significantly faster than non-primed seed. Overall emergence was excellent with high population stands with both treatments. Field had some Rhizomania detected in field. No significant yield difference was seen between treatments. Variety tested was Prompt.

Trial Reliability: Good

Cooperating Agriculturist(s): Jeff Karst, Michigan Sugar Company

X-BEET PRIMING TRIAL

Cooperator: **Vern Stephen**
Location: Bay County
Planting Date: 4/17/07
Previous Crop: Dry Beans
Soil Type: Sandy Loam
Row Spacing: 30 In., Seed Spacing 4 1/8”
Fertilizer: 5 gal. 10-34-0 + Micros
130 lbs. 82% N
300 lbs. 0-0-60 Broadcast

Tillage: 1x Field Cultivator
Harvest Date: 11/2/07
Sample Date: 9/24/07
Herbicides: Nortron PRE - Microrate 4x
Replicated: 6x
 # Rows Harvested: 4
Fungicide: Eminent (55 DSV)
Headline (110 DSV)

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 11 DAY	13 DAY	16 DAY	20 DAY	31 DAY
X-BEET	6270	25.87	242	17.2	92.9	132	223	230	237	237
CHECK	6002	25.37	237	16.9	92.8	18	161	198	228	236
AVERAGE	6136	25.62	240	17.1	92.9	75	192	214	232	237
LSD (5%)	336 NS	1.2 NS	3 NS	.4 NS	.9 NS	12	28	24	18 NS	12 NS
C.V. (%)	4	3	1	1.5	.6	11	10	9	5	4

Comments: TRIAL WAS CONDUCTED TO COMPARE X-BEET PRIMED (GTG) TO NON-PRIMED SEED OF THE SAME SEED LOT. X-BEET priming emerged significantly faster than non-primed seed. Final stands at 30 days were equal between treatments. Variety tested was Prompt.

Trial Reliability: Excellent

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

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X-BEET TRIALS — AVERAGES OF 2 TRIALS

Cooperator	**Kevin Hecht**	**Vern Stephen**	**Tillage:**	--	--
Location:	Tuscola Co.	Saginaw Co.	**Harvest Date:**	Nov. 4, 2007	Nov. 2, 2007
Planting Date:	April 22, 2007	April 17, 2007	**Sampled:**	Sept. 24, 2007	Sept. 24, 2007
Previous Crop:	Dry Beans	Dry Beans	**Herbicides:**	--	--
Soil Type:	Clay Loam	Sandy Loam	**Replicated:**	4x	6x
Row Spacing:	30 Inch	30 Inch	**# Rows Harvested:**	4	4
Fertilizer:	--	--	**Fungicide:**	--	--

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARVEST
X-Beet	**7370**	**29.22**	**251**	**17.6**	**93.5**				
Check	**7210**	**28.66**	**251**	**17.6**	**93.4**				
AVERAGE	**7290**	**28.94**	**251**	**17.6**	**93.5**				
LSD (5%)	**--**	**--**	**--**	**--**	**--**				
C.V. (%)	**--**	**--**	**--**	**--**	**--**				

SEE NEXT PAGE

Comments: Trial was conducted to compare X-BEET PRIMED (GTG) to non-primed seed of the same lot. X-BEET primed seed emerged significantly faster than non-primed seed. Overall emergence was excellent with high population stands with both treatments. The Hecht trial had some Rhizomania detected in the field. The variety tested was Prompt.

Trial Reliability: Good

Cooperating Agriculturist(s): Jeff Karst and Rick List, Michigan Sugar Company

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2007 X-Beet Priming Trials

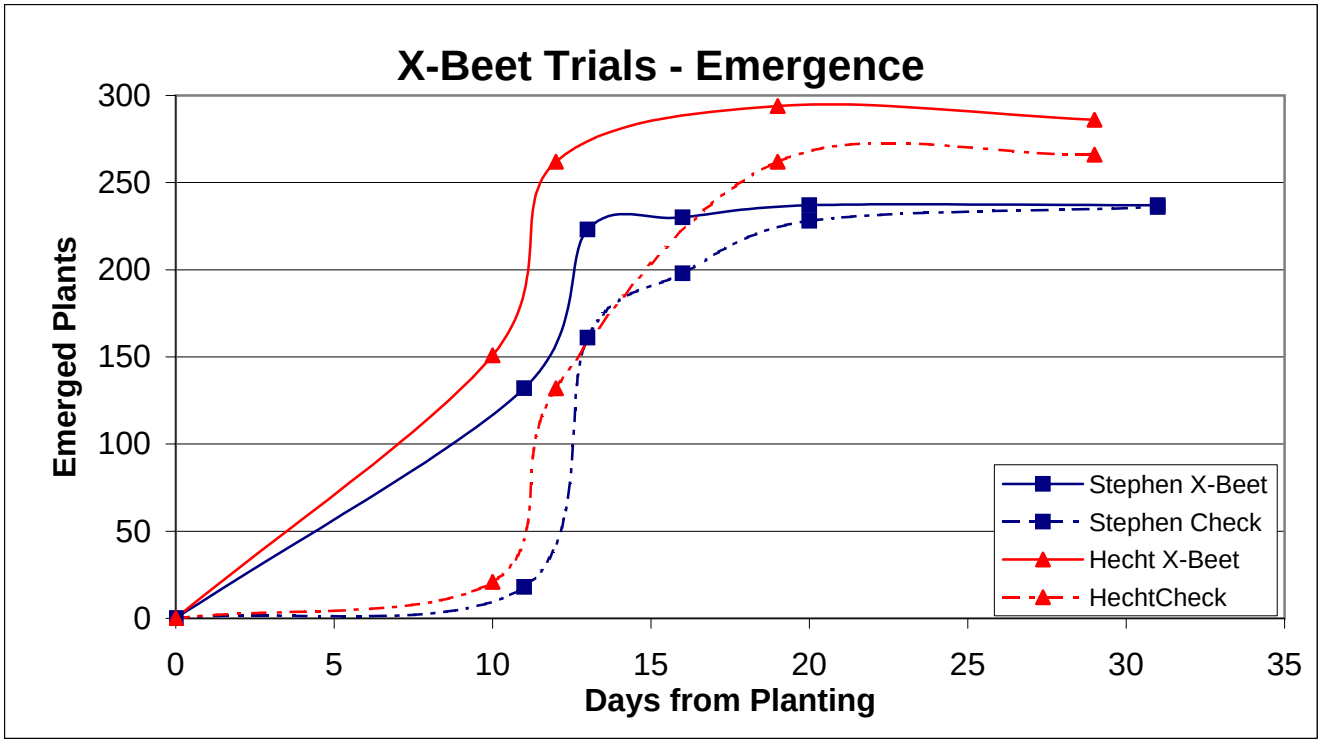
Cooperators: Vern Stephen
Kevin Hecht
Locations: Saginaw & Tuscola Counties
Plant Dates: Stephen April 17,2007
Hecht April 22, 2007
Variety: Prompt w/ & w/out X-Beet

Stephen Trial

TREATMENT	11 Day	13 Day	16 Day	20 Day	31 Day
X-Beet	132	223	230	237	237
Check	18	161	198	228	236
Average	75	192	214	232	237
LSD 5%	12	28	24	18 NS	12 NS
CV%	11	10	9	5	4

Hecht Trial

TREATMENT	10 Day	12 Day	19 Day	29 Day
X-Beet	151	262	294	286
Check	21	132	262	266
Average	86	197	278	276
LSD 5%	30	65	41 NS	31 NS
CV%	15	15	7	5



STARTER FERTILIZER TRIAL

Cooperator: **Stoutenberg Farms**
Location: Sanilac County
Planting Date: 4/24/07; Variety B-5534 N
Previous Crop: Dry Beans
Soil Type: Loam
Row Spacing: 30 Inch
Fertilizer: 2x2 Starter applied at 15 gal./acre; 100 lbs. N from 28% PPI

Tillage: V Ripper, 1x Field Cult.
Harvest Date: 10/30/07
Sampled: 9/27/07
Herbicides: Microrate 5x
Replicated: 3x
 # Rows Harvested: 8 row
Fungicide: Gem
Eminent

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
28%	6694	33.19	202	15.3	90.8
Check	6682	31.72	212	15.6	91.7
12-22-0 Blend	6631	33.58	197	14.9	90.9
10-34-0	6245	32.61	192	14.6	90.8
AVERAGE	6563	32.78	201	15.1	91.0
LSD (5%)	507 NS	1.68 NS	20 NS	.9 NS	1.4 NS
C.V. (%)	4	2.7	4	2.2	5

Comments: Trial was conducted to look at the effects of different types of starter fertilizers placed 2x2 at planting. All starters were applied at 15 gallons per acre. Treatments included (1) 28% Nitrogen, (2) 10-34-0, (3) Blended material analysis of approximately 12-22-0-6S-.1B + Micros, (4) No starter. Field had crusting problems and one replication was abandoned due to uneven populations. No significant difference between treatments. Early sugar samples taken on 9/27/07 and poor quality variety B-5534 N resulted in low quality. No visual differences were seen between treatments. Soil phosphorous levels were very high.

Trial Reliability: Good

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

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STARTER FERTILIZER TRIAL

Cooperator: **LAKKE-Ewald Farm**
Location: Tuscola County
Planting Date: 3/30/07; Variety B-5534 N
Previous Crop: Wheat / Clover
Soil Type: Loam
Row Spacing: 22 Inch
Fertilizer: 2x2 10 gal. 28% N
Preplant 13.3 gal. 28%

Tillage: Plow – 1x Field Cultivator
Harvest Date: 9/24/07
Sample Date: 9/24/07
Herbicides: 4x Micro Rate
Replicated: 4x
 # Rows Harvested: 8
Fungicide: Headline (1st) Eminent (2nd)
Topsin + Dithane (3rd)
Quadris Applied 2-8 Leaf

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
2x2 Starter	6725	28.06	240	16.8	93.8
No starter	6272	26.42	237	16.6	93.9
AVERAGE	6498	27.24	238	16.7	93.8
LSD (5%)	625 NS	2.82 NS	6 NS	.2 NS	.8 NS
C.V. (%)	4	4.6	1	.6	.4

Comments: Trial was conducted to look at the effects of 2 x 2 starter fertilizer of 28% nitrogen on yield and quality. A total of 10 gallons per acre of 28% was applied in the 2 x 2 band. Strips without 2 x 2 starter also received 10 gallons side-dressed at early emergence in order to equalize nitrogen rates. Previous trials have generally shown an early growth response from 30 to 40 pounds of nitrogen placed 2 x 2. Statistical analysis indicates significance for improved yield at the 80% confidence level but not at the 95% confidence level. Producers who use 2 x 2 starter fertilizer may want to consider a minimum of 30 lbs of nitrogen, alone or in combination with phosphate and other nutrients.

Trial Reliability: Excellent

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

STARTER FERTILIZER TRIAL

Cooperator: **LaRaCha Farms**
Location: Tuscola County
Planting Date: 4/25/07; Variety B-5451
Previous Crop: Corn
Soil Type: Loam
Row Spacing: 28”
Fertilizer: 45 gal. 28% Pre-plant
Soil Test 158 lbs. Phosphorus,
452 lbs. Potassium
pH 7.7

Tillage: Disk Ripper - 2x Disk Cultivator
Harvest Date: November 4, 2007
Sampled: October 4, 2007
Herbicides: 4x Microrate
Replicated: 5x
 # Rows Harvested: 8
Fungicide: Eminent (53DSV)
Headline (108DSV)
Quadris 6 Leaf stage

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
10 Gal. 10-34-0	8626	30.46	283	19.1	95.0
10 Gal. 4.5-15-15-4.5 S	8400	29.14	288	19.3	95.4
No Starter	7819	29.01	269	18.3	94.7
AVERAGE	8282	29.53	280	18.9	95.1
LSD (5%)	634	1.57 NS	15	0.9	0.5
C.V. (%)	6	3.86	4	3.3	0.4

Comments: Trial was conducted to look at the response of sugarbeets by placing starter fertilizer in a 2 x 2 band at planting. Full length strips were harvested for yield. The 10-34-0 starter strips were significantly better in RWSA and trend was for better quality when compared to No-Starter fertilizer strips.

Trial Reliability: Good

Cooperating Agriculturist(s): Dave Ganton, Michigan Sugar Company

STARTER FERTILIZER & AVAIL TRIAL

Cooperator: **Houghtaling Farms**
Location: Sanilac County
Planting Date: 4/26/07; Variety B-5833 R
Previous Crop: Corn
Soil Type: Clay Loam;
Row Spacing: 28 Inch, Seed Spacing 3.8”
Fertilizer: Starter 8 gal 17-17-0 + Micros
25 gal. 28% Broadcast
Variable Rate 0-0-60

Tillage: DMI – 1x Field Cultivator
Harvest Date: 10/26/07
Sampled: 9/28/07
Herbicides: Microrate 4x
Replicated: 3x
 # Rows Harvested: 6
Fungicide: Gem (DSV 115)
Quadris In-Furrow

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
Starter Fertilizer	5317	20.02	266	18.1	94.5
Starter + AVAIL	5284	19.43	272	18.5	94.7
No Starter	5112	19.09	268	18.2	94.8
AVERAGE	5238	19.52	269	18.3	94.7
LSD (5%)	697 NS	2.53 NS	13 NS	.7 NS	.5 NS
C.V. (%)	6	5.7	2	1.8	.2

Comments: Trial was established to look at the effect of standard starter fertilizer, no starter fertilizer, and AVAIL added to starter fertilizer. AVAIL from Simplot is a product that claims to inhibit fixation of phosphate fertilizer promoting improved plant absorption of phosphorus and potentially increasing yield. Twelve row strips were replicated across the field utilizing a standard starter fertilizer tank and a second tank that contained AVAIL plus starter. Soil test indicated high phosphate levels (75 Lbs/Acre). No visual growth difference or significant yield was measured between treatments.

Trial Reliability: Good

Cooperating Agriculturist(s): David Ganton, Michigan Sugar Company

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NARROW ROW TRIAL

Cooperator: **Bernia Family Farms/Brian Rayl**
Location: Tuscola County
Planting Date: April 21, 2007
Previous Crop: Wheat / Clover
Soil Type: Loam
Seed Spacing: 4 ½"
Fertilizer: 5 gal. 10-34-0 + 13 gal. 28% N + 4 gal. ThioSol + Micros applied 2x2
18 gal. 28% Broadcast

Tillage: Moldboard Plow – 1x S Tine
Harvest Date: 11/5/07; Sampled: 10/8/07
Herbicides: 2x Microrates,
1x Standard Split
Replicated: 4x
 # Rows Harvested: 6 rows, 30"; 8 rows, 22"
Fungicide: Gem (DSV 54)
Eminent (DSV 116)
Headline (DSV ?)

ROW SPACING	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	HARVEST	1200 Ft. RHIZ
22 Inch	9,594	35.34	272	18.4	94.9	--	--	160	--	--
30 Inch	9,126	34.93	261	17.9	94.4	--	--	165		
AVERAGE	9360	35.13	266	18.2	94.6			162		
LSD (5%)	750 NS	.89 NS	23 NS	1.0 NS	1.0 NS			38 NS		
C.V. (%)	4	1.1	4	2.4	.5			11		

Comments: Trial was conducted by coordinating planting efforts of Bernia Family Farms and Rayl Farms in one location to compare 22 inch to 30 inch rows for yield and quality. Seed spacing was planted at 4 ½ inch spacing. Final stands of 22 inch rows equaled 38,000 plants per acre and 30 inch rows are 30,000. Fertility and other management practices were kept the same between row widths. Under ideal conditions narrow and wide rows yielded similarly. Trends exist for better quality and tonnage with the narrow rows under a high yielding environment. Harvest was conducted with a new ARTSWAY harvester for narrow rows and a later model ARTSWAY for the wide rows. New style harvester may do a better job cleaning (reducing tare) than the later model. This could possibly affect weight comparisons between treatments.

Trial Reliability: Excellent

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

ESN SLOW RELEASE NITROGEN

Cooperator: **Learman Farms**
Location: Huron County
Planting Date: 5/5/07; Variety C-271
Previous Crop: Corn
Soil Type: Loam
Row Spacing: 28 Inch, Seed Spacing 4"
Fertilizer: Starter 250 lbs., 10-24-7+ Micros; 85 lbs. Broadcast Nitrogen Urea

Tillage: Fall Plow – 1x Field Cultivator
Harvest Date: 10/24/07
Sample Date: 10/5/07
Herbicides: Roundup Pre; 3x Microrate; 1x Outlook
Replicated: 3x
 # Rows Harvested: 4
Fungicide: Eminent (68 DSV)
Headline (129 DSV)

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
50-50 Mix	9222	34.08	271	18.6	94.4
100% Urea	9188	34.63	266	18.2	94.2
100% ESN	9019	33.78	267	18.3	94.2
AVERAGE	9143	34.16	268	18.4	94.3
LSD (5%)	818 NS	3.27 NS	22 NS	1.1 NS	1.2 NS
C.V. (%)	4	4.2	4	2.6	.5

Comments: Trial was conducted to look at the effects of controlled release nitrogen (ESN from AGRIUM) to standard Urea and a 50% mix of Urea and ESN. These treatments were broadcast prior to planting with an Air Flow Spreader at a rate of 85 pounds per acre of actual nitrogen. All treatments received a standard 2 x 2 starter at planting which included 25 pounds nitrogen. Trial was very even and exceptional in yield averaging 34 tons per acre. No major rainfall events occurred that would cause de-nitrification or leaching of nitrogen. Visual appearance with growth and coloration was the same. Yields of ESN alone or in combination with Urea did not significantly affect yield or quality when compared to 100% Urea.

Trial Reliability: Excellent

Cooperating Agriculturist(s): Bob Corrigan, Michigan Sugar Company
Dennis Bischer, Thumb Farm Service

NITROGEN / NUTRISPHERE N

Cooperator: **Zwerk and Sons Farms**
Location: Tuscola County
Planting Date: 4/21/07; Crystal 355
Previous Crop: Dry Beans
Soil Type: Park Hill Loam
Row Spacing: 22 Inch
Fertilizer: Plowdown 400 lbs./ac of 2-13-43-4 Sul. Broadcast 28%-Nitrogen Rates Below

Tillage: Plow – 1x Danish Tine
Harvest Date: 11/6/07
Sample Date: 10/4/07
Herbicides: Microrate 4x
Replicated: 4x
 # Rows Harvested: 12 rows
Fungicide: Headline (65 DSV)
Eminent (? DSV)

TREATMENT N - Rate	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW 10 DAY	20 DAY	30 DAY	Harv
120 lbs. w/Out Nutri.	9709	33.49	291	19.6	95.1	--	--	212	--
120 lbs. w/ Nutrisphere N	9087	31.71	287	19.3	95.0	--	--	210	--
90 lbs. w/Out Nutri.	9468	32.32	293	19.6	95.2	--	--	214	--
90 lbs. w/ Nutrishpere N	8864	29.73	298	19.9	95.5	--	--	207	--
60 lbs. w/Out Nutri.	8778	30.34	289	19.3	95.4	--	--	201	--
60 lbs. w/ Nutrishere N	9099	30.90	295	19.6	95.5	--	--	205	--
AVERAGE	9167	31.41	292	19.6	95.2	--	--	208	--
LSD (5%)	902 NS	2.69 NS	10 NS	.6 NS	.6 NS	--	--	32 NS	--
C.V. (%)	7	5.7	2	1.9	.4	--	--	6	--

Comments: Trial was conducted to look at the effects of different nitrogen rates and the addition of NutriSphere-N, which is marketed as a nitrogen enhancer that protects and keeps nitrogen in the ammonium state for a longer period of time. Yield results indicate very little difference statistically between nitrogen rates and the addition of the additive. This was a very high yielding trial with excellent quality.

Trial Reliability: Good

Cooperating Agriculturist(s): **Jeff Karst, Michigan Sugar Company**
Eric Sherwood, Star of the West

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NITROGEN RATE TRIAL

Cooperator:	**Joe Wasmiller**	**Tillage:**	Disk Ripper; Field Cult.
Location:	Saginaw County	**Harvest Date:**	October 24, 2007
Planting Date:	4/20/07; Variety R-442	**Sampled:**	October 4, 2007
Previous Crop:	Corn	**Herbicides:**	Micrate 3x
Soil Type:	Zilwaukee – Misteguay Complex	**Replicated:**	4x
Row Spacing:	30 Inch	**# Rows Harvested:**	8
Fertilizer:	10 Gal. 10-34-0 at Planting 33% Side-dress - Rates Below	**Fungicide:**	Eminent – July 28, 2007 Headline – August 28, 2007

TREATMENT	RWSA	TONS/ ACRE	RWST	% SUGAR	% CJP
0 lbs.	3140	14.16	222	15.4	94.2
70 lbs.	3784	16.80	224	15.7	94.0
100 lbs.	3916	17.21	227	15.8	94.2
130 lbs.	3908	18.32	214	15.0	93.9
160 lbs.	4100	17.97	227	15.7	94.3
AVERAGE	3769	16.89	223	15.5	94.1
LSD (5%)	756	2.62	22 NS	1.2 NS	1.0 NS
C.V. (%)	13	10.08	7	5.0	0.7

Comments: HEAVY SUGARBEET CYST NEMATODE PRESSURE DID GREATLY AFFECT TRIAL RESULTS. USE DATA WITH CAUTION. Trial was conducted to look at the effects of nitrogen rate on yield and quality of sugarbeets. Location of this trial was south of Saginaw in the Prairie. Pre-sidedress soil nitrate test indicated a 100 lb/acre nitrate credit. Very visual response on foliage was seen between treatments. With the 0 lb/acre side-dress nitrogen application rate, beet leaves were very yellow and lacked leaf growth. The zero nitrogen rates were significantly poorer in yield than the other treatments. Sugarbeet cyst nematodes will affect the uptake of water and nutrients in the plant. No significant difference in yield and quality between the 70 to 160lb/acre nitrogen rates.

Trial Reliability: Poor

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

CULTIVATION TRIAL

Cooperator: **Doug Vader**
Location: Tuscola County
Planting Date: 4/20/07
Variety: 9032RR
Soil Type:
Row Spacing: 30 Inch
Fertilizer:

Tillage:
Harvest Date: 10/13/07
Sample Date: 10/13/07
Herbicides: Round-Up
Replicated: 3x
 # Rows Harvested: 6
Fungicide: DSV 55-87-134
Quadris 2-8 Leaf Stage

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	1200 Ft. RHIZ
Late Cultivation	9185	35.25	261	17.6	95.2	4
No Cultivation	9169	35.47	259	17.5	95.1	3
Early and Late Cultivation	8980	34.89	258	17.5	95.0	6
Early Cultivation	8776	34.13	257	17.5	94.9	15
AVERAGE	9028	34.94	259	17.5	95.0	7
LSD (5%)	566 NS	3.6 NS	19 NS	.9 NS	1.3	NS
C.V. (%)	3	5	4	2.5	.7	--

Comments: Trial was conducted to look at the need for cultivation on a Round-Up Ready variety (9032RR). Cultivation timing is as follows: One Time Early (May 21st), One Time Late (June 30th), Two Time Cultivation (May 21st and June 30th), and No Cultivation. Weed and leaf spot control were excellent and very little Rhizoctonia Crown Rot was present. An excellent stand was established. Trial indicates no need to cultivate if there are no issues with crusting and weed control.

Trial Reliability: Excellent

Cooperating Agriculturist(s):
Craig Rieman, Michigan Sugar Company
Doug Ruppal, Eastern District Sales and Research Manager, Syngenta

SCALPING VS TOPPING

Cooperator:	**Helena Valley Farms**	**Tillage:**	Chisel; 1x Field Cultivator
Location:	Huron County	**Harvest Date:**	November 8, 2007
Planting Date:	April 21, 2007; Variety B-5833 R	**Sampled:**	November 8, 2007
Previous Crop:	Wheat	**Herbicides:**	4x Microrates
Soil Type:	Loam	**Replicated:**	4x
Row Spacing:	20”	**# Rows Harvested:**	6
Fertilizer:	10 gal. 2x2 Starter 19-14-0 Nitrogen 50-50 mix ESN/Urea - 100 lbs. total Nitrogen	**Fungicide:**	1st Eminent 2nd Headline Quadris 8 leaf

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
SCALPED	9445	31.17	303	20.2	95.4
TOPPED	9478	31.47	301	20.3	95.0
AVERAGE	9461	31.32	302	20.2	95.2
LSD (5%)	304 NS	0.87 NS	8 NS	0.4 NS	0.4
C.V. (%)	1	1.23	1	0.9	0.2

Comments: Trial was conducted to look at the effect to yield and quality from scalping sugarbeets with a ROPA harvester compared to an excellent job topping sugarbeets. Trial was very even and had an excellent stand of beets. All treatments were harvested with the ROPA harvester. During harvest for the topped strips, cutting knives on the ROPA harvester were chained up to not allow any scalping. Each strip had three quality samples taken for a total of 12 samples per treatment. In this trial no significant differences were measured in yield, RWSA, RWST, and % sugar. However, significance was indicated in clear juice purity.

Trial Reliability: Excellent

Cooperating Agriculturist(s): Matt Booms, Michigan Sugar Company

Special thanks to Dennis Roggenbuck for cooperating with the topper.

TOPPING SPEED

Cooperator:	**Dennis Schuette**	**Tillage:**	Chisel; 1x Field Cultivator
Location:	Huron County	**Harvest Date:**	October 22, 2007
Planting Date:	May 4, 2007; Variety 7172 RZ	**Sample Date:**	October 22, 2007
Previous Crop:	Corn	**Herbicides:**	2x Standard Split
Soil Type:	Loam	**Replicated:**	4x
Row Spacing:	30"	**# Rows Harvested:**	6
Fertilizer:	13,000 gal. Dairy Manure 5 gal. 28% 10" Band at Planting	**Fungicide:**	1st Eminent; 2nd Headline

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP
3 MPH	6735	27.05	249	17.5	93.3
4 MPH	6682	27.17	246	17.4	93.2
5 MPH	6917	27.64	251	17.8	92.8
AVERAGE	6778	27.28	249	17.5	93.1
LSD (5%)	665 NS	2.51 NS	25 NS	1.2 NS	1.5 NS
C.V. (%)	6	5.32	6	4.0	0.9

Comments: Trial was conducted to look at the effect that speed of topping has on quality of sugar beets. Topper was a new Alloway Standard. This topper had metal flails in the first row and rubber on the back two rows. Speed of topping was 3, 4, and 5 MPH and the RPM speed was kept constant. Two quality samples were taken per strip and each treatment was replicated 4 times. Samples were taken after the beets had gone through the harvester. Visual differences were seen at the different topping speeds. The fastest speed had the most green material remaining on the crown. Some of this green petiole matter came off when the beets went through the harvester. Overall no significant differences in quality were measured between the different topping speeds. A small trend exists for poorer CJP at the 5 MPH topping speed. Recommended speed is generally between 3-4 MPH.

Trial Reliability: Good

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

POULTRY MANURE / LIME TRIAL

Cooperator: **Gene Meylan**
Location: Bay County
Planting Date: 5/17/07; Variety 79 RZ
Previous Crop: Dry Beans
Soil Type: Clay loam
Row Spacing: 30 Inches; Seed Spacing 4.5"
Fertilizer: 20 gal. 12-25-0 + Micros
Soil Test: PH 7.2, P 98 ppm, K 197 ppm

Tillage: Chisel, 1x Field Cultivator
Harvest Date: 10/29/07
Sample Date: 10/8/07
Herbicides: Nortron Pre – 2x Split Rate
Replicated: 4
 # Rows Harvested: 6
Fungicide: Eminent (1st), Headline (2nd) Eminent (3rd)

TREATMENT	RWSA	TONS / ACRE	RWST	% SUGAR	% CJP	1200 Ft. RHIZ
Manure & Lime	4933	18.16	272	18.6	94.5	60
Lime	4859	18.73	260	17.8	94.5	87
Manure	4593	17.61	261	18.2	93.6	63
Check	4387	17.39	252	17.5	93.8	70
AVERAGE	4693	17.97	261	18.0	94.1	70
LSD (5%)	678	2.07	23	1.2	1.8	N.S.
C.V. (%)	9	7	6	4	1	--

Comments: Trial was conducted to look at the effects of beet lime and pelletized poultry manure. Application rates were approximately 1 ton/acre for each material. Applications were done in the fall using a broadcast spreader. This field was chosen because of a history of Rhizoctonia Crown Rot and Sugarbeet Cyst Nematodes. Both can be related to soil quality issues. Extreme dry conditions greatly affected yield and aggravated cyst nematode impact. At planting all treatments received 2 x 2 starter fertilizer which contained approximately 25-30 lbs. of nitrogen and 50 lbs. of phosphorous per acre. On non-manure strips an additional 70 lbs. of nitrogen per acre was applied according to nitrate test. No additional nitrogen was applied on manure strips. No significant yield differences occurred between any treatments. Rhizoctonia levels were also non-significant. Trial indicates that manure application can substitute for side dress nitrogen application with similar yields. Current manure cost is $55 per ton, plus freight. Manure should be considered as a substitute for commercial fertilizer based on nutrient values. This may be an option for growers to help improve soil quality from manure applications. Manure nutrient analysis report estimated first year availability of N-P-K per ton as follows: Nitrogen 39.34 lbs, Phosphorous 73.12 lbs, and Potassium 40.95 lbs, plus several secondary and micro nutrients. We would expect additional nitrogen to be released in year two as manure breaks down, along with possible improved soil health benefits.

Trial Reliability: Fair

Cooperating Agriculturist(s): **Tom Schlatter, Michigan Sugar Company**
Brian Geerlins, Herbruck Poultry Ranch

Reclaiming Beet Ground Soil Quality and Productivity with Low-Intensity Tillage, Biosuppressive Covers and Organic Inputs

T.M. Harrigan, S. Poindexter and D.R. Mutch

The slurry seeding was done with a commercially available slurry tanker (3,000 gal.) equipped with a rear-mounted rolling-tine aerator (12 ft.; Aer-Way, Holland Equipment Ltd. Norwich, Ontario, Canada) and a SSD (sub-surface deposition) slurry distribution system. The rolling-tine aerator was ground-driven with sets of four 8 inch tines mounted helically on a rotating shaft with 7.5 inch spacing between each set of tines. The angle of the rotating shaft was adjustable in 2.5º increments from 0º to 10º degrees from perpendicular relative to the direction of travel. The 0º gang angle provided little soil disturbance while the 10º gang angle provided the most soil loosening.

The slurry-seeding process involved mixing oil seed radish and oriental mustard seed in the slurry tank and passing the seed-laden slurry through a hydraulically driven, rotating chopper/distributor (300 rpm) and then through drop tubes to the fractured and loosened soil behind each set of rolling tines. Oil seed radish (var. Colonel, 20 lb/ac) and oriental mustard (var. Pacific Gold, 12 lb/ac) were sown in untilled wheat stubble on a sandy clay loam on 8 August 2006 and 2007 at the Lakke-Ewald farm in Unionville. Two seeding methods were used: 1) direct-drilling with a Deere 750 no-till drill (15 ft width, 7.5 inch spacing), and 2) slurry seeding with aeration tillage and seed-laden dairy manure (10° gang angle, 10,000 gal/ac). The plots (2000 ft x 15 ft in 2006, 1000 ft by 15 ft in 2007) were arranged in a randomized complete block with four replications.

The August 2006 manure application (10,000 gpa) contained 304 lb/ac total nitrogen; 166 lb/ac was readily available as ammonium N and 138 lb/ac was bound in the organic fraction. The estimated organic N available in the first year was 41 lb/ac. In 2007, the manure contained 287 lb/ac total N of which 175 lb/ac was plant available and 112 was in the organic fraction. The estimated fraction of the organic N available in the first growing season was 28 lb/ac. Fifty lb/ac N as 28% was applied to the direct-drilled plots each year before planting. At planting, 30 lb/ac N as 28% was applied to all plots, and 70 lb/ac N as 28% was applied as a side dress treatment to all plots that did not receive manure.

In 2006, the direct-drilled OM stand (11.4 plants ft^{-2}) was significantly greater than the manure slurry-seeded OM stand (5.3 plant ft^{-2}; $p \leq 0.05$), but there was no difference between the direct-drilled OSR stand (6.4 plants ft^{-2}) and the manure slurry-seeded OSR stand (4.3 plants ft^{-2}; $p \leq 0.05$; Table 1). There were significant effects on surface biomass due to both seeding method ($p < 0.01$; manure slurry seeding was greater than direct drilling) and crop sown ($p < 0.01$; OM was greater than OSR). The manure slurry-seeded OSR surface biomass (1.57 ton ac^{-1}) was significantly greater than the direct-drilled OSR ($p = 0.01$; 0.98 ton ac^{-1}), and the manure slurry-seeded OM (2.06 ton ac^{-1}) was significantly greater than the direct-drilled OM (1.56 ton ac^{-1}).

The 2007 sugar beet crop was planted on April 21. The west half of the field was seeded with sugar beet variety B-5833R, a SBCN susceptible variety, and the east half of the field was seeded with B-5534N, a resistant variety. On May 31, 2007 a pre-side dress nitrogen test (PSNT) was used to evaluate plant available N in all treatment replicates. The plots that received manure appeared N deficient throughout the growing season. The treatments which received no

manure in fall 2006 had significantly greater available N ($p \leq 0.05$) than the treatments that received manure. Presumably, plant available N from the manure was lost to the atmosphere by volatilization within a few days of application, and the plant available N was taken up by the growing cover crop and converted organic N. The mineralized plant available N (41 lb in year 1) from the organic fraction was unable to meet crop requirements. Nitrogen conversion from organic to plant available forms may have been hindered by unseasonably dry growing conditions. The PSNT measured nitrate in the soil and did not measure ammonium N or the organic N from the manure or cover crop.

Table 1. Fall 2006 cover crop biomass, spring 2007 sugar beet crop nematode population and recommended side-dress nitrogen.

	Fall 2006 Biomass *				Beets, May 2007			
Seeding Method	Surface Ton/ac	Root Ton/ac	Total Ton/ac	Plants per Ft $^{-2}$	Nematode** concentration	Recommended N, lb/ac	Rhizoc/1200 ft East Field	Rhizoc/1200 ft West Field
Check--no cover crop, no tillage	---	---	---	---	399 ab	4 a	50 ab	40 ab
No cover crop, slurry	---	---	---	---	495 ab	62 b	31 ab	21 ab
Oil seed radish, slurry seed	1.57 b	0.56 b	2.13 b	4.3 a	200 ab	41 b	52 ab	7 a
Oil seed radish, drilled	0.98 a	0.60 b	1.58 a	6.4 a	49 a	9 a	34 ab	69 b
Oriental mustard, slurry seed	2.06 c	0.28 a	2.34 b	5.3 a	584 b	45 b	24 ab	15 ab
Oriental mustard, drilled	1.56 b	0.38 a	1.86 ab	11.4 b	483 ab	14 a	25 ab	9 ab

* abc letters within the same column represent significant differences ($p \leq 0.10$) by Tukey's HSD procedure. Analysis of the SBCN and Rhizoctonia data was by the nonparametric Friedman median aligned test ($p \leq 0.10$).

** Risk ratings based on SBCN eggs plus J2's: no risk = 0; low = 1-1,500; moderate = 1001-10,000; high = >10,000.

Soil samples were collected on May 31, 2007 and evaluated for sugar beet cyst nematode concentration (SBCN; sum of eggs plus J2's per 400 cm^{-3} of soil). All samples were considered 'low' or 'no' risk. The SBCN concentration following the drilled OSR was significantly less than the slurry seeded OM ($p = 0.042$), but there was no significant difference between the other treatments. Although the field was rated low risk based on the nematode screening, the average beet yield of the resistant variety was 5.3 tons/ac greater than the susceptible variety (Table 2). There was no significant difference in clear juice purity, % sugar or RWST between treatments in the east and west sides of the field. Although the resistant variety averaged nearly one percentage unit lower in sugar and ten pounds per acre lower in RWST, it averaged 1100 lb/ac greater in RWSA than the susceptible variety. The direct drilled OM yielded significantly greater recoverable sugar than all treatments except the drilled OSR.

Table 2. Sugar beet harvest data, 2007.

	East Field 2007, Nematode Resistant Variety *					**West Field 2007, Nematode Susceptible Variety**				
Seeding Method	Ton/acre	CJP, %	% Sugar	RWST	RWSA	Ton/ac.	CJP, %	% Sugar	RWST	RWSA
Check, no cover, no tillage	29.6 abc	95.3 a	17.4 a	258 a	7649 bc	24.1 a	95.4 a	18.6 a	270 a	6505 a
No cover crop, manure	27.2 a	95.3 a	17.2 a	254 a	6926 c	21.3 a	96.1 a	18.2 a	266 a	5668 a
Oil seed radish, slurry seed	28.0 ab	95.0 a	17.2 a	254 a	7110 bc	24.4 a	94.3 a	18.4 a	266 a	6792 a
Oil seed radish, direct drill	30.2 abc	95.8 a	17.0 a	262 a	7907 ab	24.7 a	95.9 a	18.4 a	271 a	6681 a
Oriental mustard, slurry seed	27.7 ab	95.5 a	17.4 a	252 a	6977 bc	25.5 a	95.4 a	17.6 a	258 a	6320 a
Oriental mustard, direct drill	33.2 c	95.6 a	17.5 a	260 a	8643 a	24.2 a	95.9 a	18.1 a	268 a	6531 a
Treatment avg.	29.3	95.4	17.3	257	7535	24.0	95.5	18.2	267	6416

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

In 2007 the direct-drilled OM stand (20.6 east; 17.7 west plants ft^{-2}) was significantly greater than the slurry-seeded OM stand ($p \leq 0.05$), but there was no difference between the direct-drilled OSR and the manure slurry-seeded OSR ($p \leq 0.05$; Table 3). The manure slurry-seeded OSR surface biomass (2.08 ton ac^{-1}) was not significantly different from the direct-drilled OSR (2.38 ton ac^{-1}), but the manure slurry-seeded OM (2.12 ton ac^{-1}) was significantly greater than the direct-drilled OM (1.55 ton ac^{-1}). There was no difference in root biomass between the slurry-seeded and direct-drilled oil seed radish.

Table 3. Fall 2007 cover crop biomass.

	2007 East Field Cover Crops			2007 West Field Cover Crops		
Seeding Method	Surface	Root	Plants/ft^2	Surface	Root	Plants/ft^2
Check, no cover, no tillage	0.84 d	---	---	0.79 c	---	
No cover crop, manure	0.92 d	---	---	0.68 c	---	
Oil seed radish, slurry seed	2.08 ab	0.51 a	5.1 b	2.60 a	0.61 a	4.6 b
Oil seed radish, direct drill	2.38 a	0.54 a	8.8 b	2.49 a	0.48 a	9.9 b
Oriental mustard, slurry seed	2.12 a	---	8.6 b	2.36 a	---	7.4 b
Oriental mustard, direct drill	1.55 c	---	20.6 a	1.87 b	---	17.7 a

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

Based on two years of cover crop data and one year of sugar beet data at the Ewald farm in Unionville:

- Slurry seeded plant populations were 40 to 67% of the direct drilled crops, but total biomass production was equal to or greater than direct drilling.
- Volatile nitrogen losses from the manure application were enhanced by warm weather when the cover crops were seeded, but vigorous growth of the cover crops in the fall of 2006 and 2007 indicated considerable manure N scavenging and uptake.
- Most of the plant available nitrogen from the manure application was lost or became unavailable through volatilization, plant uptake, leaching or other means. The N release from manure in organic form and the incorporated cover crop did not meet the N requirements of the sugar beet crop.
- Although in most cases there was no statistically significant difference in yield (ton/acre or RWSA) between manured and non-manured treatments, a pre-side dress nitrogen test indicated significantly more available N in the treatments which received no manure, and the treatments which received manure appeared N deficient throughout the growing season.
- Neither seeding method nor seed variety had a clear effect on the incidence of Rhizoctonia in the sugar beet crop. There was no significant difference between treatments in the west side (nematode susceptible variety) of the field, and on the east side of the field (nematode resistant) only the slurry-seeded OSR was significantly less than the drilled OSR. There were no significant differences between the other treatments.
- Even though soil samples processed on May 31 2007 indicated a low risk of an adverse economic impact due to damage from sugar beet cyst nematode, the SBCN resistant variety averaged 1100 lb RWSA more than the susceptible variety, and there was greater variability between treatments with the susceptible variety. The SBCN concentration was significantly less following the drilled OSR.