

SUGARBEET ADVANCEMENT

Partnership
of:



Sugar Beet Growers
Michigan Sugar Company
Michigan State University
Agribusiness

MISSION STATEMENT

The mission of *Sugarbeet Advancement* is to generate research and utilize education to enhance productivity and profitability of the Great Lakes sugar beet industry. This will be accomplished through a cooperative effort involving Michigan State University, Michigan Sugar Company, Producers and Agribusiness. The *Sugarbeet Advancement* Committee will be active in identifying research needs, conducting educational programming, and identifying promotional and financial support to accomplish established goals.

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ACKNOWLEDGEMENTS

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ON-FARM RESEARCH AND DEMONSTRATION

The *Sugarbeet Advancement* Committee is pleased to provide you with the eighth edition of the "On-Farm Sugar Beet Research and Demonstration Report." An enormous amount of effort and cooperation is required to plant, harvest and analyze the results of various tests. The process begins with the efforts of the *Sugarbeet Advancement* Committee. The Committee brings forward industry production concerns, which are then discussed and prioritized into a research agenda. This year approximately 30 research locations were identified with the help of the sugar company Agriculturalists. Grower cooperation in these trials continues to be exceptional. We salute those cooperators who have worked with us. Without their efforts we could not conduct the type of research we do.

In 2004, the Great Lakes Sugar Industry produced nearly 3.7 million ton of beets. This equates into an average yield of over 21 tons/acre with a grower sugar nearing 19.3%. It's hard to believe in 1996 the industry was at approximately 15 tons/acre with acreage declining. Since its inception, the goal of *Sugarbeet Advancement* has been to achieve and maintain a 20 ton/acre average. Through research efforts targeting stand establishment, disease and pest control, nutrient management, planting date and variety selection, along with other production practices, stabilization of the industry has been realized and producers have adopted the latest technology. Make no mistake; productive research and the incorporation of change are the components to the long term viability of any business.

We make every attempt to replicate our research in order to be able to perform statistical analysis. These statistics help us determine what differences between treatments are real and those that may be due to field variation or other factors. If a trial was not randomized or replicated, be cautious with the information. Be certain to read any and all comments that accompany each trial, there may be constraints effecting the trial. No two sites are identical in regards to weather, pests, diseases, crop history, etc. Please use this document as a tool to help you make sound agronomic decisions.

Industry cooperation in support of *Sugarbeet Advancement* efforts has enabled us to establish a wide range and number of trials. This year, more than 1,200 quality samples were dug and analyzed. This could not happen without the support of Company Researchers, Agriculturalists and Seed Company Representatives. Special thanks again this year goes to Doug Ruppel of Hillehog Seeds for planting and managing the Amistar/Rhizoctonia trials. Other contributors include: Andy Bernia, ACH Seeds; Harold Rouget, Seedex Seeds; Rob Gerstenberger, Beta Seeds; Randy Hemb, Germain's Technology Group and Ralph Fogg, Cory Guza, Lee Hubble and Jim Stewart of Michigan Sugar Company.

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
Sugar Beet Extension Agent

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Sugarbeet Advancement Committee

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PREFACE

The Data in the 2004 *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 analysis from Michigan or Monitor Sugar Companies analysis 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 dieing 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.

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VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	LAKKE-EWALD FARMS	Tillage:	Fall: Plow Spring: 1X Field Cultivate
Location:	Tuscola County (Unionville)	Harvest Date:	10/06/2004
Planting Date:	4/07/2004	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Herbicides:	Micro Rated 4x
Soil Type:	Tappan-Londo Loam	Replicated:	3x
Row Spacing:	22 Inches	# of Rows Harvested:	8
Fertilizer:	72# 28% Broadcast 70# 28% N Side Dress	Fungicide:	5/28/04 – Amistar (2-8 Leaf Stage) 7/13/04 – Eminent 8/09/04 - GEM

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						13 DAY	20 DAY	30 DAY	HARVEST	
H-2767	7896	25.97	304	20.8	94.1	59	178	217	188	8
B-5451	7878	25.88	305	21.0	93.7	62	222	224	220	16
C-271	7849	26.19	300	20.8	93.5	47	199	204	208	37
B-5310	7793	25.71	303	20.8	93.8	100	204	199	194	39
H-7172 RZ	7780	25.58	302	21.0	93.3	15	174	208	206	3
RH-5	7716	26.66	289	19.8	94.2	8	203	232	230	5
C-963	7714	25.53	302	20.9	93.6	39	184	197	199	19
B-5736	7486	24.29	308	21.4	93.3	8	129	156	164	6
H-2761 RZ	7484	24.50	305	21.1	93.5	18	149	210	202	39
E-17	7385	23.70	312	21.4	93.8	45	225	242	237	80
PROMPT	7106	23.58	301	20.9	93.4	55	234	240	241	9
AVERAGE	7644	25.24	303	20.9	93.7	41	191	212	208	24
LSD (5%)	NS	1.52	8	.5	.4	25	28	25	33	41
C.V. (%)	4	3.5	1	1.3	.2	35	9	7	9	102

Comments: Trial planted under good soil conditions. Emergence was good with no crusting. Amistar was applied to minimize Rhizoctonia Crown Root Rot. Trial had very little Aphid, Rhizoctonia and Sugar Beet Cyst Nematode. Plants were very healthy during the growing season. Leafspot control was excellent. Field was harvested early under very dry conditions. There was very little stand loss between 30-day stand count and harvest. Harvest population averaged 47,500 plants per acre. RWSA was not significantly different at 95% confidence level. However, it was significantly different at the 90% confidence level, with an LSD of 412 pounds per acre. All seed was planted with 4M Primed Pellets. Rhizoctonia counts indicated dead or dying beets per 1200 ft. of row.

Trial Reliability: Excellent

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

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VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	CEDAR POND FARMS	Tillage:	Fall-Plowed Spring – 1X Field Cultivate
Location:	Huron County (Ruth)	Harvest Date:	10/19/2004
Planting Date:	4/08/2004	Type of Harvester:	Artsway
Previous Crop:	Wheat	Herbicides:	Microrates 3x + 1 Regular Spray
Soil Type:	Clay Loam	Replicated:	3x
Row Spacing:	30 Inches	# of Rows Harvested:	4
Fertilizer:	150# 17-15-4 + Micros Starter 100# of N Side Dress 82% Broadcast 200 lbs. 0-0-60	# Defoliated:	n/a
		Fungicide:	Headline – 7/16/04 Eminent – 8/7/04 Amistar – Applied In Furrow at Planting

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						18 DAY	20 DAY	30 DAY	HARVEST	
E-17	6642	23.01	289	19.8	94.0	27	89	241	147	2
C-271	6581	23.49	280	19.3	93.9	46	89	196	142	0
H-2767	6514	23.01	283	19.4	94.2	29	101	232	175	2
C-963	6458	22.69	285	19.7	93.7	33	58	198	132	4
B-5451	6344	22.09	287	19.6	94.2	42	111	229	156	1
PROMPT	6303	22.29	283	19.6	93.7	41	116	257	188	1
B-5310	6291	22.27	283	19.5	93.8	56	89	161	120	2
RH-5	6160	21.89	281	19.2	94.3	11	41	216	174	0
H-2761 RZ	6068	21.61	281	19.3	94.1	17	53	223	177	1
H-7172 RZ	5915	21.07	280	19.4	93.7	42	70	204	160	0
B-5736	5635	20.27	278	19.3	93.4	4	27	155	110	3
AVERAGE	6265	22.15	283	19.5	93.9	32	77	210	153	1
LSD (5%)	493	1.37	NS	NS	NS	23	28	31	19	NS
C.V. (%)	5	3.6	2	2.2	.3	42	22	9	7	12.8

Comments: Trial planted under good soil conditions. Emergence was slow because of cold conditions. Excessive rainfall caused some stand loss in low areas. The front third of the field was harvested for trial, which was fairly uniform. Amistar was applied In Furrow at planting. There was very little Rhizoctonia Root Rot, low to moderate Root Aphid and no Sugar Beet Nematodes detected. There was excellent Leafspot control. Harvest population averaged 26,000 plants per acre. Rhizoctonia counts indicated dead or dying plants per 1200 foot of row. All seed was planted with 4M Primed Pellets.

Trial Reliability: Very Good

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

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VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	MEYLAN FARMS	Tillage:	Fall: Chisel Spring: Danish Tine 1x
Location:	Bay County (Auburn)	Harvest Date:	10/28/04
Planting Date:	4/03/2004	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Herbicides:	Pyramin, Nortron, Post Betamix
Soil Type:	Loam	Replicated:	3x
Row Spacing:	30 Inches	# of Rows Harvested:	6
Fertilizer:	17 Gallons 19-17-0 20 Gallons 28% Broadcast 45# A.A. Side Dress	Fungicide:	Eminent – 8/06/04 Amistar – 8-10 Leaf Stage (Late)

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						16 DAY	20 DAY	30 DAY	HARVEST	
B-5310	5537	19.15	289	19.5	94.9	200	216	210	155	70
H-7172 RZ	5458	18.35	297	20.1	94.7	142	196	196	172	6
B-5451	5382	18.57	290	19.5	95.0	193	218	213	161	107
C-271	5216	18.18	287	19.3	95.2	170	193	199	136	88
C-963	5140	18.06	285	19.1	95.0	183	212	213	145	148
H-2767	5132	18.14	283	19.0	95.2	177	211	214	162	74
RH-5	5102	18.29	279	18.9	94.7	146	209	211	193	4
PROMPT	4926	17.76	278	18.8	94.7	205	231	234	203	15
H-2761 RZ	4832	17.17	281	18.9	95.2	151	200	204	162	92
B-5736	4727	16.11	293	19.9	94.5	89	120	131	112	41
E-17	4499	15.83	284	19.2	94.9	182	225	223	179	138
AVERAGE	5087	17.78	286	19.3	94.9	167	203	204	162	71
L S D (5%)	471	1.73	11	.7	NS	22	15	14	34	NS
C.V. (%)	5	5.7	2	2.1	.3	8	4	4	12	95

Comments: Trial planted under good soil conditions. Emergence was good with no crusting. Prolonged wet period delayed the application of Amistar for Rhizoctonia Crown Root Rot control. Moderate to heavy levels of Rhizoctonia, Root Aphid and Sugar Beet Cyst Nematodes affected plants significantly during dry period. Fungicides for Leafspot were applied only one time. Leafspot control was fair. Harvest population averaged approximately 28,000 plants per acre. Rhizoctonia counts indicate number of dead or dying plants per 1200 foot of row. All seed planted with 4M Primed Pellets.

Trial Reliability: Good

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

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VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	CRUMBAUGH FARMS	Tillage:	Fall: Chisel, Field Cultivate Planted Stale Seedbed Tillage
Location:	Gratiot County	Harvest Date:	11/06/04
Planting Date:	4/10/2004	Type of Harvester:	Red River
Previous Crop:	Dry Beans	Herbicides:	Pre-Emergence Glyphosate-Pyramin Micro Rate 2x – Dual/Magnum
Soil Type:	Parkhill Loam	Replicated:	3x
Row Spacing:	30 Inches	# of Rows Harvested:	6
Fertilizer:	330# 11-13-14 + Micros 12 Gallons 28% 25 Gallons 28% Side Dress	Fungicide:	7/15/04 – Headline 8/30/04 - Eminent

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	19 DAY	30 DAY	HARVEST	
C-271	8451	31.05	272	18.6	94.5	10	167	195	175	60
RH-5	8440	31.26	270	18.4	94.5	0	171	209	185	25
H-7172 RZ	8432	32.01	263	18.0	94.6	1	146	186	179	3
B-5451	8237	30.54	270	18.4	94.6	11	171	197	159	150
PROMPT	8226	30.02	274	18.8	94.3	18	206	236	214	74
C-963	8168	29.83	274	18.7	94.4	4	135	174	151	190
H-2761 RZ	8074	29.98	269	18.4	94.5	2	160	207	167	121
B-5310	7900	29.89	264	18.0	94.7	30	166	186	152	95
B-5736	7894	28.47	277	19.0	94.2	0	92	134	124	26
H-2767	7680	28.60	268	18.2	94.8	7	161	200	165	104
E-17	7393	27.94	265	18.0	94.8	5	197	227	178	255
AVERAGE	8081	29.96	270	18.4	94.5	8	161	196	168	100
LSD (5%)	611	1.87	NS	NS	NS	11	25	25	31	114
C.V. (%)	4	3.67	2	2.2	.3	81	9	8	11	67

Comments: Trial planted into stale seedbed. Soil moisture conditions were ideal. No crusting or adverse emergence conditions. Compaction level in trial was light. Moderate amount of Rhizoctonia and light amount of Root Aphid. No Nematodes detected in field. Leafspot control was good. There were very few limitations to yield other than late season drought and Rhizoctonia Crown Rot. This was an exceptional yielding trial. Harvest population averaged approximately 29,000 plants per acre. All seed planted with 4M Primed Pellets. Rhizoctonia counts indicated dead or dying beets per 1200 ft./row.

Trial Reliability: Excellent

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

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VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	HERFORD FARMS	Tillage:	Fall: Chisel Spring: 1x Kongskilde
Location:	Huron County (Bad Axe)	Harvest Date:	11/08/04
Planting Date:	4/16/2004	Type of Harvester:	Artsway
Previous Crop:	Corn Silage	Herbicides:	Micro-Rate 4x
Soil Type:	Loam	Replicated:	3x
Row Spacing:	22 Inches	# of Rows Harvested:	8
Fertilizer:	10,000 Gallons Dairy Manure 4 Gal. 9-18-3 + Micro's In Furrow 20 Gallons 28% Applied 2x2	Fungicide:	Gem – Eminent (2 Applications)

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						13 DAY	18 DAY	30 DAY	HARVEST	
B-5451	7704	27.03	285	19.74	93.6	22	106	157	150	3
C-271	7678	27.04	284	19.75	93.4	44	116	173	154	8
C-963	7329	26.04	281	19.71	93.1	21	87	148	136	10
B-5310	6977	24.70	282	19.69	93.3	34	93	121	114	9
H-2761 RZ	6856	24.89	276	19.26	93.4	7	77	168	162	9
2767	6813	24.64	277	18.89	94.4	34	121	179	169	7
PROMPT	6722	23.98	280	19.32	93.8	28	161	212	204	2
E-17	6691	23.55	284	19.33	94.5	47	152	179	173	22
H-7172 RZ	6454	23.81	271	19.04	93.1	1	37	111	106	1
B-5736	6377	22.83	279	19.67	92.9	6	33	91	85	1
RH-5	6102	23.55	259	17.68	94.6	4	77	163	161	1
AVERAGE	6882	24.73	278	19.28	93.7	23	96	155	147	7
L S D (5%)	454	1.53	9	.55	.7	29	45	35	32	NS
C.V. (%)	4	3.6	2	1.7	.4	76	28	13	13	145

Comments: Trial planted under good to slightly dry soil conditions. Seed was planted relatively deep at 1.25 to 1.5 inch depth. Low vigor seed varieties/lots did not emerge as well as high vigor varieties. Harvest population varied greatly between varieties ranging from 85 to 204 beets per 100 feet. Low levels of Rhizoctonia Crown Rot and moderate levels of Root Aphid present. No Sugar Beet Cyst Nematodes were detected. Relatively heavy defoliation of field due to a hail storm. Leafspot control was good. Rhizoctonia counts indicate dead or dying plants per 1200 foot of row. Harvest population averaged approximately 35,000 plants per acre. Seed was planted with 4M Primed Pellets.

Trial Reliability: Very Good

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

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AVERAGE OF 5 VARIETY TRIALS

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: FIVE LOCATIONS AVERAGED
Location: Bay, Gratiot, Huron (Pigeon and Ruth) and Tuscola
Planting Date: 2004
Row Spacing: Various
Previous Crop: Various
Replicated: 3X - each location

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ	% STAND LOSS
						EARLY	MID	LATE	HAR.		
C-271	7155*	25.19*	285*	19.6*	94.1	63	153	193	163	39*	16
B-5451	7109*	24.82*	287*	19.6*	94.2*	66*	166	204	169	55	17
C-963	6962*	24.43*	285*	19.6*	94.0	56	135	186	153	74	18
B-5310	6900*	24.34*	284*	19.5*	94.1	84*	154	175	147	43*	16
H-7172 RZ	6808*	24.16*	283*	19.5*	93.9	40	125	181	165	3*	9
H-2767	6807*	24.07*	283*	19.3	94.5*	61	154	208	172	39*	17
RH-5	6704	24.33*	276	18.8	94.5*	34	140	206	189	7*	8
H-2761 RZ	6663	23.63	282*	19.4*	94.1	39	128	202	174	52	14
PROMPT	6657	23.53	283*	19.5*	94.0	69*	190*	236*	210*	20*	11
E-17	6522	22.81	287*	19.5*	94.4*	61	178*	222*	183	99	18
B-5736	6424	22.39	287*	19.9*	93.7	21	80	133	119	15*	11
AVERAGE	6780	23.97	284	19.5	94.1	54	146	195	168	41	14
L S D (5%)	389	1.13	6	.5	.3	18	20	16	17	43	-
C.V. (%)	4	3.7	2	1.9	.3	27	11	6	8	83	-

*DENOTES NO SIGNIFICANT DIFFERENCE FROM THE TOP VARIETY

Comments: All trials were planted and maintained by cooperating Growers. Six sugar samples per variety were taken at each location. Dry conditions (drought) at time of sampling may have improved % sugar (quality) of beets. Generally, varieties will perform differently as environmental conditions change at each location. Conditions that may change a varieties performance may include Rhizoctonia pressure, Root Aphid pressure, plant populations, moisture stress and other diseases. Always refer to individual trials and comments at each location. Rhizoctonia counts are dead or dying beets per 1200 ft. of row, counted in August/September. Percent stand loss is 30 day stands, compared to harvest. Trial reliability ranged from good to excellent.

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2004 Variety Trials
(Average of Five Locations)
Final – Mid – Early and Harvest Stand*
Beets Per 100 Ft. Row

	HARVEST	FINAL	MID	EARLY	% EMERGENCE
Prompt	210	236	190	69	84
E-17	183	222	178	61	79
H-2767	172	208	154	61	74
RH-5	189	206	140	34	73
B-5451	169	204	166	66	72
H-2761-RZ	174	202	128	39	72
C-271	163	193	153	63	68
C-963	153	186	135	56	66
H-7172-RZ	165	181	125	40	64
B-5310	147	175	154	84	62
B-5736	119	133	80	21	47
AVERAGE	168	195	146	54	69
LSD 5%	17	16	20	18	-
CV%	8	6	11	27	-

Comments: Stand Counts Based on Three 100-Foot Replications at each Location.
Average Seed Spacing = 4.25 Inches / 282 Seeds per 100 Ft. of Row.

- * Early Stand Counts Ranged from 10-18 Days
- * Mid Stand Counts are Approximately 20-Day Counts
- * Final Stand Counts are Approximately 30-Day Counts
- * Harvest Stand Counts are Taken After Topping

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**VARIETY TRIAL *
RAINFALL DATA –
NEAREST LOCATION**

*Sugar Beet Growers
Michigan Sugar Company
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ON-FARM RESEARCH AND DEMONSTRATION

LOCATION COOPERATOR	YEAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	TOTAL RAINFALL
Unionville Lakke - Ewald	2004	1.77	4.97	2.26	2.36	2.11	.45	2.30	16.22
	2003	2.22	2.87	2.30	4.76	.60	2.02	1.53	16.30
	2002	3.32	5.24	4.22	3.31	2.55	.25	2.00	20.89
	2001	1.53	1.84	2.85	.42	2.17	4.27	5.50	18.58
Ruth Scott Roggenbuck	2004	2.75	7.16	2.80	2.30	2.63	.30	2.19	20.13
	2003	2.60	4.15	3.05	2.65	.65	3.70	2.58	19.38
	2002	3.65	3.68	3.35	4.45	3.10	.60	2.50	21.33
	2001	1.80	2.02	3.51	.35	1.98	5.10	5.47	20.23
Kawkawlin Meylan Farms	2004	2.00	7.85	4.05	1.15	2.02	.30	2.15	19.52
	2003	2.83	3.60	2.92	2.55	1.32	4.22	2.06	19.50
	2002	3.44	4.05	4.41	4.39	1.81	.60	2.45	21.15
Breckenridge Crumbaugh Farms	2004	1.73	8.44	3.82	1.65	3.05	.17	2.40	21.26
	2003	2.23	3.56	2.80	4.01	1.73	2.20	1.78	18.31
	2002	4.09	3.28	3.15	5.95	3.41	.66	2.16	22.70
Bad Axe Herford Farms	2004	2.24	6.67	3.90	2.19	2.45	.75	1.70	19.89
	2003	2.39	3.19	2.11	3.23	.95	3.30	2.28	17.45
	2002	-	-	-	-	-	-	-	-

* 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.

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VARIETY TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	BRIAN FOX	Tillage:	Fall: Plow & Level / Spring: 1x S-Tine
Location:	Wallaceburg, Ontario	Harvest Date:	11/10/04
Planting Date:	4/16/04	Type of Harvester:	Artsway 898
Previous Crop:	Soybeans	Herbicides:	Micro Rates 4x
Soil Type:	Toledo Loam / Silt Loam	Replicated:	3x
Row Spacing:	30 Inches	# of Rows Harvested:	6
		# of Rows Defoliated:	6
Fertilizer:	Fall – 120# 12.5-50-0 + 350# 0-0-60 Side Dress 110# N from A.A.	Fungicide:	Senator – 55 DSV Headline – 110 DSV

VARIETY	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	19 DAY	30 DAY	HARVEST	
C-271	9055	35.74	253	18.78	90.89	106	166	173	161	-
B-5451	8966	35.58	252	18.7	90.46	157	203	211	189	-
B-5310	8919	35.70	250	18.67	90.56	174	181	178	164	-
H E-17	8760	34.54	254	18.72	91.04	127	180	195	192	-
H-2761 RZ	8652	37.82*	229	17.79	89.2	113	176	190	184	-
C-963	8530	36.03	237	18.35	89.06	127	183	190	170	-
SX Prompt	8308	33.68	247	18.75	90.0	132	175	207	191	-
AVERAGE	8741	35.58	246	18.54	90.17	134	181	192	179	-
L S D (5%)	752	1.7	16	.74	1.25	32	38	21	19	-
C.V. (%)	4.8	2.7	3.7	2.24	.78	14	12	6	6	-

Comments: Trial was conducted under a high yielding environment with minimal insect and disease pressure. Harvest population average 31,000 plants per acre. All seed was planted with primed 4M.

Trial Reliability: EXCELLENT

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

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VARIETY TRIAL TWO YEAR AVERAGE

ON-FARM RESEARCH AND DEMONSTRATION

Planting Date: 2003 and 2004

TREATMENT NAME	RWSA	ACTUAL YIELD T/A	RWST	% SUGAR
B-5451	6617	23.60	281	19.2
C-963	6536	23.21	282	19.2
B-5310	6490	23.17	281	19.2
RH-5	6342	23.71	268	18.3
H-2761 RZ	6165	22.38	276	18.9
PROMPT	6110	22.47	272	18.7
B-5736	6040	21.62	280	19.3
E-17	6035	21.56	281	19.0

VARIETY TRIAL THREE YEAR AVERAGE

ON-FARM RESEARCH AND DEMONSTRATION

Planting Date: 2002 – 2003 and 2004

TREATMENT NAME	RWSA	ACTUAL YIELD T/A	RWST	% SUGAR
B-5451	6261	22.59	277	18.9
C-963	6168	22.20	277	18.9
RH-5	6075	22.94	265	18.2
PROMPT	5847	21.85	267	18.6
E-17	5724	20.71	277	18.8
B-5736	5717	20.89	272	19.0

Michigan Sugar Company – 2004

AVERAGE OF TWO YEARS OFFICIAL VARIETY TRIAL

Sorted by RWSA

VARIETY	RWSA	% SUGAR	RWST	T/A	% PURITY	% (1) EMERG.	LEAFSPOT*	NURSERIES		
								RA	RH	AP
Beta 5451	6758	19.43	274.0	24.92	92.61	67.1	107.6	E	F	E
Crystal 271	6642	19.41	274.1	24.35	92.69	65.6	91.4	F	P	E
Beta BK 1384 R	6623	18.57	258.1	25.87	92.12	69.7	114.7	F		
Crystal 963	6614	19.44	273.7	24.34	92.58	66.7	98.3	E	F	E
Beta 5310	6598	19.42	272.9	24.31	92.51	65.7	99.1	G	P	E
Beta BK 1383 R	6579	18.94	266.7	24.83	92.61	64.2	98.8	E	G	
Beta BK 1382 R	6397	18.96	263.1	24.45	92.01	60.3	99.4	E	P	
Crystal A355	6387	19.25	269.4	23.86	92.33	65.2	46.6	P	G	
HM 2763 RZ	6383	19.12	271.1	23.67	92.90	69.2	101.2	E	P	G
HM 2767	6371	19.30	273.0	23.46	92.80	70.9	99.4	P		
HM 2761 RZ	6328	19.04	266.5	23.88	92.40	66.1	97.6	F	P	E
Beta 5736	6318	19.73	275.5	23.14	92.16	60.1	87.6	G	G	P
HM 2771 RZ	6312	19.25	271.4	23.40	92.64	67.8	91.4	F		
Beta BK 4381 R	6278	18.84	265.1	23.93	92.64	60.0	97.8	E	G	
HM 7172 RZ	6258	19.04	264.3	23.86	92.02	63.4	85.3	F	G	F
HM E17	6144	19.16	270.2	22.92	92.67	66.1	110.3	G	P	G
HM RH5	6119	18.88	267.3	23.05	92.90	67.4	103.3	P	G	P
SX Prompt	5935	18.92	264.0	22.64	92.18	70.9	93.8	E	F	E
MEANS	6391	19.15	268.9	23.94	92.49	65.9	95.8			

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

* Lower number indicated more resistance.

Michigan Sugar Company – 2004

AVERAGE OF THREE YEARS OFFICIAL VARIETY TRIAL

Sorted by RWSA

VARIETY	RWSA	% SUGAR	RWST	T/A	% PURITY	BEETS/ 100' AT HARVEST	% (1) EMERG.	LEAF- SPOT*	NURSERIES		
									RA	RH	AP
Crystal 963	6789	19.07	269.8	25.30	92.83	134.3	61.8	99.9	E	F	E
Beta 5451	6783	19.00	269.1	25.39	92.88	137.3	62.4	96.7	E	F	E
Beta 5310	6711	18.97	268.4	25.10	92.86	135.8	61.2	86.9	G	P	E
Crystal 271	6694	18.94	267.8	25.08	92.84	137.6	62.1	92.0	F	P	E
HM 2763 RZ	6495	18.70	266.1	24.51	93.13	141.9	65.0	100.0	E	P	G
HM 2761 RZ	6463	18.63	261.6	24.82	92.59	139.7	63.9	97.7	F	P	E
HM 2767	6450	18.98	269.7	23.99	93.06	139.1	66.3	96.7	P		
BETA 5736	6400	19.34	271.4	23.75	92.43	129.7	54.7	87.0	G	G	P
HM E17	6253	18.94	268.2	23.44	92.87	138.6	63.0	107.8	G	P	G
HM RH5	6253	18.65	264.7	23.72	93.03	138.7	62.7	104.9	P	G	P
SX Prompt	6053	18.70	261.5	23.27	92.33	138.1	67.7	94.6	E	F	E
MEANS	6486	18.90	267.1	24.40	92.80	137.4	62.8	96.7			

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

* Lower number indicated more resistance.

- RA= Root Aphid
- RH= Rhizoctonia
- AP= Aphanomyces
- RM= Rhizomania

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NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	RICK EISENMAN	Tillage:	Fall: Chisel / Spring: 1x Field Cult.
Location:	Bay County	Harvest Date:	10/26/04
Planting Date:	4/06/2004	Type of Harvester:	Artsway
Previous Crop:	Corn	Herbicides:	12 oz. Nortron-Pre / Micro-Rates 2x
Soil Type:	Clay Loam	Replicated:	3x
Row Spacing:	30 Inches	# of Rows Harvested:	12
Fertilizer:	30 Gallons of 10-25-0 50/100/150 N Side Dress 200# 0-0-60 (Fall)	Fungicide:	8/18/04 - Eminent

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
80 # N	5194	17.55	296	20.0	94.8					
130 # N	5108	16.96	301	20.6	94.2	Not Taken				
180 # N	5032	17.25	292	20.1	93.7					
AVERAGE	5111	17.25	296	20.2	94.2					
L S D (5%)	NS	NS	5	NS	NS					
C.V. (%)	2	1.92	1	1.5	.6					

Comments: Trial was conducted to look at the different rates of Nitrogen on yield and quality of sugar beets. Approximately 30 pounds of total nitrogen was in the starter fertilizer placed 2x2 in all treatments. Additional nitrogen was applied side dress at 50/100/150 rates. Trial was replicated three times with twelve row strips being harvested. Soil nitrate test was pulled early spring and indicated a ten pound credit. From this test, the nitrogen recommendation for a 22 ton crop was 110 pounds per acre. No significant differences occurred in RWSA or Tonnage. There was some depression of RWST at the highest rate of nitrogen. Trial indicated no benefit of additional nitrogen above 80 pounds per acre. Soil conditions were very dry the last 1/3 of the growing season.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Bill Hartley – Monitor Sugar Company

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NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	YODER FARMS, INC.	Tillage:	Fall: Vee Ripped / Spring: 1x Field Cult.
Location:	Huron County (Bay Port)	Harvest Date:	10/21/04
Planting Date:	4/10/04	Type of Harvester:	Artsway
Previous Crop:	Navy Beans	Herbicides:	Micro Rates 3x / Pre Emerg. – Roneet
Variety:	E-17	Replicated:	3x
Soil Type:	Kilmanagh Loam	# of Rows Harvested:	8
Row Spacing:	20 Inch	# Defoliated	8
Fertilizer:	20 gallons of 28% + 5# sol-u-bor	Fungicide:	7/21/04 – Headline 8/25/04 – Topsin + Manzate

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
160# N	6602	23.93	276	18.7	94.7					
110# N	6591	23.36	282	19.1	94.8					
210# N	6563	23.68	277	19.0	94.2	Not Taken				
60# Base N	6203	22.02	282	19.0	95.0					
AVERAGE	6490	23.25	279	19.0	94.7					
L S D (5%)	NS	NS	NS	NS	.4					
C.V. (%)	3	3.12	1	.9	.2					

Comments: Trial was conducted to look at the impact of yield and quality of sugar beets. Nitrogen rate is pre-plant 60 lbs. plus sidedress applications of 28%. Manure was not applied. There were no significant differences between any nitrogen rates. The lowest nitrogen rate produced the best CJP.

Trial Reliability: EXCELLENT

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

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NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	HOUGHTALING FARMS, INC.	Tillage:	Fall: Chisel Spring: 1x Field Cult.
Location:	Bay County	Harvest Date:	10/19/04
Planting Date:	4/02/04	Type of Harvester:	Artsway
Previous Crop:	Corn	Herbicides:	Micro Rate 4x
Variety:	B-5451	Replicated:	4x
Soil Type:	Loamy Sand	# of Rows Harvested:	6
Row Spacing:	28 Inch	# Defoliated:	-
Fertilizer:	0-0-62 Variable Rate 60 lbs. Urea 60 lbs. Nitrogen (Fall)	Fungicide:	Amistar – In Furrow 7/15/04 - Headline

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Fall 60 lbs. + 50 lbs. N Side Dress	6652	22.76	292	20.1	93.9					
Fall 60 lbs. + 100 lbs. N Side Dress	6456	22.64	285	19.8	93.4					
Fall 60 lbs. + 150 lbs. N Side Dress	6251	22.01	284	19.9	93.1					
Base Rate 60 lbs. (Fall)	5736	19.81	289	20.0	94.1					
AVERAGE	6274	21.80	288	19.9	93.6					
LSD (5%)	NS	NS	NS	NS	.3					
C.V. (%)	8	6.4	2	2	.2					

Not Taken

Comments: Spring soil nitrogen test indicated a 20 pound nitrogen credit and recommended 90 pounds of nitrogen per acre for a 22 ton crop. No significant difference between treatments at the 95% confidence level. Significant yield differences occurred at the 90% confidence level between basic rate and other treatments. Lowest nitrogen rate produced highest CJP.

Trial Reliability: GOOD

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

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NITROGEN (MANURE) TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	BUSHEY FARMS, INC.	Tillage:	Fall: Chisel Spring: 1x Field Cult.
Location:	Huron County	Harvest Date:	10/22/2004
Planting Date:	4/09/2004	Type of Harvester:	Wilrich
Previous Crop:	Dry Beans	Herbicides:	Micro-Rates 2x
Variety:	RH-5	Replicated:	3x
Soil Type:	Loamy Sand	# of Rows Harvested:	8
Row Spacing:	22 Inches	# Defoliated:	8
Fertilizer:	3 Gallons Ag Spectrum Starter 24 Gallons 28% N + 6 Gallons 10-34-0 + Zn and Mn	Fungicide:	8/02/04 - GEM 8/18/04 - Eminent

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
225 # N	4873	17.99	271	18.8	93.6					
125 # N	4791	16.82	285	19.3	94.7					
175 # N	4772	17.35	274	18.8	94.3	Not Taken				
75 lbs. Base N (applied at planting)	4653	16.12	289	19.4	95.1					
AVERAGE	4772	17.07	280	19.1	94.4					
L S D (5%)	NS	NS	NS	NS	.7					
C.V. (%)	12	10.64	4	4.4	.4					

Comments: Two nitrogen trials were conducted in the same field. One side of the field received approximately 10,000 gallons of dairy manure per acre in the Fall. No manure was applied on the other side of the field. All treatments received approximately 75 pounds of nitrogen at planting. Additional nitrogen was side dressed in 50 pounds per acre increments. Field was under heavy Root Aphid pressure. No significant difference occurred between treatments except CJP, which was significantly better in the 75 pound treatment. The manured side of the field visually looked and yielded better than the non manured treatments. (see non-manured trial) Spring Nitrate test showed 25 pounds nitrogen credit.

Trial Reliability: FAIR

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

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NITROGEN (NO MANURE) TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	BUSHEY FARMS, INC.	Tillage:	Fall: Chisel / Spring: 1x Field Cult.
Location:	(Huron County) Gotts Corner	Harvest Date:	10/22/04
Planting Date:	4/09/2004	Type of Harvester:	Wilrich
Previous Crop:	Dry Beans	Herbicides:	Micro-Rates 2x
Variety:	RH-5	Replicated:	3x
Soil Type:	Loamy Sand	# of Rows Harvested:	8
Row Spacing:	22 Inches	# Defoliated:	8
Fertilizer:	3 Gallons Ag Spectrum Starter 24 Gallons 28% N + 6 Gallons 10-34-0 + Zn and Mn	Fungicide:	8/02/04 - GEM 8/18/04 - Eminent

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION			1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY HARV.	
125 # N	3037	11.31	268	18.3	94.5				
175 # N	2985	11.51	259	17.9	94.0				
225 # N	2885	11.36	252	17.6	93.6	Not Taken			
75 lbs. Base N (applied at Planting)	2823	10.55	268	18.1	95.0				
AVERAGE	2932	11.18	262	18.0	94.3				
L S D (5%)	NS	NS	11	NS	.5				
C.V. (%)	16	14.8	2	2.4	.2				

Comments: Two nitrogen trials were conducted in the same field. One side of the field received approximately 10,000 gallons of dairy manure per acre in the Fall. No manure was applied on the other side of the field. All treatments received approximately 75 pounds of nitrogen at planting. Additional nitrogen was side dressed in 50 pounds per acre increments. Field was under heavy Root Aphid pressure. Significant difference occurred between treatments with CJP and RWST but not Yield. The manured side of the field visually looked better and yielded better than non manured treatments. (see manured trial) A Spring nitrogen test showed a ten pound nitrogen credit.

Trial Reliability: POOR

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

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NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	ZWERK FARMS, INC.	Tillage:	Fall: Plow Spring: 1x Field Cult.
Location:	Vassar	Harvest Date:	11/3/04
Planting Date:	4/05/04	Type of Harvester:	-
Previous Crop:	Dry Beans	Herbicides:	Micro Rate 4x
Variety:	C-963	Replicated:	4x
Soil Type:	Loam	# of Rows Harvested:	-
Row Spacing:	22 Inches	Fungicide:	7/11/04 - Headline
Fertilizer:	3-14-43 3% Sulpher & Boron Nitrogen Broadcast 40 gal. 28% 15 gal. 28% Side Dress		

NITROGEN RATE	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
120 # N	9538	33.14	286	19.5	94.3					
165 # N	9507	33.13	287	19.6	94.2	Not Taken				
AVERAGE	9523	33.13	286	19.6	94.3					
LSD (5%)	NS	NS	NS	NS	NS					
C.V. (%)	3	2.61	2	1.7	.2					

Comments: Trial was conducted to look at two different nitrogen rates. Field was very healthy all season. There was no difference in yield or quality of treatments. This trial would suggest that nitrogen rates could be reduced from the 120 pound rate. No early season nitrate test was taken from this field.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Dave Ganton – Monitor Sugar Company
Jeff Karst – Michigan Sugar Company

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NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	DAN ROGGENBUCK	Tillage:	Fall: Plow / Spring: 1x Danish Tine
Location:	Huron County (Harbor Beach)	Harvest Date:	10/21/2004
Planting Date:	4/14/2004	Type of Harvester:	John Deere
Previous Crop:	Wheat	Herbicides:	Micro Rates 3x
Soil Type:	Clay Loam	Replicated:	-
Row Spacing:	28 Inches	# of Rows Harvested:	4
Fertilizer:	100# of N Side Dress 230# of 9.4-9.4-34.2 + 2.1S & .3B	Fungicide:	8/04/2004 - Mustang 2.4 oz, Eminent 13 oz.

TREATMENT NITROGEN RATE TYPE	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
100# N Side Dress	7075	23.70	299	20.5	93.83					
100# ESN	6682	22.9	292	20.2	93.51	Not Taken				
50# ESN + 50# Urea	6599	22.9	288	19.9	93.65					
No Side Dress	6555	21.40	306	21.0	93.93					

Comments: This trial is non-replicated and data should be used with caution. Trial was conducted to look at the impact of ESN nitrogen, produced by Agrium, on yield and quality of sugar beets. ESN is a urea nitrogen enclosed in a polymer capsule which causes a slow release of nitrogen. Its development was primarily for corn, to time the release of nitrogen more in line with corn plant usage. Sugar beet nitrogen needs are extremely important early to mid season. Treatments include 100 lbs ESN, 50-50 mix of ESN and Urea, 100 pounds nitrogen side dress from Anhydrous and no additional nitrogen. Lowest yield was with no additional nitrogen applied, but was the highest sugar. ESN treatments did not produce higher yields than traditional side dress treatment.

Trial Reliability: Not Replicated

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

Michigan Sugar Company Nitrogen Trial

Cooperator:	D & B KARG FARMS	Tillage:	Fall: Plow / Spring: 1x Field Cult.
Location:	Huron County	Harvest Date:	11/01/04
Planting Date:	4/05/2004	Type of Harvester:	Artsway - 6 Row
Previous Crop:	Dry Beans	Herbicides:	Micro-Rates 2x 1 pt. Betamix – Band
Variety:	5451	Replicated:	-
Soil Type:	Kilmanagh Loam	# of Rows Harvested:	-
Row Spacing:	28 Inches	Fungicide:	7/24/04 – Gem 6 oz. 8/31/04 – Eminent 13 oz.
Fertilizer:	Fall: 600 lbs. 0-0-60 Starter 270 lbs. 7-33-9 + Micros		

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
80 # N	9196	30.53	292	20.74	92.34					
110 # N	8926	29.73	291	20.64	92.47	Not Taken				
140 # N	9003	29.91	292	20.57	92.74					
170 # N	8764	29.56	288	20.49	92.26					
AVERAGE	-	-	-	-	-					
L S D (5%)	NS	NS	NS	NS	NS					
C.V. (%)	4.4	4.03	0.98	0.74	0.31					

Comments: Trial Conducted by Cory Guza, Michigan Sugar Company Agronomist.

Trial Reliability: GOOD

Michigan Sugar Company Nitrogen Trial

Cooperator: BRIAN FOX	Tillage: -
Location: Dover, Ontario Canada	Harvest Date: 10/20/2004
Planting Date: 4/10/2004	Type of Harvester: Artsway - 6 Row
Variety: 5451	Herbicides: -
Row Spacing: 30 Inches	Replicated: 2x
Seed Spacing: 4 Inches	# of Rows Harvested: -
Fertilizer: Spring: 50 or 100 lbs. N Fall: 28 lbs. N 130 lbs. P2O5 and 180 lbs. K2O	Fungicide: Headline – 1.27 L Senator – 0.17 kg

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
50 # N	9332.50	33.50	278.58	19.88	92.29					
100 # N	9204.79	34.09	270.01	19.38	92.11	Not Taken				
AVERAGE	-	-	-	-	-					
LSD (5%)	NS	NS	NS	NS	NS					
C.V. (%)	4.4	4.03	0.98	0.74	0.31					

Comments: Results are the average of 2 replications. Trial Conducted by Cory Guza, Michigan Sugar Company Agronomist.

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

Trial Reliability: GOOD

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FOLIAR FEED TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	TOM AND NEAL GETTEL	Tillage:	Fall: Plow / Spring: 1x Field Cult.
Location:	Tuscola County (Unionville)	Harvest Date:	10/21/04
Planting Date:	4/16/2004	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Herbicides:	Pyramin - Pre No Post - Hoed
Variety:	B-5451	Replicated:	4x
Soil Type:	Loam	# of Rows Harvested:	-
Row Spacing:	30 Inches	Fungicide:	8/10/04 - Eminent 7/20/04 - GEM
Fertilizer:	12 Gallons of 10-34-0 300# 0-0-60 275# of 45-0-0 Foliar Applied 6/21/04 – 1 qt/acre Crop Completer Gold 1 pt/acre Nutriplant Ag		

TREATMENT FOLIAR MATERIAL	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW			1200 Ft. Rhiz.
						10 DAY	20 DAY	30 DAY HARV.	
Check	7500	25.86	290	19.8	94.4				
Nutriplant Ag	7315	25.58	285	19.6	94.1	Not Taken			
Crop Completer Gold	6883	25.38	271	18.5	94.7				
AVERAGE	7233	25.61	282	19.3	94.4				
L S D (5%)	NS	NS	NS	NS	NS				
C.V. (%)	7	5.37	4	4.5	.5				

Comments: Trial was conducted to look at the impact of foliar feed fertilizers on yield and quality. Products were applied at timing of second cultivation (June). Foliar application did not significantly affect yield or quality as compared to check.

Trial Reliability: GOOD

Cooperating Agriculturist(s): Jeff Elston – Michigan Sugar Company
Lee Bolzman - Consultant

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STARTER FERTILIZER TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	STOUTENBURG	Tillage:	Fall: Chisel / Spring: 1x Kongskilde
Location:	Sanilac County (Sandusky)	Harvest Date:	11/6/04
Variety:	B-5451	Type of Harvester:	Artsway
Planting Date:	4/18/04	Herbicides:	Micro Rates 4x
Previous Crop:	Wheat (Clover)	Replicated:	3
Soil Type:	Parkhill Clay Loam	# of Rows Harvested:	8
Row Spacing:	28 Inch	Fungicide:	None
Fertilizer:	Pre Plant – 100# N		

Soil Test – PH 6.9 ; P 57 PPM; K 96 PPM; MG 278 PPM

Ag Spectrum Starter – 12.8 oz. of Grozyme + 3 Gallons of Clean Start (8-19-3) + 4 lbs. of Kickoff

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						11 DAY	16 DAY	40 DAY	HARV.	
Ag Spectrum In Furrow + 28% (2x2)	6988	24.70	283	19.53	93.79	22	68	166	-	-
10-34-0 (2x2)	6389	22.79	280	19.33	93.84	37	80	149	-	-
Ag Spec. In Furrow 28% (2x2)	6353	22.26	285	19.58	94.02	22	66	171	-	-
28% (2x2)	6287	22.76	276	19.07	93.80	30	73	167	-	-
10-34-0 In Furrow	6261	22.15	283	19.43	93.97	10	39	172	-	-
Ag Spectrum In Furrow +10-34-0 (2x2)	6163	23.26	266	18.52	93.50	29	69	160	-	-
Check	6136	22.01	279	19.18	93.96	22	64	164	-	-
AVERAGE	6368	22.85	279	19.24	93.84	25	66	164	-	-
L S D (5%)	NS	NS	NS	NS	NS	NS	19	NS	-	-
C.V. (%)	10	9.22	3	2.44	.23	47	16	11	-	-

Comments: Trial was conducted to look at the impact of various combinations and placement of starter / pop-up fertilizers. Seedlings were slow to emerge. Heavy rainfall in May created increased field variability and plant injury greatly reducing the reliability of the trial. Use this data with caution. Statistical analysis indicates no significant differences between treatments. Nitrogen applied in a placement of 2x2 was applied at a rate of 15 gallons per acre. The Starter 10-34-0 In Furrow was applied at three gallons. The 10-34-0 2x2 was applied at 15 gallons per acre with Thiosol plus Micro's.

Trial Reliability: POOR

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

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STARTER FERTILIZER TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	BUSHEY FARMS, INC.	Tillage:	Fall: Plow / Spring: Field Cult. 1x
Location:	Huron County (Champagne Rd.)	Harvest Date:	10/22/04
Variety:	2761-RZ	Type of Harvester:	Wilrich
Planting Date:	4/12/04	Herbicides:	Micro Rates 5x
Previous Crop:	Corn	Replicated:	3x
Soil Type:	Loam	# of Rows Harvested:	8
Row Spacing:	22 Inch	Fungicide:	8/03/04 – Gem 8/18/04 - Eminent
Fertilizer:	24 Gallons 28% + 6 Gallons 10-34-0 + Micros Applied 2x2		

Soil Test – PH 6.8; P 47 PPM; K 113 PPM; MG 160 PPM

Ag Spectrum Starter – 12.8 oz. of Grozyme + 3 Gallons of Clean Start (8-19-3) + 4 lbs. of Kickoff

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Ag Spectrum In Furrow	5409	19.06	284	19.2	94.9	63	192	210	-	-
No Ag Spectrum	5359	18.73	286	19.4	94.8	51	200	215	-	-
AVERAGE	5384	18.89	285	19.3	94.8	57	196	213	-	-
LSD (5%)	NS	NS	NS	NS	NS	NS	NS	NS	-	-
C.V. (%)	4	1.33	3	3.3	.1	11	5	2	-	-

Comments: Trial was conducted to look at the effect of starter fertilizer on emergence and yield. Ag Spectrum combination was applied in furrow at approximately three gallons per acre. Check strips did not have Ag Spectrum. There was no significant difference between any treatments. All treatments had 2x2 fertilizer applied. (30 gal/acre – See Fertilizer)

Trial Reliability: EXCELLENT

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

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STARTER FERTILIZER TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	BUSHEY FARMS, INC.	Tillage:	Fall: Chisel / Spring: Field Cult. 1x
Location:	Huron County (Elkton Rd.)	Harvest Date:	11/07/04
Variety:	RH-5	Type of Harvester:	Wilrich
Planting Date:	4/05/04	Herbicides:	Micro Rates 5x
Previous Crop:	Corn	Replicated:	4x
Soil Type:	Loam – Sandy Loam	# of Rows Harvested:	8
Row Spacing:	22 Inch	# of Rows Defoliated:	8
Fertilizer:	3 Gallons Ag Spectrum Starter – In Furrow 20 Gallons 28% N + Mn + Zn	Fungicide:	8/02/04 – Gem 8/18/04 - Eminent

Soil Test – PH 8.1; P 59 PPM; K 147 PPM; MG 277

Ag Spectrum Starter – 12.8 oz. of Grozyme + 3 Gallons of Clean Start (8-19-3) + 4 lbs. of Kickoff

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Ag Spectrum + 28%	5522	19.91	277	18.8	94.8	7	33	167	-	-
Ag Spectrum	5521	19.52	283	19.2	94.8	13	46	168	-	-
28%	5439	19.68	276	18.8	94.6	3	22	156	-	-
Check	5251	18.72	280	18.9	94.9	6	24	153	-	-
AVERAGE	5433	19.46	279	18.9	94.8	7	31	161	-	-
L S D (5%)	NS	.6	NS	NS	NS	5	NS	NS	-	-
C.V. (%)	4	1.94	3	3.8	.4	47	47	11	-	-

Comments: Trial was conducted to look at the affect of Starter Fertilizer and/or additional nitrogen on emergence, yield and quality of sugar beets. Ag Spectrum (8-19-3) was applied at three gallons per acre In Furrow. The 28% nitrogen was applied at 20 gallons per acre in a 2x2 placement at planting. The Ag Spectrum + 28% nitrogen combination gave a higher tonnage than the Check, but the difference in RWSA was not significant.

Trial Reliability: VERY GOOD

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

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STARTER FERTILIZER AVERAGE OF THREE YEARS

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	BUSHEY FARMS, INC.	Tillage:	-
Location:	Huron County	Harvest Date:	-
Variety:	Various	Type of Harvester:	-
Planting Date:	2002-2003-2004	Herbicides:	-
Previous Crop:	-	Replicated:	5 Locations
Soil Type:	-	# of Rows Harvested:	8
Row Spacing:	22 Inch	# of Rows Defoliated:	-
Fertilizer:	Ag Spectrum	Fungicide:	-

Ag Spectrum Starter – 12.8 oz. of Grozyme + 3 Gallons of Clean Start (8-19-3) + 4 lbs. of Kickoff

TREATMENT	RWSA	TONS PER ACRE	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Ag Spectrum In Furrow + 28% 2x2	5581	24.1	266	18.3	94.1					
Ag Spectrum In Furrow	5408	23.7	268	18.4	94.3	Not Taken				
28% 2x2 Placement	5252	23.0	261	18.1	94.0					
Check	5231	22.6	268	18.5	94.2					
AVERAGE	5368	20.2	266	18.3	94.2					
L S D (5%)	187	.6	NS	NS	NS					
C.V. (%)	3	2	2	1.6	.2					

Comments: This is the average of five trials over three years. All soil test levels tested high in Phosphorous. Ag Spectrum In Furrow plus 28% applied 2x2 had the highest tonnage and RWSA in four out of five trials. Additional Nitrogen applied 2x2 with Ag Spectrum or without, tended to improve early season growth. Individual Trials generally did not show significant differences. Trials combined over years and locations indicate significance in RWSA and Tonnage

Trial Reliability: EXCELLENT

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

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CERCOSPORA LEAFSPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	SHERWOOD FARMS	Tillage:	Fall: Chisel / Spring: 1x Field Cultivate
Location:	Gratiot County	Harvest Date:	10/27/04
Planting Date:	4/11/04	Type of Harvester:	Red River
Previous Crop:	Soybeans	Herbicides:	Micro Rate 3x
Variety:	RH-5	Replicated:	5x Randomized Trial
Row Spacing:	30 Inch	# of Rows Harvested:	6
Fertilizer:	200 lbs. 11-12-11 + Micros 35 gallons 28% Broadcast	Fungicide:	7/24/04 - Eminent – DSV 68 8/24/04 – Headline – DSV 93

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
One Spray	5976	22.03	272	18.5	94.54					
Two Sprays	6418	23.46	273	18.7	94.50	Not Taken				
AVERAGE	6197	22.75	273	18.6	94.52					
LSD (5%)	348	1.41	NS	NS	NS					
CV (%)	4	4.25	2	1.4	.2					

Comments: Trial was conducted to look at the effects of one Cercospora Leafspot spray verses two sprays. Strips sprayed only once had a very visual increase in the amount of Leafspot compared to the two spray system. There was some leaf browning beginning in one spray treatments. There was significant improvement in tonnage, RWSA and net return per acre (\$30) in two spray treatments.

Trial Reliability: EXCELLENT

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

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CERCOSPORA LEAFSPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	TANTON FARMS, INC.	Tillage:	Fall: Chisel / Spring: 1x Field Cult.
Location:	Sanilac County	Harvest Date:	11/04/2004
Planting Date:	4/06/2004	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Replicated:	4x
Variety:	RH-5 / E-17 Mix	# of Rows Harvested:	6
Row Spacing:	28 Inches	# Defoliated:	6
Soil Type:	Tappan Loam	Herbicides:	Pyramin-pre Micro Rates – 4x
Fertilizer:	Fall: 200 lbs. 0-0-62 200 lbs. 2x2 15-30-5 + S, B and Mn 80 # N Side Dress	Fungicide:	7/20/04 – Gem – DSV 74 8/24/04 – Topsin + SuperTin DSV - 121

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION			1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY HARV.	
Sprayed	9685	32.64	291	19.9	94.4				
Check	9583	32.97	297	20.2	94.3	NOT TAKEN			
AVERAGE	9634	32.81	294	20.0	94.3				
LSD (5%)	NS	NS	NS	NS	NS				
CV (%)	4	4.52	2	2.2	.6				

Comments: No significant difference between one or two sprays. No visual difference seen between treatments.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Tim Muz – Michigan Sugar Company

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CERCOSPERA LEAFSPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	LAKKE-EWALD FARMS, INC.	Tillage:	Fall: Chisel / Spring: 1x Field Cult.
Location:	Tuscola County	Harvest Date:	-
Planting Date:	4/07/04	Type of Harvester:	Artsway
Previous Crop:	Wheat	Herbicides:	Micro Rate 4x
Variety:	B-5310	Replicated:	4x
Row Spacing:	22 Inch	# of Rows Harvested:	8
		# Defoliated:	8
Fertilizer:	60 lbs. Nitrogen + 60 lbs. Nitrogen Side Dress	Fungicide:	7/16/04 - Eminent – DSV 64 8/27/04 – Gem – DSV 115

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Sprayed	8317	25.6	326	22.1	94.1					
Check	8294	25.5	325	22.2	94.0	Not Taken				
AVERAGE	8305	25.5	325	22.2	94.1					
LSD (5%)	NS	NS	NS	NS	NS					
CV (%)	2	1.7	1	1.2	.2					

Comments: No significant differences between treatments. No visual differences between treatments.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Steve Bohn – Monitor Sugar Company

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CERCOSPORA LEAFSPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	D & D SCHULTZ FARMS	Tillage:	Fall: Chisel / Spring: 1x Field Cultivate
Location:	Bay County	Harvest Date:	10/26/04
Planting Date:	4/05/2004	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Herbicides:	1pt. Nortron-Pre, 1oz. Stinger, 1pt. Betamix, 1/16 oz. Upbeet
Variety:	RH-5	Replicated:	No
Row Spacing:	30 Inches	# of Rows Harvested:	Block
Fertilizer:	20 gallons of 9.5-25.5-0 200# 0-0-60 35 gallons of 28%	Fungicide:	8/04/2004 – Eminent 9/2/2004 – Supertin

TREATMENT # OF SPRAYS	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
One Spray	5669	20.32	279	18.84	94.92					
Two Sprays	4909	18.38	267	18.07	94.99	Not Taken				
No Spray	4826	18.59	260	17.48	95.31					

Comments: This is a non-replicated trial – use data with caution. Trial was set up to look at the effectiveness of zero, one and two fungicide applications. One block of each treatment was harvested. Field variations exist between each treatment. An increase in sugar quality seems to be related to one or two spray applications as compared to none. The “Non Fungicide Block” was visually worse in Leafspot incidence (brown leaves) as compared to sprayed strips. Only small Leafspot improvement was seen with two sprays compared to one.

Trial Reliability: NOT REPLICATED

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

Michigan Sugar Company – Beetcast Spray Trials*

Factory/Grower	Beetcast Standard	% Sugar	% CJP	RWST	RWSA	T/A	Leafspot Rating	Powdery Mildew	Agri-culturalist
Caro / S & N 2	Beetcast	20.58	91.68	284.91	5687	19.96	2-	-	Jeff Karst
	Standard	19.93	91.17	272.02	5677	20.87	4-	-	
Caro / Zwerk	Beetcast	20.56	91.73	284.99	7410	26.00	1.5-	-	Jeff Karst
	Standard	19.66	91.44	269.77	6879	25.50	3.5-	-	
Caro / Laracha	Beetcast	21.65	92.41	305.85	5882	19.23	2.5-	-	Jeff Karst
	Standard	21.50	92.07	301.30	5577	18.51	3.75-	-	
Sebewaing / Haag Farms	Beetcast	19.58	91.83	271.23	7562.01	27.88	0.5-	-	Jeff Elston
	Standard	19.25	91.87	266.62	7172.10	26.90	1.75-	-	
Sebewaing / Stecker Farms 1	Beetcast	20.55	91.68	284.52	5983.38	21.03	0-	-	Jeff Elston
	Standard	19.80	91.83	274.48	5434.70	19.80	1.25-	-	
Sebewaing / Stecker Farms 2	Beetcast	19.50	91.80	269.86	7162.07	26.54	0	0%	Jeff Elston
	Standard	19.47	91.56	267.86	6650.98	24.83	1.75	50%	
Croswell / Rick Gerstenberger	Beetcast	19.44	91.38	266.24	5279.53	19.83	0	0%	Tim Muz
	Standard	19.27	91.69	265.80	5199.05	19.56	0.75	30%	
Carrollton / Gulick Farms	Beetcast	20.69	92.74	293.80	6675.07	22.72	1	5%	Dave Bailey
	Standard	20.50	92.25	287.56	6090.54	21.18	2	65%	
Averages	Beetcast	20.32	91.91	283	6455	22.90	-	-	-
	Standard	19.92	91.74	276	6085	22.14	-	-	-

* Trial was conducted to compare a one time application / timing compared to a two fungicide application based on Beetcast Spray Prediction Model. Most trials are split fields comparing treatments. Beetcast applications were 7 out of 8 times higher in tonnage than one application and 8 out of 8 trials higher in RWSA. Leafspot Ratings = Higher the number the more Leafspot (0-9) scale. Powdery mildew based on 0-100% infestation. See Next Page for Background Information Sheet on Spray Timings.

Trial conducted by Cory Guza, Michigan Sugar Company Agronomist in cooperation with participating Agriculturist.

Michigan Sugar Company – Beetcast Spray Trials Background Information

Cooperator:	HAAG
Location:	Huron County
Variety:	5451
Planting Date:	4/12/2004
Harvest Date:	10/28/2004
BEETCAST DSV 1	
Fungicide/Rate:	Amistar 3 oz.
Date Applied:	7/22/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	9/07/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Amistar 3 oz.
Date Applied:	7/22/2004
Application Timing:	55 DSV

Cooperator:	STECKER 1
Location:	Huron County
Variety:	5451 / E-17
Planting Date:	4/12/2004
Harvest Date:	10/04/2004
BEETCAST DSV 1	
Fungicide/Rate:	Gem 6 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	9/05/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Gem 6 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV

Cooperator:	STECKER 2
Location:	Huron County
Variety:	5451 / E-17
Planting Date:	4/12/2004
Harvest Date:	10/04/2004
BEETCAST DSV 1	
Fungicide/Rate:	Gem 6 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	9/05/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Gem 6 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV

Cooperator:	GULICK
Location:	Gratiot County
Variety:	5451
Planting Date:	4/11/2004
Harvest Date:	10/25/2004
BEETCAST DSV 1	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	7/09/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Headline 9.2 oz.
Date Applied:	8/16/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Headline 9.2 oz.
Date Applied:	8/16/2004
Application Timing:	-

Cooperator:	GERSTENBURGER
Location:	Sanilac County
Variety:	5451
Planting Date:	4/10/2004
Harvest Date:	10/21/2004
BEETCAST DSV 1	
Fungicide/Rate:	Gem 6 oz.
Date Applied:	7/20/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	8/25/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Headline 9.2 oz.
Date Applied:	8/06/2004
Application Timing:	-

Cooperator:	S & N FARMS
Location:	Tuscola County
Variety:	Prompt / 963
Planting Date:	4/16/2004
Harvest Date:	10/25/2004
BEETCAST DSV 1	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Headline 9.2 oz.
Date Applied:	9/05/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Eminent 13 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV

Cooperator:	ZWERK
Location:	Tuscola County
Variety:	5310
Planting Date:	4/9/2004
Harvest Date:	10/22/2004
BEETCAST DSV 1	
Fungicide/Rate:	
Date Applied:	
Application Timing:	
BEETCAST DSV 2	
Fungicide/Rate:	
Date Applied:	
Application Timing:	
STANDARD	
Fungicide/Rate:	Headline 9.2 oz.
Date Applied:	7/12/2004
Application Timing:	60 DSV

Cooperator:	LaRaCha
Location:	Tuscola County
Variety:	5451
Planting Date:	5/6/2004
Harvest Date:	10/28/2004
BEETCAST DSV 1	
Fungicide/Rate:	Gem 7 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV
BEETCAST DSV 2	
Fungicide/Rate:	Super Tin 5 oz.
Date Applied:	9/5/2004
Application Timing:	110 DSV
STANDARD	
Fungicide/Rate:	Gem 7 oz.
Date Applied:	7/12/2004
Application Timing:	55 DSV

Note: See Previous Page for Yield of Beetcast Spray Program Compared to Standard 1-Spray Program.

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AMISTAR / RHIZOCTONIA

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	D & D SCHULTZ FARMS, INC.	Tillage:	Fall: Chisel / Spring: 1x Cultivate
Location:	Bay County (Linwood)	Harvest Date:	10/26/04
Planting Date:	4/05/04	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Replicated:	4x
Row Spacing:	30 Inches	# of Rows Harvested:	6
Soil Type:	Loam	Herbicides:	1 pt. Nortron Pre 1 pt. Betamix 1/16 oz. Upbeet 1 oz. Stinger
Fertilizer:	20 gallons of 9.5-25.5-0 200# 0-0-60 35 gallons of 28% N	Fungicide:	8/04/04 – Eminent 9/02/04 – Supertin Amistar – 3.3 oz. Normal Rate Amistar – 2.2 oz. Low Rate*

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARVEST	
RH-5 In Furrow	4682	17.44	268	18.06	95.23	44	178	237	205	22
RH-5 (2-4 Leaf)	4658	17.06	274	18.39	95.25	-	-	-	185	23
RH-5 Check	4640	16.83	276	18.61	95.06	69	182	248	200	103
E-17 Lo Rate (2-4 leaf)*	4324	15.72	279	18.67	95.29	-	-	-	178	340
E-17 In Furrow	4290	15.77	271	18.25	95.15	22	174	284	236	290
E-17 (4-6 Leaf)	3939	14.25	276	18.59	95.07	-	-	-	192	377
E-17 (DSV-1)	3871	14.43	269	18.09	95.19	-	-	-	171	436
E-17 (6-8 Leaf)	3856	13.85	278	18.64	95.24	-	-	-	181	339
E-17 (2-4 Leaf)	3792	14.06	268	18.05	95.21	-	-	-	200	389
E-17 Emergence	3679	13.66	269	18.16	95.16	-	-	-	165	479
E-17 (DSV-3)	3654	13.54	270	18.19	95.25	-	-	-	194	430
E-17 (DSV-5)	3552	13.01	271	18.25	95.25	-	-	-	165	595
E-17 Pre-Emerg.	3494	12.89	271	18.22	95.19	30	171	266	165	503
E-17 Check	3436	12.66	272	18.22	95.37	41	219	283	145	647
AVERAGE	3990	14.64	27.2	18.31	95.21	41	184	264	184	355
L S D (5%)	644	1.96	NS	NS	NS	23	NS	NS	34	139
C.V. (%)	11	9.37	4	4.51	.26	37	17	10	13	27

Comments: Trial was conducted to look at the effects of Amistar applied at different timings and methods of application on control of Rhizoctonia Crown Rot of sugar beets. Two varieties were used, RH-5 a Rhizoctonia resistant and E-17 susceptible type. Rhizoctonia and Root Aphid pressure was heavy. Heavy rainfall occurred after emergence. In Furrow treatments applied at planting in a six inch T-band with eight gallons of water. Foliar treatments were applied in an eight inch band with ten gallons of water. Treatments labeled DSV 1-3-5 indicated timing based on soil temperature accumulation. Trial data suggests under heavy Rhizoctonia pressure, most effective treatments are resistant variety, In Furrow applications and 2-8 leaf stage. Less effective treatments were pre-emergence and at emergence. Best treatment; RH-5 with Amistar and RH-5 Check, generated over \$150.00 more per acre than E-17 with no treatment.

Trial Reliability: GOOD

Cooperating Agriculturist (s):

Tom Schlatter – Monitor Sugar Company
Dr. Willie Kirk – MSU Plant Pathology Department

Special Thanks To:

Doug Ruppall – Syngenta Seeds/Hilleshog for Trial Establishment / Maintenance

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AMISTAR / RHIZOCTONIA

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	ZIMMER FARMS, INC.	Tillage:	Fall: Disk Ripper Spring: 1x Field Cult.
Location:	Huron County (Unionville)	Harvest Date:	11/01/04
Planting Date:	4/07/04	Type of Harvester:	Artsway
Previous Crop:	Dry Beans	Replicated:	4
Row Spacing:	30 Inches	# of Rows Harvested:	6
Soil Type:	Clay Loam	Herbicides:	Micro Rate – 5x
Fertilizer:	3 Gallons Ag Spectrum 20 Gallons 28% at Planting 20 Gallons 28% Side Dress	Fungicide:	7/17/04 – Eminent Amistar – 3.3 oz. Normal Rate 2.2 oz. Low Rate*

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION				1200 Ft. RHIZ
						16 DAY	19 DAY	30 DAY	HARVEST	
E-17 Pre	6819	23.11	295	20.1	94.4	131	145	240	217	37
E-17 (DSV-1)	6736	23.42	288	19.7	94.3	-	-	-	220	10
E-17 (DSV-3)	6669	22.96	291	19.8	94.3	-	-	-	213	31
E-17 (2-4 Leaf)	6534	21.97	297	20.3	94.3	-	-	-	218	12
E-17 (6-8 Leaf)	6497	22.64	287	19.5	94.6	-	-	-	206	45
E-17 (4-6 Leaf)	6345	21.80	291	19.8	94.4	-	-	-	195	38
RH-5 (2-4 Leaf)	6337	23.33	272	18.4	94.8	-	-	-	207	5
RH-5 In Furrow	6305	22.61	278	18.8	95.1	117	144	205	194	5
E-17 Check	6243	21.70	288	19.5	94.7	142	168	252	216	55
RH-5 Check	6199	22.74	273	18.4	95.1	156	179	218	188	15
E-17 In Furrow	6199	21.48	285	19.3	94.7	105	137	242	199	15
E-17 Emergence	6098	21.04	290	19.6	94.9	-	-	-	204	31
E-17 (DSV-5)	5996	20.70	290	19.7	94.6	-	-	-	198	44
E-17 Low Rate (2-4 Leaf)*	5905	20.81	284	19.3	94.6	-	-	-	197	81
AVERAGE	6344	22.16	286	19.4	94.6	130	155	231	205	30
L S D (5%)	NS	NS	11	NS	.4	NS	NS	32	NS	NS
C.V. (%)	7	6.4	3	2.7	.3	25	23	9	11	107

Comments: Trial had low levels of Rhizoctonia infection. Trial was conducted to look at the effects of Amistar applied at different timings and methods of application on control of Rhizoctonia Crown Rot of sugar beets. Two varieties were used; RH-5, a resistant and E-17, a susceptible type. In Furrow application was applied in a six inch T-band with eight gallons of water and foliar treatments were applied in an eight inch band with ten gallons of water. Treatments labeled DSV 1-3-5 indicate timing based on soil temperature accumulation. Trial suggests under low Rhizoctonia pressure, no significant differences may exist at the 95% confidence level. In Furrow treatments were applied at 3.3 oz. of Amistar in a six inch T-band. Foliar applications were applied in an eight inch band with ten gallons of water at 3.3 oz/acre. Low rate of Amistar applied at 2.2 oz/acre.

Trial Reliability: FAIR

Cooperating Agriculturist(s):

Craig Reiman – Michigan Sugar Company

Dr. Willie Kirk – MSU Plant Pathology Department

Doug Ruppel – Syngenta Seeds / Hilleberg for Trial Establishment / Maintenance

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AMISTAR / RHIZOCTONIA

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	MOSSNER (Soys)	Tillage:	Fall: Plow Spring: 1x Danish Tine
Location:	Richville (Saginaw County)	Harvest Date:	10/26/04
Planting Date:	4/10/04	Type of Harvester:	-
Variety:	Mix (4 Varieties)	Replicated:	8x
Previous Crop:	Soybeans	# of Rows Harvested:	8
Row Spacing:	28 Inch	Herbicides:	Micro Rate 5x
Soil Type:	Clay Loam	Fungicide:	7/13/04 – Headline
Fertilizer:	Fall: 70 lbs. Nitrogen 90 lbs. of Side Dress Other Fertilizers Variable Rate		Amistar 3.3 oz./Acre Sprayed In Furrow – 4 Inch Band

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						11 DAY	21 DAY	31 DAY	HARV.	
Check	7429	24.87	299	20.64	93.60	25	133	169	-	46
In Furrow	7365	25.32	291	20.22	93.31	17	106	153	-	21
AVERAGE	7397	25.09	295	20.43	93.46	-	-	-	-	-
LSD (5%)	NS	NS	NS	NS	NS	NS	17	NS	-	13
C.V. (%)	3	2.31	3	2.29	.34	52	12	11	-	33

Comments: Trial was conducted to look at the effects of previous crop and Amistar on yield of sugar beets. This field had no previous history of beets being grown. The Mossner Farms, Inc. Trials were three fields next to one another that had different previous crops. All three farms were joined and sugar beets were planted through each different previous crop. Amistar was applied In Furrow and replicated eight times. Rhizoctonia counts were taken in August in 1200 feet of row per replication. Rhizoctonia levels were very low. Amistar In Furrow seemed to slow emergence and in one case reduced final stand. Yields comparing each previous crop were not noticeably different. (See Mossner soybeans, wheat and corn trials).

Trial Reliability: EXCELLENT

Cooperating Agriculturist (s): Dave Ganton – Monitor Sugar Company

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AMISTAR / RHIZOCTONIA

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	MOSSNER (Wheat)	Tillage:	Fall: Plow / Spring: 1x Danish Tine
Location:	Richville (Saginaw County)	Harvest Date:	10/26/04
Planting Date:	4/10/04	Type of Harvester:	-
Variety:	Mix (4 Varieties)	Replicated:	8x
Previous Crop:	Wheat	# of Rows Harvested:	8
Row Spacing:	28 Inch	Herbicides:	Micro Rate 5x
Soil Type:	Clay Loam	Fungicide:	7/13/04 – Headline
Fertilizer:	Fall: 70 lbs. Nitrogen 90 lbs. N Side Dress Other Fertilizers Variable Rate		Amistar 3.3 oz./Acre Sprayed In Furrow – 4 Inch Band

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION				1200 Ft. RHIZ
						10 DAY	21 DAY	31 DAY	HARV.	
In Furrow	7688	25.72	299	20.63	93.66	28	127	151	-	6
Check	7682	25.44	302	20.75	93.85	46	167	176	-	17
AVERAGE	7685	25.58	301	20.69	93.75	-	-	-	-	-
L S D (5%)	NS	NS	NS	NS	.18	13	17	16	-	NS
C.V. (%)	5	4.23	3	3	.16	30	10	8	-	140

Comments: Trial was conducted to look at the effects of previous crop and Amistar on yield of sugar beets. This field had no previous history of beets being grown. The Mossner Farms, Inc. Trials were three fields next to one another that had different previous crops. All three farms were joined and sugar beets were planted through each different previous crop. Amistar was applied In Furrow and replicated eight times. Rhizoctonia counts were taken in August in 1200 feet of row per replication. Rhizoctonia levels were very low. Amistar In Furrow seemed to slow emergence and in one case reduced final stand. Yields comparing each previous crop were not noticeably different. (See Mossner soy, wheat and corn trials).

Trial Reliability: EXCELLENT

Cooperating Agriculturist (s): Dave Ganton – Monitor Sugar Company

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AMISTAR / RHIZOCTONIA

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	MOSSNER (Corn)	Tillage:	Fall: Plow Spring: 1x Danish Tine
Location:	Richville (Saginaw County)	Harvest Date:	10/26/04
Planting Date:	4/10/04	Type of Harvester:	-
Variety:	Mix (4 Varieties)	Replicated:	8x
Previous Crop:	Corn	# of Rows Harvested:	8
Row Spacing:	28 Inch	Herbicides:	Micro Rate 5x
Soil Type:	Clay Loam	Fungicide:	7/13/04 – Headline
Fertilizer:	Fall: 70 # N 90 lbs. Side Dress Other Fertilizers Variable Applied		Amistar 3.3 oz/Acre (Sprayed In Furrow – 4 Inch Band

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						11 DAY	21 DAY	31 DAY	HARV.	
In Furrow	7551	25.69	294	20.28	93.78	22	130	161	-	26
Check	7383	25.15	294	20.24	93.76	35	151	169	-	52
AVERAGE	7467	25.42	294	20.26	93.77	-	-	-	-	-
L S D (5%)	NS	NS	NS	NS	NS	NS	15	NS	-	NS
C.V. (%)	4	3.19	2	1.77	.14	43	9	7	-	59

Comments: Trial was conducted to look at the effects of previous crop and Amistar on yield of sugar beets. This field had no previous history of beets being grown. The Mossner Farms, Inc. Trials were three fields next to one another that had different previous crops. All three farms were joined and sugar beets were planted through each different previous crop. Amistar was applied In Furrow and replicated eight times. Rhizoctonia counts were taken in August in 1200 feet of row per replication. Rhizoctonia levels were very low. Amistar In Furrow seemed to slow emergence and in one case reduced final stand. Yields comparing each previous crop were not noticeably different. (See Mossner soybeans, wheat and corn trials).

Trial Reliability: EXCELLENT

Cooperating Agriculturist (s): Dave Ganton – Monitor Sugar Company

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**AMISTAR / RHIZOCTONIA TRIAL
THREE TRIALS COMBINED**

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	MOSSNER FARMS, INC.	Tillage:	Fall: Chisel / Spring: Danish Tine
Location:	Richville (Saginaw County)	Harvest Date:	10/26/2004
Planting Date:	4/10/2004	Type of Harvester:	-
Previous Crop:	Wheat/Corn/Soybeans	Row Spacing:	28 Inch
Variety:	Variety Mix	Replicated:	3 Fields - 24 Reps/Treatment
Soil Type:	Clay Loam	# of Rows Harvested:	4
Fertilizer:	Fall: 70 lbs. Nitrogen 90 lbs. Nitrogen Side Dress	Fungicide:	Amistar Applied In Furrow 3.3 oz/acre – 4 Inch T-band

VARIETY	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						11 DAY	21 DAY	31 DAY	HARV.	
In Furrow Amistar	7535	25.58	295	20.4	93.6	22	121	155	-	18
Check	7498	25.15	298	20.5	93.7	35	150	171	-	38
AVERAGE	7516	25.37	297	20.5	93.7	29	136	163	-	28
LSD (5%)	NS	.33	NS	NS	NS	12	24	NS	-	NS
CV (%)	1	.37	1	.8	.1	12	5	4	-	21

Comments: Three trials combined had low levels of Rhizoctonia Crown Rot. Amistar In Furrow on low Rhizoctonia fields increased yield by .42 tons/acre. In Furrow applications can slow down emergence and may reduce stands, under certain situations. Amistar applications under low levels of Rhizoctonia may be a financial break even situation.

Trial Reliability: EXCELLENT

Cooperating Agriculturist(s): Dave Ganton – Monitor Sugar Company
Jeff Karst – Michigan Sugar Company

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AMISTAR / RHIZOCTONIA TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	RANDY STURM	Soil Type	Chandler Clay
Location:	Huron County (Pigeon)	Harvest Date:	-
Planting Date:	4/08/04	Type of Harvester:	Wilrich
Previous Crop:	Soybeans	Replicated:	5x
Row Spacing:	28 Inch	# of Rows Harvested:	4
Tillage:	Fall: Plow/Field Cultivate Spring: 1x Danish Tine	Fungicides:	8/05/04 – GEM Amistar High Rate 3.3 oz. / acre Amistar Low Rate 2.2 oz. / acre
Fertilizer:	Broadcast 12 lbs. 28% Broadcast 365 lbs. 2-10-45 Sidedress 24 gallons 28%	Herbicides:	Pre – Pyramin Post – Betamix Upbeet Stinger

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARVEST	
H-7172 Check	4617	15.90	306	20.73	94.46	-	-	211	-	3
B-5451 High Rate	4584	15.09	303	20.58	94.48	-	-	233	-	229
B-5451 Low Rate	4439	14.26	311	21.02	94.51	-	-	243	-	105
B-5451 Check	4382	14.29	306	20.72	94.65	-	-	232	-	181
H-7172 High Rate	4255	13.89	309	20.94	94.49	-	-	194	-	21
H-7172 Low Rate	4224	13.92	304	20.53	94.60	-	-	228	-	30
AVERAGE	4417	14.56	307	20.75	94.53	-	-	224	-	95
L S D (5%)	NS	NS	NS	NS	NS	-	-	-	-	42
C.V. (%)	10	8.4	2	2.1	.22	-	-	-	-	44

Comments: Trial was conducted to look at the effects of Amistar at different rates (High Rate at 3.3 and Low Rate at 2.2 oz. per acre) applied to a Rhizoctonia resistant and non resistant variety. Field was heavily damaged by excess water, hail and high levels of root aphids. Amistar was applied under marginal conditions and rainfall occurred after sprays were applied. Rhizoctonia levels were moderate. Trial data should be used with caution. Field / environmental conditions overwhelmed treatment differences.

Trial Reliability: POOR

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

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AMISTAR / RHIZOCTONIA TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	SHERWOOD FARMS	Soil Type	-
Location:	Gratiot County	Harvest Date:	-
Planting Date:	-	Type of Harvester:	-
Variety:	B-5451	Replicated:	6x
Row Spacing:	-	# of Rows Harvested:	-
Tillage:	-	Fungicides:	-
Fertilizer:	-	Herbicides:	-

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARVEST	
Amistar Applied Pre-Emergence and 6-8 Leaf										21
Amistar 6-8 Leaf										24
Amistar Applied Pre Emergence		Not Taken								76
No Amistar										86
AVERAGE										52
L S D (5%)										29
C.V. (%)										46

Comments: Trial was conducted to look at the effects of Amistar applied pre emergence at planting on Rhizoctonia Root Rot. Levels indicate dead or dying beets per 1200 ft. of row. Pre emergence applications are not effective. Trial was not harvested for yield.

Trial Reliability: EXCELLENT

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

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RHIZOCTONIA FUNGICIDE TRIALS 2002 – 2003 - 2004

ON-FARM RESEARCH AND DEMONSTRATION

Planting Date: 2002 – 2003 - 2004

Replicated: 3 Trials – 12 Replications

Variety: RH-5 - Rhizoctonia Resistant
E-17 - Rhizoctonia Susceptible

Fungicide: Quadris was used in 2002 and 2003 at 10.5 oz. per acre
Amistar was used in 2004 at 3.3 oz. per acre
5-6 Inch Band In Furrow
8-10 Inch Band Post

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ *
						10 DAY	20 DAY	30 DAY	HARV.	
RH-5 In Furrow	5397	20.84	260	17.69	94.48	66	213	242	215	64
RH-5 Check	4483	17.47	258	17.64	94.29	104	234	257	191	290
E-17 In Furrow	4473	17.42	256	17.78	94.28	50	220	265	200	353
E-17 6-8 Leaf	3850	14.86	259	17.88	94.41	96	248	263	170	473
E-17 Check	3011	11.40	259	17.31	94.62	89	239	266	99	904
AVERAGE	4243	16.40	259	17.66	94.42	81	231	259	175	417
L S D (5%)	1131	4.01	NS	NS	NS	NS	30	NS	39	303
L S D (10%)	912	3.23	NS	NS	.28	51	24	NS	32	244
C.V. (%)	14	13	4	3	.2	42	7	7	12	39

* Dead or Dying Beets per 1200 Foot of Row.

Comments: All Three Trials had High Levels of Rhizoctonia Infestation.

Researchers: Steve Poindexter – MSUE Sugarbeet Advancement
Doug Ruppal – Syngenta Seeds / Hilleshog
Dr. Willie Kirk – MSU Plant Pathology Department

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**Response of Quadris / Amistar
Application at Different
Rhizoctonia Infection Levels**

ON-FARM RESEARCH AND DEMONSTRATION

Rhizoctonia Infection Level	# of Locations	RWSA		TONS		% Sugar		Gross \$ Return*
		Check	6-8 Leaf	Check	6-8 Leaf	Check	6-8 Leaf	
Low	8	5221	5515	20.64	21.49	17.73	17.92	\$37
Medium	5	4638	5076	17.59	18.84	18.29	18.42	\$55
Heavy	5	3472	4473	13.42	17.16	17.60	18.05	\$127

Advancement Summary – 2001 – 2002 – 2003 – 2004 (18 Trial Locations)

*** Average Gross Revenue Enhancement per Acre Compared to Un-Sprayed Check. Amistar / Quadris Cost Not Deducted.**

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PREVIOUS CROP TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	JOHN BURK	Tillage:	Fall: Chisel / Spring: Field Cult. 1x
Location:	Bay County	Harvest Date:	-
Planting Date:	4/14/04	Type of Harvester:	-
Previous Crop:	Corn / Soybeans	Herbicides:	Pre Emerg – Pyramin Micro Rates 4x
Variety:	2761 RZ	Replicated:	-
Row Spacing:	30 Inch	# of Rows Harvested:	Amistar (2-8 Leaf Stage)
Fertilizer:	200# 0-0-60 15 gallons of 16-22-0 + Mn 30 gallons 28% Sidedress	Fungicide:	8/5/04 – Eminent

TREATMENT	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Soybeans (Previous Crop)	7101	25.48	279	19.6	93.0					
						Not Taken				
Corn (Previous Crop)	6163	22.91	269	19.0	92.8					
AVERAGE	6632	24.20	274	19.3	92.9					
LSD (5%)	670	1.58	NS	NS	NS					
CV (%)	6	3.7	4	2.5	.7					

Comments: Trial was conducted to look at yield differences of sugar beets with previous rows of corn and soybeans. Emergence of seedlings and growth were slow (with previous crop of corn), compared to previous soybean crop. Soil moisture at planting may have been higher under previous corn crop. There were significantly higher yields under previous soybean crop when compared to corn.

Trial Reliability: GOOD

Cooperating Agriculturist(s): Rick List – Monitor Sugar Company
John Burk – Bay County Extension Educator

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RADISH TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:	Yoder Farms	Tillage:	Fall: Chisel Spring: 1x Field Cult.
Location:	Huron County	Harvest Date:	10/21/04
Planting Date:	4/19/04	Type of Harvester:	Artsway
Previous Crop:	Soybeans	Herbicides:	Micro Rate 4x
Variety:	7172 RZ	Replicated:	4x
Soil Type:	Kilmanagh	# of Rows Harvested:	8
Row Spacing:	20 Inch	# Defoliated:	-
Fertilizer:	Starter 5 lbs. sol-u-bor 22 gallons of 28% Side Dress-26 gallons 28%	Fungicide:	7/22/04 - Headline 9/03/04 - Topsin - Menzate

TREATMENT TOTAL NITROGEN	RWSA	T/A	RWST	% SUGAR	% CJP	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
Radish	7301	27.04	270	18.6	94.1					
Check	6868	24.56	280	19.1	94.5	Not Taken				
AVERAGE	7084	25.80	275	18.8	94.3					
L S D (5%)	NS	1.78	NS	NS	NS					
C.V. (%)	3	3.07	6	2.2	.6					

Comments: Trial was conducted to look at the effect of oil seed radish as a Sugar Beet Cyst Nematode trap crop. Radish strips were established in the early spring of 2003. Radish was killed off with glyphosate and soybeans planted directly into radish in June. Radish had excellent growth. Sugar beets were planted in the field in the Spring of 2004. Four replications of previous radish compared to no radish previous strips were harvested and quality sampled. Significant improvement occurred in tonnage in the previous radish strips. Sugar content tended to be higher in the non radish strips; this could possibly be because of increased dehydration from higher nematode levels in the check strips. Nematode sampling done within radish strips compared to check strips showed a drop in nematode population from a moderate level (risk index 2) to low population (risk index 1) based on eight nematode samples per treatment taken in August. Oilseed radish (Colonel) seems to be effective in lowering nematode population and increasing yield.

Trial Reliability: EXCELLENT

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

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TILLAGE AND NITROGEN TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: BEAN AND BEET FARM
Location: Saginaw County
Planting Date: 4/07/2004
Variety: Hilleshog E-17
Row Spacing: 30 Inches
Soil Type: Zilwaukee-Misteguay Complex

Harvest Date: 10/04/2004
Herbicides: Conventional
Exp. Design: Replicated Complete Block

NOTE: This Trial was conducted at a long term (15+years) tillage site at the Bean and Beet Farm. Tillage method was consistent in all years in a corn and soybean rotation. Trials were conducted by Mark Seamon, Extension Agriculture Educator.

Tillage:

Previous Crop: Corn

	RWSA	T/A	% SUGAR
Moldboard Plow	4815	18.6	17.4
Chisel	4749	18.3	17.5
No Till	4609	16.8	18.2
LSD (5%)	925 NS	2.9 NS	0.8 NS
CV (%)	11	9.4	2.6

Previous Crop: Soy Beans

	RWSA	T/A	% SUGAR
Moldboard Plow	5563 a	20.8 a	17.9
Chisel	4862 b	19.7 a	16.6
No Till	3898 b	15.9 b	16.5
LSD (5%)	874	2.9	1.5 NS
CV (%)	11	9	5

Summary: Moldboard plowing after soybeans increased RWSA while the tillage method after corn did not affect RWSA.

Nitrogen:

Previous Crop: Corn

N RATE	RWSA	T/A	% SUGAR
120 lbs.	4925	18.8 b	17.6
80 lbs.	4524	17.0 s	17.7
LSD (5%)	1.3	1.1 NS	512 NS
CV (%)	8.1	6.9	12

Previous Crop: Soy Beans

N RATE	RWSA	T/A	% SUGAR
120 lbs.	5034	19.9 b	16.9
80 lbs.	4515	17.7 a	17.1
LSD (5%)	1.8	0.8 NS	614 NS
CV (%)	10.8	5.3	14

Summary: The higher Nitrogen rate increased tons per acre after both corn & soybeans. RWSA & % sugar were not affected by Nitrogen Rate. This may indicate the optimum Nitrogen Rate is between 80 & 120 pounds/acre. This data is an average of two Nitrogen Rates across moldboard plow, chisel plow and no till treatments.

Michigan Sugar Company Rhizomania Trials

Cooperator: FELSKE FARMS **Location:** Bay County
Planting Date: 4/03/2004 **Harvest Date:** 10/06/2004
Replicated: 3x

VARIETY	% Sugar	% CJP	RWST	RWSA	T/A	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
2761 RZ	17.35	91.83	238	5326	22.36	-	-	-	-	-
7172 RZ	17.04	91.34	231	5421	23.46	-	-	-	-	-
1351 RZ	17.49	92.38	244	6007	24.67	-	-	-	-	-
1352 RZ	17.15	91.79	235	6137	26.05	-	-	-	-	-
C-963 Check	17.29	91.9	238	5787	24.33	-	-	-	-	-
AVERAGE	-	-	-	-	-	-	-	-	-	-
L S D (5%)	NS	0.5	12	NS	3.38	-	-	-	-	-
C.V. (%)	2.09	0.29	2.66	8.09	7.42	-	-	-	-	-

Cooperator: BEBOW FARMS **Location:** Gratiot County
Planting Date: 4/26/2004 **Harvest Date:** 11/12/2004
Replicated: 3x

VARIETY	% Sugar	% CJP	RWST	RWSA	T/A	POPULATION 100 FT. ROW				1200 Ft. RHIZ
						10 DAY	20 DAY	30 DAY	HARV.	
2761 RZ	18.46	91.06	249	5635	22.56	-	-	-	-	-
7172 RZ	18.34	90.21	243	6134	25.29	-	-	-	-	-
1351 RZ	17.9	90.03	236	5286	22.46	-	-	-	-	-
1352 RZ	18.77	90.51	251	5632	22.40	-	-	-	-	-
C-963 Check	18.34	89.86	241	5689	23.61	-	-	-	-	-
AVERAGE	-	-	-	-	-	-	-	-	-	-
L S D (5%)	0.6	1	13.03	NS	NS	-	-	-	-	-
C.V. (%)	1.75	0.59	2.84	8	8.07	-	-	-	-	-

Comments: Trials located in known Rhizomania Areas. Trials were conducted by Ralph Fogg, Chief Agronomist and Cory Guza, Agronomist; Michigan Sugar Company.