Michigan Sugar Company

2008

Research Results

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Bay City, MI

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Michigan Sugar Company

Roundup Ready Tank Mix Trial

Deckerville, MI - 2008

Trial Quality: Good

ID#	Treatment	RWSA	RWST	Ton/A	% Suc	% Purity	% Weed Control Y Must	% Weed Control Lambq	% Injury
4	Roundup + AMS + Select 8 oz (8-10 lf)	9280	274.0	33.81	18.42	95.2	98.3	100.0	0.00
12	Roundup + AMS + Proline 7 oz (4-6 lf)	8963	265.9	33.79	17.97	95.0	97.7	100.0	0.00
17	Roundup + AMS + Inspire 7 oz (Row Close)	8901	264.6	33.70	17.90	95.0	99.3	100.0	0.00
15	Roundup + AMS + Gem 3.5 oz (Row Close)	8841	256.4	34.53	17.62	94.3	98.0	100.0	0.00
3	Roundup + AMS + Select 8 oz (4-6 lf)	8804	260.6	33.85	17.77	94.6	98.2	100.0	0.00
10	Roundup + AMS + Quadris 10.5 oz (4-6 lf)	8769	264.3	33.22	17.96	94.8	97.2	100.0	0.00
8	Roundup + AMS + Outlook 1 pt (2-4 lf)	8743	267.7	32.59	18.00	95.3	99.2	100.0	0.00
9	Roundup + AMS + Quadris 10.5 oz(2-4 lf)	8738	265.9	32.89	18.05	94.8	98.5	100.0	0.00
13	Roundup + AMS + Headline 9 oz (Row Close)	8710	266.3	32.66	17.95	95.2	99.5	100.0	0.00
7	Roundup + AMS + Dual 1.3 pt (2-4 lf)	8697	265.8	32.75	18.02	94.9	98.2	100.0	0.00
18	Roundup + AMS + Super Tin 5 oz (Row Close)	8648	258.9	33.42	17.76	94.4	99.7	99.8	0.00
16	Roundup + AMS + Proline 5 oz (Row Close)	8631	262.0	33.01	17.80	94.8	98.2	100.0	0.00
11	Roundup + AMS + Proline 7 oz (2-4 lf)	8617	266.9	32.27	17.98	95.2	98.7	100.0	0.00
2	Roundup + AMS + Select 8 oz (2-4 lf)	8601	257.6	33.49	17.62	94.6	98.2	100.0	0.00
19	Roundup + AMS + Topsin 8 oz (Row Close) Penncozeb 2 lb (Row Close)	8601	265.6	32.34	18.03	94.8	99.3	100.0	0.00
14	Roundup + AMS + Eminent 13 oz (Row Close)	8548	262.2	32.56	17.87	94.7	99.0	100.0	0.00 .
1	Roundup + AMS	8530	264.6	32.36	17.84	95.2	98.8	100.0	0.00
5	Roundup + AMS + Dual 1.67 pt (4-6 lf)	8492	261.7	32.44	17.73	94.9	97.5	100.0	0.00
6	Roundup + AMS + Outlook 1 pt (4-6 lf)	8486	258.4	32.81	17.62	94.7	99.5	100.0	0.00
20	Roundup + AMS + Enable 8 oz (Row Close)	8427	262.6	32.17	17.87	94.7	98.5	100.0	0.00
21	Betamix Micro (4 Applic) Stinger 3rd and 4th Applic	7289	270.4	26.96	18.09	95.5	94.2	65.8	2.20
22	Untreated	2695	256.9	10.80	17.50	94.7	6.4	1.5	0.00
LSD (P=.05)		953.6	14.0	3.63	0.68	1.06	1.71	3.14	0.67
CV		10.0	4.7	9.99	3.33	0.97	1.6	2.90	513.00
Grand Mean		8364.1	263.6	31.75	17.88	94.88	94.2	93.95	0.11

Planted: April 30
Harvested: October 7

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary on the next page

Summary

Roundup Original Max at 22 fl oz/acre + AMS was applied alone and in combination with common herbicides and fungicides in this small plot replicated trial. The trial was designed to evaluate safety to the sugarbeets, effects on weed control and any mixing problems. Dual, Outlook and Select were tank mixed at early leaf stages and did not cause crop injury. Quadris and Proline were also tank mixed at early leaf stages (Rhizoctonia timing) and did not cause crop injury or reduce weed control. None of the Cercospora leaf spot fungicides (Inspire, Proline, Gem, Headline, Super Tin, Topsin, Penncozeb, Eminent, Enable, Dithane) caused crop injury or interfered with weed control. The weed pressure in this trial was extremely high and consisted primarily of wild mustard and common lambsquarter.

From this trial it appears that Roundup Original Max is compatible in a tank mix with these common sugarbeet herbicides and fungicides.

Notes: Trt. 20, Enable also contained Dithane at 2 lb/A and Crop Oil at 1 qt/A

Roundup Original Max was applied at 22 fl oz/A and AMS at 17 lb/100 gal.

Treatments applied with a tractor compressed air plot sprayer in 12 gpa and 30 psi

Sugarbeet Variety: HM 28RR

Spray Dates	
Cotyl	16-May
2-4 lf	24-May
4-6 lf	7-Jun
6 lf	21-Jun
8-10 lf	27-Jun
Row Close	16-Jul

Michigan Sugar Company

Timing and Number of Roundup Ready Applications in Sugarbeets

Deckerville, MI - 2008

Trial Quality: Good

ID#	Treatment	RWSA	RWST	Tons/ Acre	Sugarbeet Injury[1]	Sugarbeet Stunt[2]	Weed Control[3] W. Must	Weed Control[3] Lambsq
1	Roundup Orig Max 2 lf, 6 lf, 10 lf	8360	244.9	34.18	0.0	0.0	99.3	100.0
2	Roundup Orig Max 2 lf, 10 lf	8219	243.0	33.80	0.0	3.3	90.3	95.0
4	Roundup Orig Max 2 lf, 6 lf	8183	247.5	32.78	0.0	0.0	98.7	100.0
7	Betamix Micro Cotyl, 2 lf, 4 lf, 6 lf	6037	235.0	25.35	5.8	8.3	94.2	53.3
3	Roundup Orig Max 6 lf, 10 lf	4965	237.5	20.69	0.0	30.0	89.2	99.8
5	Roundup Orig Max 4 lf	4749	244.2	18.99	0.0	13.3	86.7	51.7
6	Roundup Orig Max 10 lf	4441	231.7	18.67	0.0	45.8	79.2	74.2
8	Untreated	678	230.8	2.81	0.0	72.5	5.8	1.5
LSD (P=.05)		1590.5	ns	5.8	0.9	6.7	6.7	15.1
CV		23.7	6.9	21.0	99.0	26.3	7.0	17.8
Grand Mean		5704.1	239.3	23.41	0.7	21.7	80.4	71.9

Roundup was applied at 22 fl oz/A and included AMS at 17 lbs/100 gal

Planted: Apr 30
Harvested: Oct 7

Spray Dates: Cotyl - May 16, 2 lf - May 24, 4 lf - Jun 7
6 lf - Jun 17, 10 lf - Jun 27

Weed Density: Wild Mustard - Very Heavy (10+ per sq ft)
Common Lambsquarter - Moderate to Heavy (1-4 per sq ft)

[1] Sugarbeet Injury: Injury due to the herbicide application (%) visual rating (June 18)
Injury in Micro-Rate treatment recovered by mid-season (Jul 25)

[2] Sugarbeet Stunt: Stunting due to weed competition (%) visual rating (Jul 25)

[3] Weed Control: Weed control (%) visual rating (Jul 25)

Plot Size: 4 Row X 35 ft X 6 Reps

Summary on the next page

Michigan Sugar Company

Timing and Number of Roundup Ready Applications in Sugarbeets

Deckerville, MI - 2008

Summary

Two or three well timed Roundup applications provided excellent control of Wild Mustard and Common Lambsquarter in this small plot replicated weed control trial. An extremely high weed population existed at this location, especially with respect to Wild Mustard. The treatments were applied with a tractor mounted compressed air plot sprayer at 30 psi and 12 gpa. Maximum weed control was obtained when Roundup was applied at the 2 leaf, 6 leaf and 10 leaf stages of weeds. Control was nearly as good when the 2 lf and 6 lf stage were utilized and the 10 lf stage was omitted. Weed control fell down somewhat when Roundup was applied at only the 2 lf and 10 lf stage.

Significant weed problems developed when the first Roundup application was delayed until the 6 leaf stage, in a two Roundup spray scheme.

A single Roundup application failed to control weeds regardless of the timing.

In general, yields followed the weed control ratings, with the single Roundup applications yielding roughly one half of the well timed sequential treatments.

The LSD and CV% for yield was high primarily because of a tremendous variation in the yield of the 6 check plots. One check plot had no yield and several others had very low yields, while a couple check plots with less weed density yielded higher. Similarly, some poor weed control treatments yields also varied widely depending upon the density of weed pressure in individual plots.

It should be noted that the Stunt column has nothing to do with damage from the herbicide. This rating shows the condition of the beets as a result of weed competition.

Michigan Sugar Company

Roundup Ready AMS Comparison Trial

Blumfield, MI - 2008

Trial Quality: Fair

ID #	Treatment	Rate/Acre	% Weed Control			% Injury
			Avg 2	Pigweed	Lambsq	
2	Roundup Original Max	22 fl oz/A	99.08	98.80	99.30	0.00
	Request	2 qt/100 gal				
5	Roundup Original Max	22 fl oz/A	98.75	98.20	99.30	0.00
	Alliance	4 qt/100 gal				
3	Roundup Original Max	22 fl oz/A	98.67	98.20	99.20	0.00
	Quest	2 qt/100 gal				
7	Roundup Original Max	22 fl oz/A	98.42	98.20	98.70	0.00
	BlendMaster	1 gal/100 gal				
1	Roundup Original Max	22 fl oz/A	98.25	97.70	98.80	0.00
	AMS	17 lb/100 gal				
4	Roundup Original Max	22 fl oz/A	98.25	97.80	98.70	0.00
	Choice	2 qt/100 gal				
6	Roundup Original Max	22 fl oz/A	97.58	97.20	98.00	0.00
	Helm-Ade	2 qt/100 gal				
8	Roundup Original Max	22 fl oz/A	97.42	97.30	97.50	0.00
9	Untreated		0.00	0.00	0.00	0.00
LSD (P=.05)			1.46	ns	1.62	0.00
CV			1.43	1.68	1.58	0.00
Grand Mean			87.38	87.04	87.72	0.00

Planted: May 5
Not Harvested
Spray Dates: June 7 and June 21

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'
JD 990 plot sprayer, 12 gpa, 30 psi

Summary

All of the treatments in this small plot replicated trial provided good weed control which makes it difficult to determine if there are differences between dry AMS and the liquid AMS formulations. A moderate to heavy weed population existed in the plots. The water source was from the the Seed Plant in Bay City which is probably not nearly as hard as some farm wells. Next year we will use well water and half rates of Roundup to see if we can see treatment differences.

Michigan Sugar Company

Roundup Ready Nutritional Spray Tank Mixes

Blumfield, MI

2008

Trial Quality: Good

ID #	Treatment	% Weed Control			% Injury
		Avg 2	Pigweed	Lambsq	
1	Roundup Weather Max AMS	99.75	99.50	100.00	1.30
2	Roundup Weather Max AMS Manganese Chelate	99.50	99.50	99.50	1.80
4	Roundup Weather Max AMS Solubor	97.75	97.80	97.80	6.30
3	Roundup Weather Max AMS Manganese Sulfate	96.13	96.80	95.50	2.50
5	Manganese Chelate	0.00	0.00	0.00	0.00
6	Manganese Sulfate	0.00	0.00	0.00	0.00
7	Solubor	0.00	0.00	0.00	2.00
8	Untreated	0.00	0.00	0.00	0.00
LSD (P=.05)		1.94	1.48	2.58	2.80
CV		2.68	2.04	3.57	110.80
Grand Mean		49.14	49.19	49.09	1.72

Planted: May 5
Not Harvested
Roundup at 22 fl oz/A + AMS at 17 lbs/100 gal
JD 990 plot sprayer, 12 gpa, 30 psi

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Spray Dates: June 7, June 21

Summary

Roundup Weather Max was applied with and without Manganese Chelate, Manganese Sulfate and Solubor in this small plot replicated trial. It appeared that Manganese Sulfate in tank mix with Roundup interfered slightly with weed control and caused very minor spotting on the sugarbeet leaves. The tank mix of Solubor + Roundup also caused slightly reduced weed control and minor sugarbeet leaf injury. Manganese Chelate added to Roundup did not appear to cause any problems. Manganese Sulfate applied alone did not show any injury symptoms, however, Solubor applied alone caused minor spotting of the leaves.

Michigan Sugar Company

Control of Velvetleaf With Roundup, UpBeet and Pyramin Combinations in Sugarbeets

Bay City, MI - 2008

Trial Quality: Good

ID#	Treatment	Rate/Acre	Leaf Stage	% Velvetleaf Control	% Sugarbeet Injury
1	Roundup WeatherMax	22 fl oz/A	2, 6, 10	100.0	0
	UpBeet	0.5 oz/A	2, 6		
2	Roundup WeatherMax	22 fl oz/A	2, 6, 10	100.0	0
	UpBeet	0.5 oz/A	2		
3	Roundup WeatherMax	22 fl oz/A	2, 6, 10	100.0	0
7	Roundup WeatherMax	22 fl oz/A	2, 6, 10	100.0	0
	Pyramin	1.55 lb/A	2, 6		
	MSO	24 fl oz/A	2, 6		
8	Roundup WeatherMax	22 fl oz/A	2, 6, 10	100.0	0
	Pyramin	1.55 lb/A	2		
	MSO	24 fl oz/A	2		
6	Roundup WeatherMax	22 fl oz/A	2, 6, 10	97.0	0
	UpBeet	0.5 oz/A	6		
4	UpBeet	0.5 oz/A	2, 4	62.5	0
	AMS	17 lb/100 gal	2, 4		
	NIS	0.25 % v/v	2, 4		
9	Pyramin	1.55 lb/A	2, 4	36.3	0
	MSO	24 fl oz/A	2, 4		
5	UpBeet	0.5 oz/A	2	25.0	0
	AMS	17 lb/100 gal	2		
	NIS	0.25 % v/v	2		
10	Untreated			0.0	0
LSD (P=.05)				15.7	0
CV				15.0	0
Grand Mean				72.1	0

All Roundup WeatherMax treatments included AMS at 17 lbs/100 gallons of water

Treatments applied with CO^2 backpack sprayer, 30 psi, 10 gpa

Spray Applications: (Cotyl: May 13) (2 lf: May 22) (4 lf: May 31) (6-8 lf: Jun 9)

Summary

All of the Roundup WeatherMax treatments, including RoundupWeatherMax alone, provided excellent control of Velvetleaf in this trial. As a result, it was not possible to determine if the addition of UpBeet or Pyramin to Roundup was helpful or not. Neither UpBeet or Pyramin without Roundup provided adequate control of Velvetleaf. None of the treatments caused sugarbeet injury. A heavy infestation of Velvetleaf was present in the plots.

Trial Director: Corey Guza

Michigan Sugar Company

Control of Volunteer Alfalfa in Sugarbeets With Roundup and Stinger Combinations

Pigeon, MI - 2008

Trial Quality: Good

ID#	Treatment	Rate	Growth Stg	%Control V. Alfalfa	% Sugarbeet Injury Early	Mid
7	Roundup WeatherMax	22 fl oz/A	Cotyl, 4 lf, 8 lf	100.0	10.0	1.7
	AMS	17 lb/100 gal	Cotyl, 4 lf, 8 lf			
	Stinger	2 fl oz/A	Cotyl, 4 lf			
2	Roundup WeatherMax	22 fl oz/A	Cotyl, 4 lf, 8 lf	97.7	8.3	1.7
	AMS	17 lb/100 gal	Cotyl, 4 lf, 8 lf			
	Stinger	8 fl oz/A	4 lf			
6	Roundup WeatherMax	22 fl oz/A	Cotyl, 4 lf, 8 lf	97.7	15.0	5.0
	AMS	17 lb/100 gal	Cotyl, 4 lf, 8 lf			
	Stinger	8 fl oz/A	Cotyl			
1	Roundup WeatherMax	22 fl oz/A	Cotyl, 4 lf, 8 lf	96.7	10.0	3.3
	AMS	17 lb/100 gal	Cotyl, 4 lf, 8 lf			
	Stinger	4 fl oz/A	Cotyl, 4 lf			
9	Roundup WeatherMax	22 fl oz/A	Cotyl, 4 lf, 8 lf	95.0	13.3	1.7
	AMS	17 lb/100 gal	Cotyl, 4 lf, 8 lf			
	Stinger	2 fl oz/A	Cotyl, 4 lf, 8 lf			
3	Roundup WeatherMax	22 fl oz/A	Cotyl, 4 lf, 8 lf	90.0	3.3	0.0
	AMS	17 lb/100 gal	Cotyl, 4 lf, 8 lf			
4	Stinger	4 fl oz/A	Cotyl, 2 lf	80.0	21.7	8.3
	Crop Oil Conc	1 % v/v	Cotyl, 2 lf			
8	Stinger	2 fl oz/A	Cotyl, 2 lf	71.7	13.3	3.3
	Crop Oil Conc	1 % v/v	Cotyl, 2 lf			
5	Stinger	8 fl oz/A	4 lf	46.7	15.0	5.0
	Crop Oil Conc	1 % v/v	4 lf			
10	Untreated			0.0	0.0	0.0
LSD (P=.05)				10.7	9.2	4.6
CV				8.1	48.8	89.6
Grand Mean				77.5	11.0	3.0

Treatments applied with CO^2 backpack sprayer, 30 psi, 10 gpa
Spray Dates: (Cotyl: May 13) (4 lf: May 30) (8 lf: Jun 12)
Sugarbeet Injury: Visual Rating, Early: June 26, Mid: July 22

Summary

Roundup alone provided 90% control of volunteer alfalfa in this small plot replicated trial. Adding Stinger at 2 oz, two or three times increased control significantly. Some injury occurred but did not last season long. Higher rates of Stinger, 4 or 8 oz also improved alfalfa control but increased sugarbeet injury. Stinger alone did not provide adequate control of volunteer alfalfa. A uniform infestation of volunteer alfalfa was present in the plots (approx. 3 plants/ft^2)

Trial Director: Corey Guza

Michigan Sugar Company

Roundup Ready Strip Trial

Bauer Farms, Reese, MI - 2008

Trial Quality: Good

Variety	RWSA	RWST	Tons/ Acre	% Suc	% CJP	% Emerg	CLS Rate 0-9*	Rhizoc #/100ft
Crystal RR827	7452	259.5	28.72	17.82	94.32	69.8	3.8	12.8
HM 27RR	7430	247.5	30.06	17.04	94.38	73.3	1.9	3.5
Beta 17RR32	7270	249.3	29.17	17.10	94.50	69.5	3.4	12.6
HM 28RR	7231	237.5	30.43	16.42	94.26	74.0	2.5	4.5
HM 29RR	7075	235.8	30.01	16.42	93.96	70.3	2.1	4.8
LSD 5%	ns	15.2	0.9	0.5	ns	ns	0.4	6.6
CV %	3.7	2.6	2.1	1.9	0.4	8.3	8.3	56.0
Mean	7291.7	245.9	29.7	17.0	94.3	71.4	2.7	7.6

Planted: April 28, 2008
Harvested: September 25, 2005
Quadris: No
Reps: 6
Leafspot Sprays: 2, Beginning mid August. Mix up in who was spraying plot. When we realized it had not been sprayed we made 2 applications late.

3 Applications of Roundup Weather Max at 22 fl oz/A + AMS

* CLS Rate 0-9: Visual Rating Scale, 0 = no disease, 3.5 = Beginning of Leaf Desiccation and 9 = Complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Summary

High sugar/low disease tolerant Roundup Ready sugarbeet varieties were compared to low sugar/high disease tolerant Roundup Ready sugarbeet varieties in this replicated strip trial. Quadris was not applied to the plots and due to a mistake in communications, leaf spot applications were applied very late. The Rhizoctonia incidence at this location was moderate and the Cercospora infestation was moderate to high. All of the varieties yielded well in this trial and there were no significant differences in RWSA. Crystal RR827 did have the highest quality of this group of varieties.

Michigan Sugar Company

Control of Rhizoctonia Root and Crown Rot in Sugarbeets With Quadris and Proline Applications

Average of Two Locations

2008

Trial Quality: Fair

ID #	Treatment	Application Timing	Rate	RWSA	% Emerge Early	% Emerge Late	Dead Beet In 100 Ft
3	Proline	6 leaf	5.7 fl oz/a	6566	51.48	60.31	1.83
5	Quadris	2 to 4 Leaf	10.5 fl oz/a	6629	49.76	67.81	1.91
6	Quadris	6 leaf	10.5 fl oz/a	6694	53.28	78.90	2.91
1	Proline	Infurrow	5.7 fl oz/a	6483	43.51	70.78	3.89
2	Proline	2 to 4 Leaf	5.7 fl oz/a	6654	49.22	63.28	4.13
4	Quadris	Infurrow	10.5 fl oz/a	6122	42.73	68.59	5.05
7	UTC			6113	46.01	65.78	12.39
LSD (P=.5)				ns	9.27	14.57	3.15
CV				13.4	23.64	18.20	84.08
Grand Mean				6465.8	48.00	67.92	4.59

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Variety: B 1643 N

Summary

Quadris and Proline were applied at planting (infurrow) and banded at the 2-4 and 6 leaf stage in these small plot replicated trials. The Rhizoctonia infestation was low to moderate and scattered in these studies. Quadris and Proline appeared to provide equal levels of Rhizoctonia control at both locations. The infurrow and 2-4 leaf stage application timings gave the best disease control at one site and the infurrow treatments worked better at the other site. Both fungicides gave good control of Rhizoctonia compared to the untreated check plots. The infurrow treatments caused stand loss at one of the sites. Due to considerable variation in the Rhizoctonia infestation, yield differences were not statistically significant, however, the untreated check plots had the lowest yields.

Michigan Sugar Company

Control of Rhizoctonia Root and Crown Rot in Sugarbeets With Quadris and Proline Applications

St. Louis, MI - Bebow

2008

Trial Quality: Fair

ID#	Treatment	Application Timing	Rate	RWSA	% Emerge May 13	% Emerge May 22	Dead Beets in 100 Ft
3	Proline	6 Leaf	5.7 fl oz/a	4151	37.66	60.31	1.67
6	Quadris	6 Leaf	10.5 fl oz/a	4808	48.59	78.90	1.82
5	Quadris	2 to 4 Leaf	10.5 fl oz/a	4795	37.66	67.81	3.48
2	Proline	2 to 4 Leaf	5.7 fl oz/a	4611	39.69	63.28	7.42
1	Proline	Infurrow	5.7 fl oz/a	4244	39.37	70.78	7.45
4	Quadris	Infurrow	10.5 fl oz/a	4139	41.25	68.59	8.94
7	UTC			4230	40.47	65.78	12.12
LSD (P=.5)				ns	10.85	14.57	4.96
CV				15.2	22.63	18.2	68.59
Grand Mean				4425.5	40.67	67.92	6.13

Planted: April 29
Harvested: September 19
Variety: B 1643 N

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary

Quadris and Proline were applied at planting (infurrow) and banded at the 2-4 and 6 leaf stage in this small plot replicated trial. The Rhizoctonia infestation was low to moderate and scattered in this trial. Quadris and Proline appeared to provide about equal levels of Rhizoctonia control at this location. It also appeared that the 6 leaf application timing gave the best disease control. Tons and sugar were variable and there were no statistical differences between treatments.

Michigan Sugar Company

Control of Rhizoctonia Root and Crown Rot in Sugarbeets With Quadris and Proline Applications

Kawkawlin, MI - Schwab

2008

Trial Quality: Fair

ID#	Treatment	Application Timing	Rate	RWSA	% Emerge May 9	Dead Beets In 100 Ft
1	Proline	Infurrow	5.7 fl oz/a	8668	47.65	0.30
5	Quadris	2 to 4 Leaf	10.5 fl oz/a	8543	61.87	0.30
2	Proline	2 to 4 Leaf	5.7 fl oz/a	8697	58.75	0.80
4	Quadris	Infurrow	10.5 fl oz/a	8104	44.22	1.20
3	Proline	6 Leaf	5.7 fl oz/a	8898	65.31	2.00
6	Quadris	6 Leaf	10.5 fl oz/a	8580	57.97	4.00
7	UTC			7996	51.56	12.70
LSD (P=.5)				ns	14.38	2.57
CV				12.1	22.04	71.54
Grand Mean				8497.8	55.33	3.05

Planted: April 22
Harvested: October 14
Variety: B 1643 N

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary

Quadris and Proline were applied at planting (infurrow) and banded at the 2-4 and 6 leaf stage in this small plot replicated trial. The Rhizoctonia infestation was low to moderate and scattered in this trial. Quadris and Proline appeared to provide about equal levels of Rhizoctonia control at this location. The infurrow and 2-4 leaf stage application timings gave the best disease control in this trial. The infurrow treatments caused some stand loss. There were no significant differences with respect to yield or quality.

Michigan Sugar Company

Evaluate Possible Interaction Between Roundup Applications and HM 27RR Tolerance to Rhizoctonia

Average of 2 Locations

2008

Trial Quality: Fair

ID #	Treatment	RWSA	RWST	Tons/ Acre	% Suc	% Purity	Dead Beets/ 100 ft
1	Roundup Orig Max +AMS (2 lf, 6 lf, 10 lf)	7669	248.3	30.52	16.86	95.04	0.00
2	Roundup Orig Max +AMS (2 lf, 6 lf, 10 lf) Quadris (Banded, 4 lf)	7393	246.8	29.88	16.86	94.69	0.20
4	Betamix+UpBeet (2 lf) Betamix+UpBeet+Stinger (4 lf) Quadris (Banded, 4 lf) Betamix+UpBeet+Stinger (6 lf)	7089	246.6	28.62	16.77	94.97	0.30
3	Betamix+UpBeet (2 lf) Betamix+UpBeet+Stinger (4 lf) Betamix+UpBeet+Stinger (6 lf)	6916	245.9	28.00	16.84	94.52	0.30
LSD (P=.05)		ns	ns	2.26	ns	ns	ns
CV		9.2	3.0	9.25	2.11	0.83	254.61
Grand Mean		7266.8	246.9	29.26	16.83	94.80	0.19

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'
Variety: HM 27RR

Roundup Rate: 22 fl oz/A, Betamix Rate: 2 pts/A, UpBeet Rate: .5 oz/A, Stinger Rate: 3 oz/A

Summary

These small plot replicated trials were designed to test the hypothesis that Roundup applications may reduce a sugarbeet's tolerance to Rhizoctonia root and crown rot. The variety used in the trials was HM 27RR, a known Rhizoctonia tolerant Roundup Ready variety. From the dead beet counts at each location (which were caused by Rhizoctonia), it appears that the Roundup applications did not reduce the variety's disease resistance. Quadris applications had no effect on the results. The disease level was low at each location. It appears that the Betamix applications caused a yield drag at both sites.

Michigan Sugar Company

Evaluating Possible Interactions Between Roundup Applications and Variety Tolerance to Rhizoctonia

St. Louis, MI - Bebow - 2008

Trial Quality: Good

ID #	Treatment	RWSA	RWST	Tons/ Acre	% Suc	% Purity	Dead Beets/ 100 ft
2	Roundup Orig Max +AMS (2 lf, 6 lf, 10 lf) Quadris (Banded, 4 lf)	6088	208.0	29.32	14.58	94.13	0.27
1	Roundup Orig Max +AMS (2 lf, 6 lf, 10 lf)	5984	214.1	27.95	14.67	95.13	0.00
4	Betamix+UpBeet (2 lf) Betamix+UpBeet+Stinger (4 lf) Quadris (Banded, 4 lf) Betamix+UpBeet+Stinger (6 lf)	5731	206.3	27.77	14.31	94.70	0.27
3	Betamix+UpBeet (2 lf) Betamix+UpBeet+Stinger (4 lf) Betamix+UpBeet+Stinger (6 lf)	5465	203.1	26.94	14.39	93.67	0.13
LSD (P=.05)		517.3	10.18	ns	ns	1.14	ns
CV		7.2	3.95	7.48	2.48	0.97	256.75
Grand Mean		5816.9	207.86	28.00	14.49	94.41	0.17

Planted: April 29
Harvested: September 19
Variety: HM 27RR

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Roundup Rate: 22 fl oz/A, Betamix Rate: 2 pts/A, UpBeet Rate: .5 oz/A, Stinger Rate: 3 oz/A

Summary

This small plot replicated trial was designed to determine if Roundup applications to a Rhizoctonia tolerant variety (HM 27RR) reduced the level of Rhizoctonia resistance of that variety. From the dead beet counts (caused by Rhizoctonia) it appears that HM 27RR withstood the disease whether it was sprayed with Roundup or not. Applications of Quadris did not affect the disease level in the trial. It appears that the Betamix treatments caused yield drag in this trial.

Michigan Sugar Company

Evaluating Possible Interactions Between Roundup Applications and Variety Tolerance to Rhizoctonia

Kawkawlin, MI - Schwab - 2008

Trial Quality: Fair

ID #	Treatment	RWSA	RWST	Tons/ Acre	% Suc	% Purity	Dead Beets/ 100 ft
1	Roundup Orig Max +AMS (2 lf, 6 lf, 10 lf)	9355	282.4	33.09	19.05	94.94	0
2	Roundup Orig Max +AMS (2 lf, 6 lf, 10 lf) Quadris (Banded, 4 lf)	8697	285.6	30.45	19.14	95.25	0
4	Betamix+UpBeet (2 lf) Betamix+UpBeet+Stinger (4 lf) Quadris (Banded, 4 lf) Betamix+UpBeet+Stinger (6 lf)	8447	286.9	29.46	19.23	95.24	0.3
3	Betamix+UpBeet (2 lf) Betamix+UpBeet+Stinger (4 lf) Betamix+UpBeet+Stinger (6 lf)	8367	287.8	29.11	19.27	95.26	0.3
LSD (P=.05)		ns	ns	ns	ns	ns	ns
CV		9.8	1.8	10.16	1.74	0.50	261
Grand Mean		8716.6	285.7	30.53	19.17	95.17	0.17

Planted: April 22
Harvested: October 15
Variety: HM 27RR

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Roundup Rate: 22 fl oz/A, Betamix Rate: 2 pts/A, UpBeet Rate: .5 oz/A, Stinger Rate: 3 oz/A

Summary

This small plot replicated trial was designed to determine if Roundup applications to a Rhizoctonia tolerant variety (HM 27RR) reduced the level of Rhizoctonia resistance of that variety. From the dead beet counts (which were caused by Rhizoctonia), it appears that HM 27RR was tolerant to the disease whether sprayed with Roundup or not. Applications of Quadris did not affect the disease level in the trial. It appears that the Betamix treatments caused yield drag it the trial.

Michigan Sugar Company

Evaluating Possible Interactions Between Roundup Applications and Variety Tolerance to Rhizoctonia Replicated Strip Trial

Breckenridge, MI - Sherwood

2008

Trial Quality: Fair

ID#	Treatment	RWSA	RWST	Tons / Acre	% Suc	% Purity	Dead Beets/ 1000 ft
1	Roundup Orig Max 22 oz AMS (3 Applications)	6442	287.2	22.39	19.09	95.66	6.30
2	Betamix 8 oz (4 Applic) UpBeet .5 oz Stinger 1 oz MSO 1 %	5843	281.7	20.72	18.82	95.47	6.50
LSD (P=.05)		540.3	ns	ns	ns	ns	ns
CV		5.9	2.0	5.26	1.37	0.67	106.50
Grand Mean		6142.5	284.5	21.55	18.96	95.56	6.42

Planted: Grower
Harvested: November 8
Variety: HM 27RR

Plot Size: 12 Rows X 200 Ft X 6 Reps
Row Spacing: 30'

Summary

This large plot replicated trial was designed to determine if Roundup applications had any effect on the Rhizoctonia resistance level of a known Rhizoctonia tolerant variety, HM 27RR. Half of the plots were sprayed with Roundup and half of the plots were sprayed with Micro-Rates.

From the data, it appears that the resistant variety maintained it's resistance to Rhizoctonia after the Roundup applications were applied. There did appear to be some yield drag from the Micro-Rate program.

Michigan Sugar Company

Fertility Rate and Timing Trial

Auburn, MI - Wishowski - 2008

Trial Quality: Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity
9	50 N, 45 P (2x2) 50 Lbs N (PPI)	6993	283.6	24.64	18.68	96.18
17	150 N (PPI)	6948	270.3	25.68	17.92	95.97
23	100 45-85 (PPI) 10 MN (PPI)	6926	286.4	24.21	18.80	96.34
7	50 lbs N (2x2) 50 Lbs N (PPI)	6725	282.8	23.78	18.74	95.88
21	50 N, 45 P (2x2) 6 lbs MN (2X2) 50 Lbs N (side dress)	6688	285.2	23.48	18.78	96.17
8	50 N, 20 P (2x2) 50 Lbs N (PPI)	6683	277.2	24.12	18.41	95.80
22	50 N, 45 P (2x2) 1 lb Boron (2X2) 50 Lbs. N (side dress)	6627	279.3	23.75	18.45	96.07
11	50 lbs N (PPI) 50 Lbs N (side dress)	6616	282.6	23.42	18.60	96.25
6	50 N, 90 P (2x2) 50 Lbs N (side dress)	6595	273.6	24.08	18.26	95.61
4	50 N, 20 P (2x2) 50 Lbs N (side dress)	6468	274.9	23.52	18.24	95.88
12	50 N, 20 P (PPI) 50 Lbs N (side dress)	6454	278.9	23.13	18.30	96.43
20	150 N (side dress)	6351	275.1	23.13	18.26	95.88
14	50 N, 90 P (PPI) 50 Lbs N (side dress)	6323	280.7	22.56	18.52	96.13
3	50 lbs N (2x2) 50 Lbs N (side dress)	6203	281.8	22.05	18.68	95.86
5	50 N, 45 P (2x2) 50 Lbs N (side dress)	6140	279.6	21.98	18.48	96.06
16	100 N (PPI)	6077	282.9	21.48	18.60	96.30
13	50 N, 45 P (PPI) 50 Lbs N (side dress)	5857	279.2	20.95	18.54	95.82
19	100 N (side dress)	5847	280.0	20.88	18.45	96.23
10	50 N, 90 P (2x2) 50 Lbs N (PPI)	5628	271.5	20.74	18.08	95.74
18	50 N (side dress)	5196	285.2	18.22	18.68	96.48
15	50 N (PPI)	5113	275.4	18.57	18.46	95.38
1	Untreated Check	4529	281.6	16.22	18.54	96.23
2	10-34-0 (3 gal) InFurrow	4412	274.0	16.05	18.42	95.22
LSD (P=.05)		990.5	ns	3.54	0.71	0.84
CV		9.8	2.8	9.75	2.34	0.53
Grand Mean		6147.7	279.2	22.03	18.47	96.00

Planted: May 22
Harvested: October 17
Side Dress Date: June 24

Plot Size: 4 Rows X 50 Ft X 3 Reps
Row Spacing: 30'

Summary on next page.

Michigan Sugar Company

Fertility Rate and Timing Trial

Auburn, MI - Wishowski

Page 2 - 2008

Protocol

This trial compared different levels of Nitrogen and Phosphorus applications. Boron and Manganese was also evaluated in one treatment each. Fertilizer placement was evaluated: pre-plant incorporated, 2x2 of N and P and side dress nitrogen. There was also one treatment of 10-34-0 applied infurrow.

Summary

Sugarbeets responded significantly to different rates and application timings of nitrogen fertilizers in this small plot replicated trial. Nitrogen was applied at rates of 50 to 150 lbs/A at planting time and at a later side dressing date. The optimum nitrogen rate was 100 lbs per acre. The optimum timing was at planting, either PPI or 2 X 2, or a combination of both. The 150 pound nitrogen rate reduced sugar content and the late (side dress) timing reduced yields and sugar content. The 50 pound nitrogen rate limited yield significantly. The 10-34-0 infurrow treatment did not improve yields above the check plots. The check plots yielded approximately seven tons less than the 100 pound (at planting) nitrogen treatments. The sugarbeets did not appear to respond to phosphorus, boron or manganese.

Soil Test Information

Soil Type:	Sandy Loam (74% Sand, 16% Silt, 10% Clay)
Soil pH:	8.0
%OM:	1.5
CEC:	9.3 meq/100 g
Phosphorus:	Above Optimum Level
Potassium:	Optimum Level
Magnesium:	Above Optimum Level
Boron:	Low
Manganese:	Medium
Zinc:	Medium

Michigan Sugar Company

Evaluate Borregro and 10-34-0 as Infurrow Treatments

St Louis, MI - Bebow

2008

Trial Quality: Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge May 13	% Emerge May 22
4	Untreated	5117	198.2	25.92	14.57	91.99	43.68	27.86
1	Borregro Ha-1 10-34-0	5103	207.2	24.67	15.05	92.42	35.50	28.06
3	10-34-0	5067	205.3	24.70	15.00	92.14	49.32	28.89
2	Borregro Ha-1 10-34-0	4615	188.2	24.84	13.99	91.63	40.86	29.16
LSD (P=.05)		ns	ns	ns	ns	ns	ns	ns
CV		8.1	8.3	11.45	5.49	1.37	18.36	4.58
Grand Mean		4975.3	199.7	25.03	14.65	92.04	42.34	28.49

Planted: April 29
Harvested: September 19

Plot Size: 4 Rows X 70 Ft X 4 Reps
Row Spacing: 30'

Summary

The products tested were applied infurrow. No treatment was better than the untreated check. Borrego is a humic acid product.

Michigan Sugar Company

Caldwell Fertility

St. Louis, MI - Bebow

2008

Trial Quality: Fair

ID#	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge June 13	% Emerge June 22
3	10-34-0	5265	202.6	26.00	14.43	93.44	61.9	76.7
4	Untreated	5220	205.6	25.37	14.57	93.60	60.8	80.8
2	Sea Mate	5207	203.5	25.68	14.61	93.03	57.4	75.0
1	Nutri Plus	5086	202.4	25.15	14.52	93.08	53.3	76.4
LSD (P=.05)		ns	ns	ns	ns	ns	ns	ns
CV		9.0	5.32	8.59	3.51	1.07	26.24	14.67
Grand Mean		5194.5	203.53	25.55	14.53	93.29	58.35	77.22

Planted: April 29
Harvested: September 19

Plot Size: 4 Rows X 70 Ft X 6 Reps
Row Spacing: 30'

Application Rates: 10-34-0 - 3 gal/acre, Sea Mate - 2 oz/acre, Nutri Plus - 4 oz/acre.

Summary

None of the treatments provided a significant improvement with respect to yield or quality compared to the untreated check.

Michigan Sugar Company

Replant/Population Trial

Frankenmuth, MI - Uebler

Trial Quality: Very Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity
25	175 Beets/100 ft - Plant 1	8201	267.9	30.58	18.17	94.86
17	125 Beets/100 ft - Plant 1	7868	261.3	30.14	18.11	93.84
21	150 Beets/100 ft - Plant 1	7615	258.4	29.53	17.71	94.42
9	80 Beets/100 ft - Plant 1	7180	247.6	29.03	17.28	93.67
13	100 Beets/100 ft - Plant 1	7114	249.1	28.58	17.50	93.35
22	150 Beets/100 ft - Plant 2	6605	244.8	26.96	17.20	93.40
26	175 Beets/100 ft - Plant 2	6473	243.8	26.54	16.97	93.86
14	100 Beets/100 ft - Plant 2	6343	231.4	27.40	16.51	92.84
18	125 Beets/100 ft - Plant 2	6126	229.7	26.66	16.64	92.20
1	50 Beets/100 ft - Plant 1	5752	234.5	24.51	16.77	92.68
5	65 Beets/100 ft - Plant 1	5675	197.6	28.90	14.02	92.20
6	65 Beets/100 ft - Plant 2	5652	229.1	24.66	16.49	92.48
10	80 Beets/100 ft - Plant 2	5507	224.0	24.57	16.10	92.60
23	150 Beets/100 ft - Plant 3	5109	229.9	22.31	16.47	92.65
19	125 Beets/100 ft - Plant 3	5062	226.5	22.40	16.09	93.13
2	50 Beets/100 ft - Plant 2	4998	213.9	23.33	15.60	92.11
27	175 Beets/100 ft - Plant 3	4910	215.3	22.88	15.50	92.62
15	100 Beets/100 ft - Plant 3	4577	208.5	22.00	15.65	90.94
11	80 Beets/100 ft - Plant 3	4209	214.3	19.56	15.72	91.78
7	65 Beets/100 ft - Plant 3	4125	206.1	19.93	15.23	91.67
3	50 Beets/100 ft - Plant 3	3953	207.6	18.99	15.14	92.17
28	175 Beets/100 ft - Plant 4	3286	196.2	16.66	14.70	91.23
24	150 Beets/100 ft - Plant 4	3142	193.0	16.23	14.75	90.47
20	125 Beets/100 ft - Plant 4	2987	195.4	15.43	14.53	91.49
12	80 Beets/100 ft - Plant 4	2521	186.2	13.55	14.04	91.09
16	100 Beets/100 ft - Plant 4	2406	182.9	13.15	14.05	90.35
8	65 Beets/100 ft - Plant 4	2367	179.4	13.12	13.73	90.61
4	50 Beets/100 ft - Plant 4	2102	171.2	12.30	13.29	90.17
LSD (P=.05)		841.3	27.2	1.84	1.61	1.62
CV		14.5	10.9	7.15	8.86	1.54
Grand Mean		5066.5	219.5	22.50	15.86	92.32

1st Plant - April 18
2nd Plant - May 6
3rd Plant - May 25
4th Plant - June 13

Plot Size: 6 Row X 35 Ft X 6 Reps
Row Spacing: 30'
Harvested: September 26

Summary on the next page

Michigan Sugar Company

Replant/Population Trial

Frankenmuth, MI - Uebler

Trial Quality: Very Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity
	Compare Population					
7	175 Beets/100 Ft	5718	230.8	24.17	16.33	93.14
6	150 Beets/100 Ft	5618	231.5	23.76	16.53	92.74
5	125 Beets/100 Ft	5511	228.2	23.66	16.34	92.66
4	100 Beets/100 Ft	5110	218.0	22.78	15.93	91.87
3	80 Beets/100 Ft	4854	218.0	21.68	15.79	92.29
2	65 Beets/100 Ft	4454	203.1	21.65	14.87	91.74
1	50 Beets/100 Ft	4201	206.8	19.78	15.20	91.78
LSD 5%		423.3	14.0	0.94	0.83	0.82
CV		14.5	10.9	7.15	8.86	1.54
Grand Mean		5066.5	219.5	22.50	15.86	92.32
	Compare Planting Dates					
1	Plant 1st	7058	245.2	28.75	17.08	93.58
2	Plant 2nd	5957	231.0	25.73	16.50	92.78
3	Plant 3rd	4564	215.4	21.16	15.69	92.14
4	Plant 4th	2687	186.3	14.35	14.16	90.77
LSD 5%		320.0	10.6	0.71	0.63	0.62
CV		14.5	10.9	7.15	8.86	1.54
Grand Mean		5066.5	219.5	22.50	15.86	92.32

1st Plant - April 18
2nd Plant - May 6
3rd Plant - May 25
4th Plant - June 13

Plot Size: 6 Row X 35 Ft X 6 Reps
Row Spacing: 30'
Harvested: September 26

Summary

Within each planting date thicker stands are better, 100 beets/100 feet or more. This trial confirms that earlier planting is better. All stands of one planting date are better than the next date with three exceptions in planting date 1 and 2. Even 80 beets in planting date 1 is better than any in date 2. Keeping even the thinnest stands may be best because there is no guarantee of good emergence when replanting.

Michigan Sugar Company

Control of Cercospora Leafspot With Fungicides + In-Place

Blumfield, MI

Trial Quality: Very Good

ID #	Treatment	Rate	CLS*	RWSA	RWST	Tons/A	% Suc	% Purity
10	Inspire SB	7 fl oz/A	2.08	6194	260.8	23.73	17.55	95.3
3	Eminent + In-Place	13 fl oz/A	2.29	5992	255.7	23.39	17.22	95.4
1	Headline + In-Place	9.2 fl oz/A	2.29	5880	250.5	23.45	17.08	94.8
9	Inspire + In-Place	7 fl oz/A	2.33	6087	258.1	23.62	17.41	95.2
2	Headline	9.2 fl oz/A	2.38	6274	253.9	24.72	17.12	95.3
5	Gem SC + In-Place	3.6 fl oz/A	2.38	5966	253.1	23.59	17.23	94.8
6	Gem SC	3.6 fl oz/A	2.42	6290	255.5	24.60	17.22	95.3
8	Proline SC	5.7 fl oz/A	2.42	6083	247.5	24.58	16.94	94.6
7	Proline + In-Place	5.7 fl oz/A	2.50	6100	255.9	23.83	17.34	95.0
4	Eminent	13 fl oz/A	2.50	5930	252.7	23.49	17.19	94.9
11	Enable + In-Place	8 fl oz/A	2.71	6174	259.1	23.83	17.41	95.4
	Dithane	2 lb/A						
	Crop Oil Conc	1 qt/A						
12	Enable	8 fl oz/A	2.79	5974	250.1	23.89	16.98	95.0
	Dithane	2 lb/A						
	Crop Oil Conc	1 qt/A						
13	Super Tin + In-Place	5 oz/A	2.83	6084	262.9	23.15	17.72	95.2
16	Topsin M	8 oz/A	2.83	5998	257.9	23.25	17.38	95.3
	Super Tin	.375 oz/A						
15	Topsin M + In-Place	8 oz/A	2.88	5806	254.5	22.86	17.30	94.9
	Super Tin	.375 oz/A						
14	Super Tin	5 oz/A	3.00	5896	250.7	23.52	17.03	95.0
18	Dithane	2 lb/A	3.50	5886	254.9	23.12	17.29	95.0
17	Dithane + In-Place	2 lb/A	3.58	5484	252.1	21.83	17.14	94.9
19	Kocide 3000 + In-Place	2 lb/A	3.83	5757	256.5	22.45	17.32	95.2
22	Untreated		6.25	5408	243.7	22.17	16.80	94.4
LSD (P=.05)			0.22	408.4	ns	1.25	ns	ns
CV			6.6	5.9	4.8	4.6	3.4	1.0
Grand Mean			2.89	5963.1	254.3	23.45	17.23	95.06

Planted: May 5, 2008
Harvested: Sept. 24, 2008
JD 990 Tractor Plot Sprayer - 90 psi, 22 gpa

Plot Size: 4 Row X 35 Ft X 6 Reps
Plots were Inoculated
Variety: Crystal RR827

Application Dates: Jul 26, Aug 12, Sep 8 - (For each treatment Super Tin was applied on Aug 12, so that the fungicides were not applied 3 times in sequence)

* Lower number shows less disease.

Summary on next page.

Michigan Sugar Company

Control of Cercospora Leafspot in Michigan With Fungicides

Blumfield, MI

2008

Trial Quality: Very Good

ID #	Treatment	Rate	Unit	CLS Rate 0-9*	RWSA	RWST	Tons/A	% Suc	% Purity
5	Inspire SB	7	fl oz/a	2.21	6140	259.4	23.68	17.48	95.28
1	Headline	9	fl oz/a	2.33	6077	252.2	24.08	17.10	95.07
3	Gem SC	3.6	fl oz/a	2.40	6128	254.3	24.10	17.22	95.09
2	Eminent	13	fl oz/a	2.40	5961	254.2	23.44	17.21	95.13
4	Proline SC	5.7	fl oz/a	2.46	6091	251.7	24.21	17.14	94.85
6	Enable 2F	8	fl oz/a	2.75	6074	254.6	23.86	17.20	95.21
	Dithane DF	2	lb/a						
	Crop Oil Conc	1	qt/a						
7	Super Tin 80WP	5	fl oz/a	2.92	5990	256.8	23.34	17.38	95.10
8	Topspin M	8	oz/a	2.85	5902	256.2	23.06	17.34	95.10
	Super Tin 80WP	5	fl oz/a						
9	Dithane DF	2	lb/a	3.54	5685	253.5	22.48	17.21	94.97
10	Kocide 3000	2	lb/a	3.83	5757	256.5	22.45	17.32	95.20
11	Untreated			6.25	5408	243.7	22.17	16.80	94.38
LSD 5%				0.16	279.6	8.9	0.92	0.43	0.69
CV				5.70	5.5	4.4	4.43	2.90	0.95
Grand Mean				3.09	5928.5	253.9	23.35	17.22	95.03

Surfactant Effect

1	In-Place	8	fl oz/a	2.76	5933.0	255.8	23.20	17.32	95.10
2	No Surfactant			3.02	5993.2	252.8	23.71	17.15	95.02
LSD 5%				0.07	ns	ns	0.39	ns	ns

* CLS Rate 0-9: Visual Rating Scale, 0 = No Disease, 3.5 = Beginning of Leaf Desiccation and 9 = Complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Summary

Inspire SB provided very good Cercospora leaf spot control in this trial followed by Headline, Gem SC, Eminent and Proline. The surfactant In-Place appeared to help the activity of several of the fungicides. There was a high level of disease in the plots.

Michigan Sugar Company

Effect of Gallons and Pressure on Control of Cercospora

Kawkawlin, MI - Schwab

Trial Quality: Very Good

ID #	Treatment	CLS Rate* Sep 9	RWSA	RWST	Tons/A	% Suc	% Purity
18	20 GPA @ 100 PSI Headline	2.25	9970	292.8	34.05	19.51	95.48
15	20 GPA @ 75 PSI Eminent	2.33	9872	298.5	33.08	19.74	95.76
17	20 GPA @ 100 PSI Eminent	2.33	9283	296.1	31.40	19.65	95.65
16	20 GPA @ 75 PSI Headline	2.38	9495	295.8	32.11	19.57	95.75
11	15 GPA @ 100 PSI Eminent	2.42	9530	296.7	32.14	19.60	95.82
9	15 GPA @ 75 PSI Eminent	2.46	9584	290.5	33.12	19.48	95.23
13	20 GPA @ 50 PSI Eminent	2.46	9799	294.1	33.33	19.46	95.84
12	15 GPA @ 100 PSI Headline	2.50	9292	289.9	32.06	19.43	95.15
14	20 GPA @ 50 PSI Headline	2.54	9438	287.4	32.85	19.24	95.24
7	15 GPA @ 50 PSI Eminent	2.58	9345	293.3	31.88	19.46	95.70
10	15 GPA @ 75 PSI Headline	2.58	9497	288.2	32.98	19.24	95.45
6	10 GPA @ 100 PSI Headline	2.67	9316	290.4	32.09	19.54	94.92
2	10 GPA @ 50 PSI Headline	2.71	10683	298.3	35.71	19.81	95.65
3	10 GPA @ 75 PSI Eminent	2.71	9835	296.6	33.14	19.73	95.52
4	10 GPA @ 75 PSI Headline	2.71	9905	292.9	33.81	19.55	95.36
5	10 GPA @ 100 PSI Eminent	2.71	9684	289.1	33.44	19.42	95.01
8	15 GPA @ 50 PSI Headline	2.71	10008	295.4	33.92	19.64	95.58
1	10 GPA @ 50 PSI Eminent	2.83	9698	299.8	32.33	19.81	95.73
19	UTC	3.46	9726	291.3	33.43	19.48	95.28
LSD (P=.05)		0.20	741.8	6.3	2.38	0.31	0.59
CV		6.59	6.6	1.9	6.17	1.38	0.53
Grand Mean		2.60	9682.2	293.5	32.99	19.54	95.48

Planted: April 22
Harvested: October 24
Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

* Lower number indicates less disease.

Summary on page 29

Michigan Sugar Company

Effect of Gallons and Pressure on Control of Cercospora

Kawkawlin, MI - Schwab

2008

Trial Quality: Very Good

ID #	Treatment	CLS Rate 0-9*	RWSA	RWST	Tons/A	% Suc	% Purity
3 3	20 GPA 100 PSI	2.29	9622	293.8	32.79	19.53	95.56
3 2	20GPA 75 PSI	2.35	9668	299.3	32.29	19.79	95.79
2 3	15 GPA 100 PSI	2.46	9430	295.9	31.88	19.68	95.55
3 1	20 GPA 50 PSI	2.50	9602	291.7	32.92	19.41	95.56
2 2	15 GPA 75 PSI	2.52	9518	287.6	33.16	19.24	95.30
2 1	15 GPA 50 PSI	2.65	9492	293.9	32.31	19.50	95.68
1 3	10 GPA 100 PSI	2.69	9469	291.4	32.49	19.58	95.00
1 2	10 GPA 75 PSI	2.71	9862	294.4	33.48	19.61	95.42
1 1	10 GPA 50 PSI	2.77	9795	299.0	32.76	19.81	95.70
	Untreated	3.46	9695	291.8	33.27	19.51	95.29
LSD 5%		0.15	ns	5.1	ns	0.27	0.39
CV		6.59	6.6	1.9	6.17	1.38	0.53
Grand Mean		2.64	9615.3	294.1	32.74	19.56	95.49

* CLS Rate 0-9: Visual Rating Scale, 0 = no disease, 3.5 = Beginning of Leaf Desiccation and 9 = Complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Planted: April 23
Harvested: October 16
Variety: Crystal RR827

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'
Spray Dates: August 12, Aug 26

Summary on next page

Michigan Sugar Company

Effect of Gallons and Pressure on Control of Cercospora

Kawkawlin, MI - 2008

Trial Quality: Very Good

ID #	Treatment	CLS Rate 0-9*	RWSA	RWST	Tons/A	% Suc	% Purity
Compare Gallons per Acre							
3	20 GPA	2.38	9630	294.9	32.66	19.58	95.64
2	15 GPA	2.54	9480	292.5	32.45	19.67	95.51
1	10 GPA	2.72	9709	294.9	32.91	19.67	95.39
LSD 5%		0.09	ns	ns	ns	0.13	ns
Compare Pressure							
3	100 PSI	2.48	9507	293.7	32.38	19.60	95.38
2	75 PSI	2.53	9683	293.7	32.98	19.55	95.50
1	50 PSI	2.64	9630	294.9	32.66	19.57	95.65
LSD 5%		0.09	ns	ns	ns	ns	0.23
Compare Fungicides							
1	Eminent	2.54	9620	295.4	32.58	19.62	95.60
2	Headline	2.56	9593	292.8	32.77	19.53	95.4
LSD 5%		ns	ns	2.4	ns	0.18	ns

* CLS Rate 0-9: Visual Rating Scale, 0 = no disease, 3.5 = Beginning of Leaf Desiccation and 9 = Complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Summary

Cercospora leaf spot control improved as water volumes increased from 10 to 15 to 20 gallons per acre. Similarly, leaf spot control improved as operating pressures rose from 50 to 75 to 100 psi. The best results were achieved with 20 gpa and 100 psi and the worst results were achieved with 10 gpa and 50 psi. The type of fungicide, systemic (Eminent) or non-systemic (Headline) did not make a difference.

Michigan Sugar Company

Syngenta Cercospora

Kawkawlin, MI - Schwab

2008

Trial Quality: Good

ID #	Treatment	Rate fl oz/A	CLS Rate 0-9*	RWSA	RWST	Tons/A	% Suc	% Purity
3	A8122 (Inspire SB)	7	1.46	10018	304.8	32.86	20.15	95.74
	Headline	9						
2	A7402 (Inspire)	7	1.54	9820	310.5	30.76	20.35	96.30
	Headline	9						
6	Proline	5	1.58	9824	305.0	32.30	19.87	96.55
	Induce	0.125%						
	Headline	9						
5	Eminent	13	1.71	9781	301.1	32.56	20.00	95.55
	Headline	9						
4	A13703 (Quadris)	8.5	2.13	10095	310.2	32.61	20.18	96.54
	Super Tin	5 oz						
1	UTC		3.46	8879	299.9	29.62	20.00	95.38
LSD (P=.05)			0.27	ns	7.5	ns	0.76	0.87
CV			11.40	8.7	2.1	8.70	3.36	0.75
Grand Mean			1.98	9736.3	305.3	31.78	14.81	96.01

* CLS Rate 0-9: Visual Rating Scale, 0 = no Disease, 3.5 = Beginning of Leaf Desiccation and 9 = complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Planted: April 22 — Plot Size: 4 Rows X 35 Ft X 6 Reps
Harvested: October 15 — Row Spacing: 30'
Variety: B 1643N — Spray Dates: Jul 29, Aug 12, Aug 26, Sep 10 — Rated: Sep 29

Summary

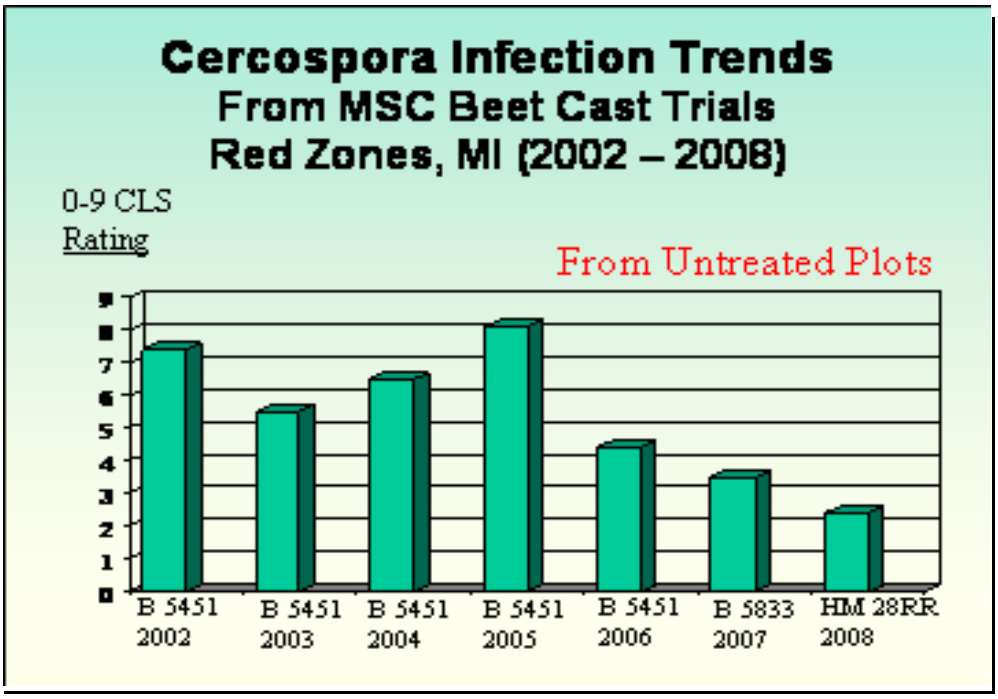
Inspire SB, Inspire and Proline provided very good Cercospora leaf spot control in this small plot replicated trial. Eminent also provided good control. Quadris was somewhat less effective. The leafspot infection level was moderate. Yields and percent sugar were very high in this trial.

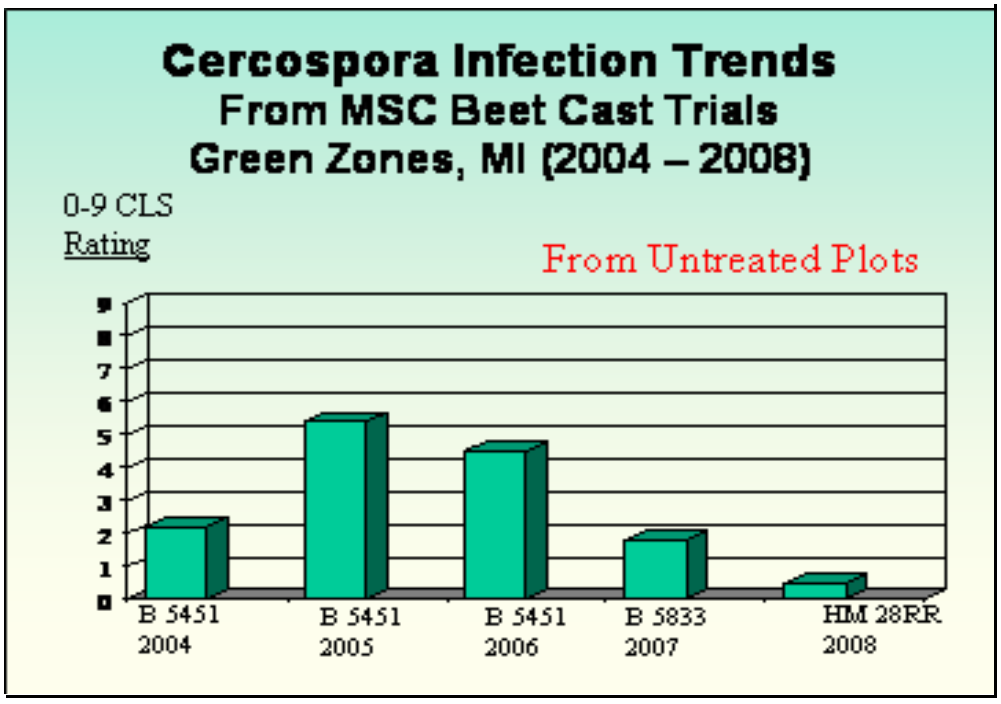
Michigan Sugar Company

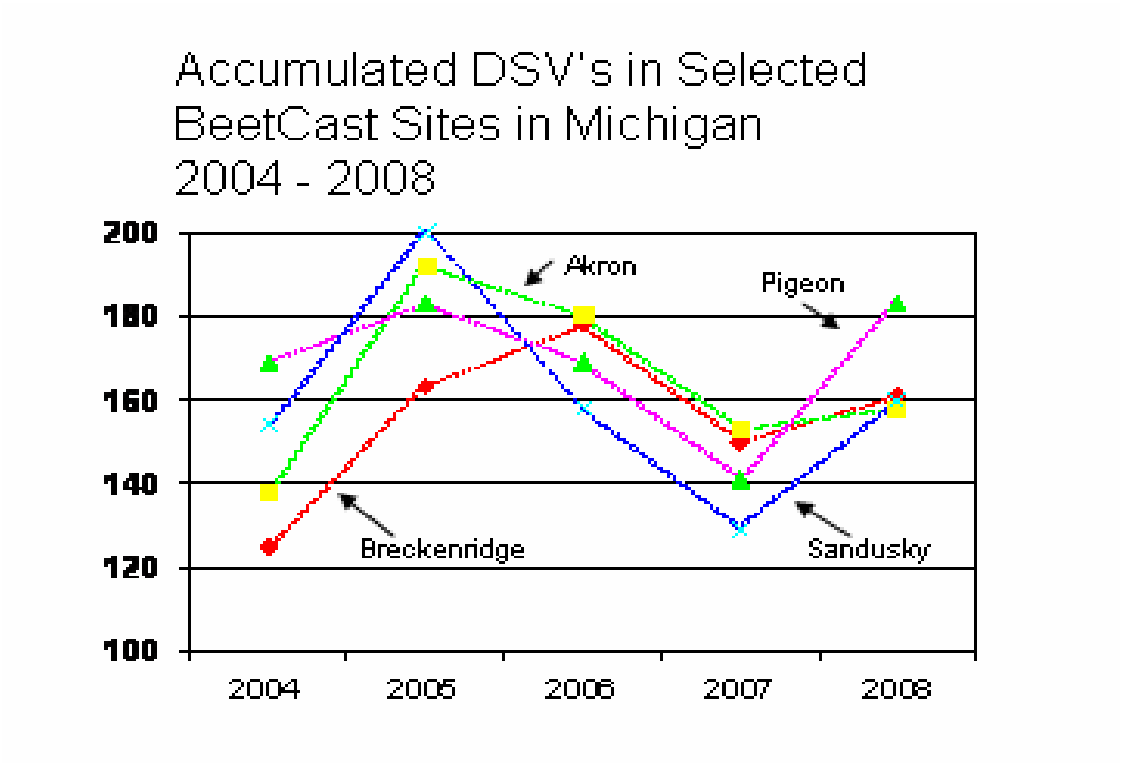
BeetCast Summary

Page 1

The Cercospora infection level in the plots was low this year compared to previous years. The disease level has been trending lower for the past three years (see graphs below). The Red Zone trial confirmed previous Red Zone trial data showing that a 55/55 program would be the appropriate spray schedule for most varieties. Very highly susceptible varieties could benefit from a 55/45 schedule. The Green Zone trial had such low pressure that even in the untreated check the Cercospora infestation did not reach economic levels. The DSV level in our trials reached approximately 160 this year. That was up from 2007 and about equal to 2006. See the graph below for a 5 year history of DSV's in the region.




Cercospora Infection Trends
From MSC Beet Cast Trials
Green Zones, MI (2004 – 2008)
0-9 CLS
Rating
From Untreated Plots
9
8
7
6
5
4
3
2
1
0
B 5451
2004
B 5451
2005
B 5451
2006
B 5833
2007
HM 28RR
2008


Accumulated DSV's in Selected
BeetCast Sites in Michigan
2004 - 2008
200
180
160
140
120
100
Akron
Pigeon
Breckenridge
Sandusky
2004
2005
2006
2007
2008

Michigan Sugar Company

Beetcast Cercospora Trial - Red Zone

Quanicassee, MI - Sylvester

2008

Trial Quality: Good

ID#	Treatment	CLS Rate* Sept 19	RWSA	RWST	Tons/A	% Suc	% Purity
16	55/45 - HM 9042RR	0.50	10599	298.3	35.54	19.58	96.21
20	55/55 - HM 9042RR	0.50	10112	296.1	34.16	19.57	95.85
7	45/45 - HM 28RR	0.60	11415	291.3	39.19	19.25	95.93
19	55/55 - HM 28RR	0.60	11174	292.1	38.24	19.02	96.70
24	70/55 - HM 9042RR	0.60	10561	297.3	35.52	19.71	95.69
8	45/45 - HM 9042RR	0.70	10510	292.3	35.91	19.44	95.55
3	45/35 - HM 28RR	0.75	11220	287.5	39.05	19.04	95.84
15	55/45 - HM 28RR	0.80	11417	289.4	39.44	18.94	96.47
4	45/35 - HM 9042RR	0.85	10572	295.1	35.81	19.84	94.95
12	45/55 - HM 9042RR	0.90	10034	292.2	34.31	19.66	94.96
11	45/55 - HM 28RR	0.95	11081	283.9	39.03	18.84	95.78
14	55/45 - HM 32RR	0.95	11921	294.7	40.50	19.36	96.19
23	70/55 - HM 28RR	1.05	11329	294.7	38.47	19.29	96.41
28	Scout/55 - HM 9042RR	1.05	10268	293.5	35.03	19.42	95.82
13	55/45 - C R827	1.10	11709	301.3	38.82	19.79	96.12
18	55/55 - HM 32RR	1.15	12207	296.5	41.17	19.48	96.17
2	45/35 - HM 32RR	1.30	11294	294.9	38.17	19.36	96.22
17	55/55 - C R827	1.30	11517	300.8	38.28	19.87	95.84
1	45/35 - C R827	1.35	11494	300.4	38.26	19.85	95.78
6	45/45 - HM 32RR	1.40	11813	303.2	38.97	19.91	96.12
27	Scout/55 - HM 28RR	1.50	10743	283.4	38.01	18.60	96.34
9	45/55 - C R827	1.55	11157	301.2	37.11	19.86	95.91
10	45/55 - HM 32RR	1.70	11992	301.3	39.86	19.72	96.30
32	Untreated - HM 9042RR	1.70	10552	297.9	35.41	19.61	96.06
22	70/55 - HM 32RR	1.80	12007	298.4	40.23	19.68	95.95
25	Scout/55 - C R827	1.95	11167	295.1	37.83	19.45	96.00
5	45/45 - C R827	2.00	11164	297.3	37.54	19.56	96.09
21	70/55 - C R827	2.00	11637	299.2	38.89	19.75	95.88
26	Scout/55 - HM 32RR	2.30	11609	300.8	38.62	19.91	95.72
31	Untreated - HM 28RR	2.40	10849	284.7	38.06	18.77	96.11
30	Untreated - HM 32RR	3.30	11091	290.0	38.26	19.18	95.87
29	Untreated - C R827	3.50	10650	296.9	35.81	19.66	95.75
LSD (P=.05)		0.67	652.5	10.3	1.83	0.52	0.67
CV		38.72	4.7	2.8	3.86	2.13	0.55
Grand Mean		1.38	11152.0	295.1	37.80	19.47	95.96

* Lower number indicates less disease

Planted: April 21

Harvested: October 23

Plot Size: 4 Rows X 35 Ft X 5 Reps

Row Spacing: 30'

Michigan Sugar Company

Beetcast Cercospora Trial - Red Zone

Quanicassee, MI - Sylvester

2008

Trial Quality: Very Good

ID #	Trt DSV	(Actual DSV)	# Applic	CLS Rate 0-9*	RWSA	RWST	Ton/A	% Suc	% Purity
4	55/45	(50/112/148)	3	0.84	11412	295.9	38.58	19.42	96.25
	(July 1,Aug 4, Aug 25)								
5	55/55	(50/112/174)	3	0.89	11252	296.4	37.97	19.49	96.14
	(July 1, Aug 4, Sept 8)								
1	45/35	(49/77/118/148)	4	1.06	11145	294.5	37.82	19.52	95.70
	(July 1, July 18, Aug 8, Aug 25)								
2	45/45	(49/92/136)	3	1.18	11226	296.0	37.90	19.54	95.92
	(July 1, July 25, Aug 19)								
3	45/55	(49/112/159)	3	1.28	11066	294.6	37.58	19.52	95.74
	(July 1, Aug 4, Sept 2)								
6	70/55	(69/125)	2	1.36	11383	297.4	38.28	19.61	95.98
	(July 14, Aug 12)								
7	Scout/55	(112/174)	2	1.70	10947	293.2	37.37	19.34	95.97
	(Aug 4, Sept 8)								
8	Untreated			2.73	10786	292.4	36.89	19.30	95.95
LSD 5%				0.36	ns	ns	1.11	ns	0.35
CV %				38.72	4.7	2.8	3.86	2.13	0.55
Grand Mean				1.38	11152.1	295.1	37.80	19.47	95.95
	Variety Effects								
4	HM 9042RR			0.85	10401	295.3	35.21	19.60	95.64
3	HM 28RR			1.08	11153	288.4	38.69	18.97	96.20
2	HM 32RR			1.74	11742	297.5	39.47	19.58	96.07
1	C R827			1.84	11312	299.0	37.82	19.72	95.92
LSD 5%				0.25	271.2	3.9	0.78	0.20	0.25

* CLS Rate 0-9: Visual Rating Scale, 0 = no disease, 3.5 = Beginning of Leaf Desiccation and 9 = Complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Planted: April 21
Harvested: October 23

Plot Size: 4 Rows X 35 Ft X 5 Reps
Row Spacing: 30'

Michigan Sugar Company

Beetcast Cercospora Trial - Green Zone

Sandusky, MI - Stoutenberg

2008

Trial Quality: Very Good

ID #	Treatment	CLS Rate* Sep 18	RWSA	RWST	Tons/A	% Suc	% Purity
2	45/35 - Beta 17RR62	0.00	10376	245.9	42.19	16.66	95.18
3	45/35 - HM 28RR	0.00	10085	235.6	42.78	16.17	94.70
4	45/35 - HM 9042RR	0.00	9288	240.3	38.65	16.61	94.26
15	55/45 - HM 28RR	0.00	9623	224.7	42.82	15.42	94.92
20	55/55 - HM 9042RR	0.00	9361	238.5	39.26	16.43	94.42
1	45/35 - C R827	0.08	10344	251.9	41.02	17.24	94.55
6	45/45 - Beta 17RR62	0.08	10542	250.6	42.00	16.92	95.32
9	45/55 - C R827	0.08	10467	255.8	40.89	17.27	95.23
10	45/55 - Beta 17RR62	0.08	10342	249.2	41.44	17.02	94.70
11	45/55 - HM 28RR	0.08	10082	238.5	42.24	16.19	95.21
12	45/55 - HM 9042RR	0.08	9534	248.7	38.30	17.01	94.66
16	55/45 - HM 9042RR	0.08	9407	244.2	38.47	16.81	94.39
23	70/55 - HM 28RR	0.08	9563	228.2	41.91	15.73	94.60
24	70/55 - HM 9042RR	0.08	9373	246.7	37.96	16.89	94.65
14	55/45 - Beta 17RR62	0.17	10817	252.5	42.78	17.05	95.26
18	55/55 - Beta 17RR62	0.17	10160	243.8	41.72	16.94	93.91
26	Scout/55 - Beta 17RR62	0.17	10771	254.1	42.33	17.23	95.03
28	Scout/55 - HM 9042RR	0.17	9556	245.4	38.93	16.89	94.41
7	45/45 - HM 28RR	0.25	10057	234.3	42.93	15.97	95.06
8	45/45 - HM 9042RR	0.25	9228	241.7	38.16	16.58	94.60
19	55/55 - HM 28RR	0.25	10083	231.6	43.56	16.05	94.25
21	70/55 - C R827	0.25	10326	248.8	41.48	17.11	94.36
22	70/55 - Beta 17RR62	0.25	10278	249.8	41.09	16.89	95.25
5	45/45 - C R827	0.33	9724	246.0	39.65	16.80	94.77
13	55/45 - C R827	0.33	10252	254.2	40.34	17.25	95.00
17	55/55 - C R827	0.42	10041	249.7	40.23	16.84	95.36
25	Scout/55 - C R827	0.42	10550	258.8	40.75	17.46	95.25
27	Scout/55 - HM 28RR	0.50	9638	223.3	43.18	15.44	94.53
32	Untreated - HM 9042RR	0.50	9574	243.7	39.30	16.82	94.29
31	Untreated - HM 28RR	1.33	9881	225.0	43.88	15.66	94.16
30	Untreated - Beta 17RR62	1.58	10338	245.2	42.16	16.84	94.54
29	Untreated - C R827	2.08	10549	256.4	41.16	17.42	94.89
LSD (P=.05)		0.32	577.2	11.5	1.38	0.61	0.86
CV		89.33	5.1	4.1	2.95	3.22	0.80
Grand Mean		0.32	10006.6	243.9	41.05	16.68	94.74

* Lower number indicates less disease

Planted: April 22

Harvested: October 2

Plot Size: 4 Rows X 35 Ft X 6 Reps

Row Spacing: 30'

Michigan Sugar Company

Beetcast Cercospora Trial - Green Zone

Sandusky, MI - Stoutenberg

2008

Trial Quality: Very Good

ID	# Trt DSV	(Actual DSV)	# Applic	CLS Rate 0-9*	RWSA	RWST	Tons/A	% Suc	% Purity
1	45/35	(50/75/118/153)	4	0.02	10023	243.4	41.16	16.67	94.67
	(July 1, July 14, Aug 7, Sept2)								
3	45/55	(50/111/153)	3	0.08	10106	248.0	40.72	16.87	94.95
	(July 1, Aug 4, Sept 9)								
4	55/45	(50/111/143)	3	0.15	10025	243.9	41.10	16.63	94.89
	(July 1, Aug 4, Aug 25)								
6	70/55	(75/125)	2	0.17	9885	243.4	40.61	16.65	94.71
	(July 14, Aug 12)								
5	55/55	(50/111)	2	0.21	9911	240.9	41.19	16.57	94.48
	(July 1, Aug 4)								
2	45/45	(50/95/135)	3	0.23	9888	243.1	40.69	16.57	94.94
	(July 1, July 25, Aug 19)								
7	Scout/55	(111)	1	0.31	10129	245.4	41.30	16.75	94.80
	(Aug 4)								
8	Untreated			1.38	10086	242.6	41.62	16.68	94.47
	LSD 5%			0.16	ns	7.0	0.82	ns	ns
	CV %			89.33	5.1	4.1	2.95	3.22	0.80
	Grand Mean			0.32	10006.6	243.8	41.05	16.68	94.74
	Variety Effects								
4	HM 9042RR			0.15	9415.3	243.6	38.63	16.75	94.46
3	HM 28RR			0.31	9876.5	230.2	42.91	15.83	94.68
2	Beta 17RR62			0.31	10452.9	248.9	41.96	16.94	94.90
1	C R827			0.50	10281.7	252.7	40.69	17.18	94.93
LSD 5%				0.11	262.0	5.0	0.58	0.24	0.41

* CLS Rate 0-9: Visual Rating Scale, 0 = no disease, 3.5 = Beginning of Leaf Desiccation and 9 = Complete Desiccation. Economic Damage Begins at a CLS Rating of Approximately 3.0.

Planted: April 22
Harvested: October 6

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Michigan Sugar Company

Cercospora Control - Misc. Products

St. Louis, MI - Bebow

2008

Trial Quality: Fair

ID #	Treatment	CLS Rate* Sept 17	RWSA	RWST	Tons/A	% Suc	% Purity
4	Check	0.17	5708	215.3	26.53	15.34	93.14
1	Ful-Sil	0.25	5254	209.2	25.16	15.07	92.72
3	Grow-Plex SP/Si	0.33	5414	212.5	25.44	15.19	93.05
2	Sea Mate/Si	0.63	5399	206.3	26.22	14.75	93.18
LSD (P=.05)		ns	ns	8.2	ns	0.53	ns
CV		106.71	9.8	3.1	9.39	2.79	0.61
Grand Mean		0.34	5443.9	210.8	25.84	15.09	93.02

* Lower number indicates less disease

Planted: April 29
Harvested: September 19

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary

These products claimed to prevent Cercospora leafspot. The trial indicated no advantage to the products tested. There was no significant difference in any treatments except the check being better than the Sea Mate/Si treatment in % Sucrose and RWST. Cercospora leafspot infestation was too low for an accurate evaluation.

Michigan Sugar Company

Evaluate Dynasty and Cruiser Seed Treatments in Sugarbeets

Average of Two Locations

2008

Trial Quality: Very Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge Early	% Emerge Mid	% Emerge Late	% Emerge Avg/3
1	Dynasty+Cruiser 7172	9018	265.4	34.35	17.91	94.99	52.9	74.2	81.3	69.5
6	7172	8785	266.3	33.39	18.01	94.85	56.6	79.7	81.3	72.6
4	7172 + Dynasty	8760	274.4	31.99	18.28	95.59	58.5	71.3	77.0	68.9
5	2771	8580	277.1	31.14	18.39	95.81	61.0	76.6	82.5	73.4
3	2771 + Dynasty	8510	274.3	31.21	18.24	95.68	59.3	77.1	83.4	73.2
2	Dynasty+Cruiser 2771	8456	272.0	31.23	18.14	95.60	50.0	74.8	81.9	68.9
LSD (P=.05)		469.9	8.6	1.60	0.40	0.62	9.49	7.28	6.33	5.42
CV		6.6	3.9	6.10	2.72	0.79	20.61	11.79	9.55	9.34
Grand Mean		8685.0	271.6	32.22	18.16	95.42	56.40	75.62	81.24	71.08

Dynasty: Azoxystrobin seed treatment (fungicide)
Cruiser: Thiamethoxam seed treatment (insecticide)

Plot Size: 4 Rows X 35 Ft X 8 Reps
Row Spacing: 30'

Summary

Cruiser and Dynasty were evaluated as seed treatments at 2 locations in Michigan in 2008. The seed treatments did not have a significant effect on yield and quality. Cruiser appeared to lower emergence somewhat.

Michigan Sugar Company

Evaluate Dynasty and Cruiser Seed Treatments in Sugarbeets

Sandusky, MI - Stoutenburg

2008

Trial Quality: Very Good

ID#	Treatment	RWSA	RWST	Ton/A	% Suc	% Purity	% Emerge May 5	% Emerge May 9	% Emerge June 9	% Emerge Ave/3
1	Dynasty+Cruiser 7172	8467	229.7	36.88	16.14	93.60	64.2	61.2	74.6	66.7
6	7172	8317	229.5	36.24	16.32	93.00	74.1	72.3	76.2	74.2
2	Dynasty+Cruiser 2771	8197	248.2	33.04	16.98	94.64	62.5	56.8	73.8	64.4
5	2771	8147	248.5	32.78	16.89	95.00	70.4	68.5	74.8	71.2
4	7172 + Dynasty	8115	228.7	35.49	16.19	93.26	76.6	67.8	74.1	72.9
3	2771 + Dynasty	7890	243.5	32.45	16.80	94.28	68.1	66.3	76.2	70.2
LSD (P=.05)		533.1	13.0	1.54	0.62	0.90	9.54	8.21	ns	6.63
CV		5.5	4.6	3.76	3.12	0.80	11.57	10.54	7.01	7.97
Grand Mean		8188.8	238.0	34.48	16.56	93.96	69.33	65.50	74.96	69.93

Planted: April 22
Harvested: September 29
Dynasty: Azoxystrobin seed treatment (fungicide)
Cruiser: Thiamethoxam seed treatment (insecticide)

Plot Size: 4 Rows X 35 Ft X 8 Reps
Row spacing: 30'

Summary

The seed treatments must be compared for each variety separate. Cruiser added to Dynasty appeared to lower emergence in both varieties. Dynasty alone did not have an effect on emergence. Yields and quality were not significantly affected by the seed treatments.

Michigan Sugar Company

Evaluate Dynasty and Cruiser Seed Treatments in Sugarbeets

Quanicassee, MI - Sylvester

2008

Trial Quality: Very Good

ID#	Treatment	RWSA	RWST	Ton/A	% Suc	% Purity	% Emerge May 5	% Emerge May 16	% Emerge May 27	% Emerge Ave/3
4	7172 + Dynasty	9631	305.4	31.54	19.76	96.91	50.71	74.44	77.75	67.63
1	Dynasty+Cruiser 7172	9570	301.1	31.81	19.68	96.39	44.62	84.23	87.98	72.28
6	7172	9277	301.9	30.79	19.66	96.59	40.94	85.25	86.50	70.90
3	2771 + Dynasty	9130	305.1	29.96	19.68	97.09	52.20	86.03	90.56	76.26
5	2771	9014	305.6	29.49	19.88	96.62	53.60	82.83	90.25	75.56
2	Dynasty+Cruiser 2771	8714	295.8	29.42	19.29	96.57	43.21	87.12	90.01	73.45
LSD (P=.05)		768.6	ns	ns	0.50	ns	ns	10.87	10.60	8.45
CV		7.0	2.8	7.24	2.15	0.64	31.12	10.97	10.23	9.78
Grand Mean		9222.6	302.5	30.50	19.66	96.69	47.55	83.32	87.18	72.68

Planted: April 21
Harvested: October 22
Dynasty: Azoxystrobin seed treatment (fungicide)
Cruiser: Thiamethoxam seed treatment (insecticide)

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary

The seed treatments must be compared for each variety tested. There is no advantage to any treatment over the same variety untreated.

Michigan Sugar Company

Poncho Beta Seed Treatment Trial

Kawkawlin, MI - Schwab

2008

Trial Quality: Fair

ID #	Treatment*	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge June 24
1	Poncho Beta	5324	285.4	18.68	19.13	95.23	52.8
2	Check	5104	282.3	18.07	19.06	94.90	52.8
LSD (P=.05)		ns	ns	ns	ns	ns	ns
CV		9.0	3.01	8.58	2.22	0.54	10.3
Grand Mean		5213.9	283.82	18.38	19.09	95.07	52.83

Planted: April 22
Harvested: October 15
* Variety: SX Prompt

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary

Poncho Beta (Clothianidin + beta-Cyfluthrin) is a seed treatment from Bayer applied to sugarbeet seed to control early season insects such as springtails, flea beetles, leaf miners, cutworms, wireworms and etc. In this small plot replicated trial Poncho Beta tended to improve yield slightly, however, differences were not statistically significant. Insect counts were not obtained.

Michigan Sugar Company

Syngenta Seed Treatment

Average of 3 Locations

2008

Trial Quality: Good

ID #	Treatment*	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge Early	% Emerge Late
10	Allegiance Fl Thiram 42 S Poncho 600 FS	6261	235.3	26.627	16.552	93.35	52.56	56.334
6	Apron XL Maxim 4 FS Cruiser 70 WS	6232.5	237.6	26.134	16.528	93.83	43.03	48.374
4	Apron XL Maxim 4 FS Cruiser 5 FS	6105.2	235.8	25.995	16.422	93.80	43.60	51.561
1	Apron XL Maxim 4 FS	6086.4	229.8	26.458	16.132	93.48	47.30	49.26
8	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet	6059.9	238.5	25.46	16.614	93.77	53.02	64.686
2	Apron XL Maxim 4 FS Cruiser 5 FS	5918.3	231.4	25.713	16.349	93.18	41.31	48.853
7	Apron XL Maxim 4 FS Cruiser 5 FS A 13219	5913.8	232.3	25.694	16.311	93.49	43.27	47.249
9	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet) Avicta 400 FS (Full Pellet)	5871.9	234.7	25.075	16.461	93.50	56.73	62.707
3	Apron XL Maxim 4 FS Cruiser 5 FS	5686.9	229.2	24.942	16.106	93.48	42.15	47.811
5	Apron XL Maxim 4 FS Cruiser 70 WS A 13219	5632.1	230.0	24.592	16.141	93.60	40.00	43.294
11	Poncho Beta	5343.9	243.5	22.014	17.085	93.32	64.06	70.779
12	Untreated	5068.9	237.2	21.489	16.589	93.60	55.14	56.845
LSD (P=.05)		411.2	7.2	1.56	0.40	0.5201	6.12	7.16
CV		10.4	4.5	9.20	3.56	0.82	18.57	15.71
Grand Mean		5848.4	234.6	25.02	16.44	93.53	48.51	53.98

* Treatment #1 is the treatment currently used on seed produced for sale.

Michigan Sugar Company

Syngenta Seed Treatment

St. Louis, MI - Bebow

2008

Trial Quality: Fair/Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge May 22	% Emerge June 14
7	Apron XL Maxim 4 FS Cruiser 70 WS A 13219	5122	187.7	27.26	13.81	92.20	55.82	60.82
8	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet)	4992	193.2	25.81	14.14	92.29	59.58	72.26
10	Allegiance Fl Thiram 42 S Poncho 600 FS	4918	191.1	25.72	14.14	91.86	63.90	67.19
5	Apron XL Maxim 4 FS Cruiser 5 FS A 13219	4841	190.7	25.36	13.92	92.50	47.34	52.50
6	Apron XL Maxim 4 FS Cruiser 70 WS	4802	186.9	25.67	13.83	91.97	48.75	55.16
4	Apron XL Maxim 4 FS Cruiser 5 FS	4792	188.2	25.48	13.88	92.03	53.01	60.26
2	Apron XL Maxim 4 FS Cruiser 5 FS	4744	188.5	25.19	13.89	92.09	47.95	56.32
1	Apron XL Maxim 4 FS	4730	185.0	25.65	13.74	91.80	57.03	57.65
9	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet) Avicta 400 FS (Full Pellet)	4686	189.7	24.69	14.08	91.77	65.97	70.06
3	Apron XL Maxim 4 FS Cruiser 5 FS	4666	185.6	25.19	13.73	91.98	54.37	58.59
12	Untreated	4250	192.0	22.10	14.12	92.15	66.09	68.90
11	Poncho Beta	4234	192.8	22.09	14.28	91.78	70.94	76.09
LSD (P=.05)		512.8	ns	2.26	ns	ns	11.94	10.18
CV		9.3	6.01	7.74	4.95	0.98	17.78	13.85
Grand Mean		4731.4	189.30	25.02	13.96	92.04	57.56	62.98

Planted: May 7
Harvested: Sept 22

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing : 30'

Michigan Sugar Company

Syngenta Seed Treatment

Pigeon, MI - Maust

2008

Trial Quality: Good

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge May 5	% Emerge June 17
6	Apron XL Maxim 4 FS Cruiser 70 WS	8317	268.7	30.96	18.07	95.24	41.61	45.22
1	Apron XL Maxim 4 FS	8133	251.6	32.39	17.32	94.28	42.07	47.02
4	Apron XL Maxim 4 FS Cruiser 5 FS	8061	250.7	32.18	17.27	94.27	38.25	51.52
8	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet)	8042	260.7	30.88	17.92	94.25	56.92	68.62
2	Apron XL Maxim 4 FS Cruiser 5 FS	8032	242.6	33.13	17.14	93.15	40.09	46.13
10	Allegiance Fl Thiram 42 S Poncho 600 FS	7965	252.3	31.58	17.46	94.03	46.80	51.97
9	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet) Avicta 400 FS (Full Pellet)	7960	252.6	31.51	17.49	94.01	58.25	51.97
7	Apron XL Maxim 4 FS Cruiser 70 WS A 13219	7597	247.9	30.62	17.23	93.87	37.57	66.51
3	Apron XL Maxim 4 FS Cruiser 5 FS	7258	245.1	29.56	16.96	94.13	35.10	40.50
11	Poncho Beta	7185	269.4	26.68	18.63	93.84	68.78	41.85
5	Apron XL Maxim 4 FS Cruiser 5 FS A 13219	7158	247.2	28.96	17.02	94.35	34.65	73.97
12	Untreated	6645	256.6	25.90	17.87	93.65	48.15	38.70
LSD (P=.05)		783.0	10.7	3.00	0.54	0.74	14.19	10.40
CV		8.0	3.3	7.72	2.41	0.61	24.30	15.68
Grand Mean		7696.1	253.8	30.36	17.53	94.09	45.69	51.91

Planted: May 13
Harvested: October 23

Plot Size: 2 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Michigan Sugar Company

Syngenta Seed Treatment

Kawkawlin, MI - Schwab

2008

Trial Quality: Fair

ID #	Treatment	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge June 24th
10	Allegiance Fl Thiram 42 S Poncho 600 FS	6251	265.5	23.64	18.22	94.26	52.55
6	Apron XL Maxim 4 FS Cruiser 70 WS	6000	263.9	22.65	18.00	94.62	44.66
4	Apron XL Maxim 4 FS Cruiser 5 FS	5770	272.0	21.19	18.30	95.20	44.15
1	Apron XL Maxim 4 FS	5766	254.9	22.46	17.43	94.47	47.92
8	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet)	5487	265.2	20.67	18.00	94.85	50.68
3	Apron XL Maxim 4 FS Cruiser 5 FS	5458	260.3	20.98	17.84	94.44	40.68
2	Apron XL Maxim 4 FS Cruiser 5 FS	5345	264.6	20.15	18.14	94.29	41.36
9	Apron XL (Full Pellet) Maxim 4 FS (Full Pellet) Cruiser 5 FS (Full Pellet) Avicta 400 FS (Full Pellet)	5325	264.6	20.14	17.98	94.80	54.35
7	Apron XL Maxim 4 FS Cruiser 70 WS A 13219	5287	265.5	19.77	18.13	94.49	41.25
5	Apron XL Maxim 4 FS Cruiser 5 FS A 13219	5152	255.1	20.18	17.63	94.06	41.93
11	Poncho Beta	4921	273.8	18.03	18.69	94.42	63.52
12	Untreated	4574	266.2	17.20	18.00	95.00	56.70
LSD (P=.05)		881.5	13.3	3.10	0.69	0.83	9.71
CV		13.9	4.3	12.89	3.28	0.75	17.40
Grand Mean		5444.7	264.3	20.59	18.03	94.57	48.31

Planted: May 29
Harvested: October 24

Plot Size: 4 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Michigan Sugar Company

Evaluation of the XBEET Priming Process in Sugarbeets

Kawkawlin, MI - Schwab

2008

Trial Quality: Good

ID#	Treatment*	RWSA	RWST	Tons/A	% Suc	% Purity	% Emerge June 24
1	XBEET	6184	279.3	22.15	18.74	95.25	43.40
2	No Priming	5660	280.4	20.18	18.88	95.06	42.10
LSD (P=.05)		267.2	ns	0.94	ns	ns	ns
CV		3.3	2.8	3.24	1.91	0.48	9.19
Grand Mean		5922.4	279.9	21.16	18.81	95.15	42.79

Planted: April 22
Harvested: October 15
* Seed Used: SX 1233

Plot Size: 4 Rows X 35 Ft X 8 Reps
Row Spacing: 30'

Summary

X-Beet is a priming process of the seed. Priming has been proven to be an advantage in Michigan. This trial found the XBEET primed seed was better in tons per acre and RWSA than the unprimed seed of the same variety. Early stand counts showing speed of emergence were not obtained.

Michigan Sugar Company

Evaluate Strobilurin Yield Enhancement Claims in Sugarbeets

Average of 2 Locations

2008

Trial Quality: Good

ID #	Treatment*	RWSA	RWST	Tons/A	% Suc	% Purity
1	Headline	7302	208.2	35.21	14.83	93.33
3	Eminent	7253	205.7	35.39	14.79	92.92
4	Check	7095	202.5	35.28	14.57	92.92
2	Gem	6955	199.1	35.30	14.30	93.08
LSD (P=.05)		ns	7.2	ns	0.37	ns
CV		6.8	4.8	5.19	3.43	0.91
Grand Mean		7151.2	203.9	35.30	14.62	93.06

* Headline at 9 oz., Eminent at 13 oz. and Gem SC at 3.6 oz. applied on Aug. 21. Cercospora was controlled using Super Tin and Topsin + Penncozeb during July and August. The Check plots were also treated with Super Tin on Aug. 21.

Plot Size: 4 Rows X 35 Ft X 8 Reps
Row Spacing: 30'

Summary

Headline has been promoted as a yield enhancer beyond any benefit as a fungicide These trials tested that theory. Cercospora leafspot was controlled by Super Tin and Topsin during July and August and the above treatments were applied in August as the last application. Headline did not provide significant increases in yield or quality in these trials.

Michigan Sugar Company

Evaluate Strobilurin Yield Enhancement Claims in Sugarbeets

Sandusky, MI - Stoutenburg

2008

Trial Quality: Good

ID #	Treatment*	RWSA	RWST	Tons/A	% Suc	% Purity
1	Headline	9145	204.1	44.79	14.82	92.46
3	Eminent	9026	202.7	44.52	14.77	92.35
4	Check	8687	196.4	44.17	14.36	92.30
2	Gem	8643	192.9	44.86	14.12	92.29
LSD (P=.05)		ns	9.8	ns	0.48	ns
CV		5.9	4.4	2.87	2.94	0.93
Grand Mean		8875.3	199.0	44.59	14.52	92.35

* Headline at 9 oz, Eminent at 13 oz and Gem SC at 3.6 oz applied on Aug 21
Cercospora controlled using Super Tin and Topsin + Penncozeb
on July 7 and Aug 7. The Check plot also treated with Super Tin on Aug 21.

Planted: April 22
Harvested: September 29

Plot Size: 2 Rows X 35 Ft X 6 Reps
Row Spacing: 30'

Summary

Headline has been promoted as a yield enhancer beyond any benefit as a fungicide This trial tested that theory. Cercospora leafspot was controlled by Super Tin and Topsin during July and August and the above treatments were applied in late August as the last application. Headline did not provide significant increases in yield or quality at this location.

Michigan Sugar Company

Evaluate Strobilurin Yield Enhancement Claims in Sugarbeets

St. Louis, MI - Bebow

2008

Trial Quality: Good

ID #	Treatment*	RWSA	RWST	Tons/A	% Suc	% Purity
4	Check	5703	207.8	27.50	14.76	93.47
3	Eminent	5702	208.4	27.40	14.80	93.42
1	Headline	5643	211.6	26.71	14.80	94.15
2	Gem	5478	204.6	26.93	14.45	93.78
LSD (P=.05)		ns	ns	ns	ns	ns
CV		8.3	5.4	8.45	3.92	0.94
Grand Mean		5631.1	208.1	27.14	14.70	93.70

* Headline at 9 oz, Eminent at 13 oz and Gem SC at 3.6 oz applied on Aug 21
Cercospora controlled using Super Tin and Topsin + Penncozeb
on July 10 and July 24. The Check plot also treated with Super Tin on Aug 21.

Planted: April 29
Harvested: September 19

Plot Size: 4 Rows X 35 Ft X 8 Reps
Row Spacing: 30'

Summary

Headline has been promoted as a yield enhancer beyond any benefit as a fungicide This trial tested that theory. Cercospora leafspot was controlled by Super Tin and Topsin during July and August and the above treatments were applied in late August as the last application. Headline did not provide significant increases in yield or quality at this location.