

# EFFECT OF HEADLINE (PYRACLOSTROBIN) AS A YIELD ENHANCER FOR SUGARBEETS IN MICHIGAN

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## **Introduction:**

Headline is an effective fungicide for controlling *Cercospora* leafspot. It has also been promoted as a yield enhancer beyond its effect as a fungicide. Some farmers use Headline for this yield improvement on other crops, and a benefit has been found to Headline on sugarbeets in some research in other areas. Michigan Sugar Company has tested this claim for four years and Sugarbeet Advancement tested two locations for one year.

## **Methods:**

Michigan Sugar Company research compared Headline to Eminent, and other Strobilurin fungicides, for four years and to an untreated check two of the years. *Cercospora* was controlled with Super Tin and Topsin plus Penncozeb applications as needed. The treatments were applied as an extra application not needed to control *Cercospora*. Fungicides used the first three years were Headline, Eminent, Gem and Quadris or Amistar. In 2008, only Headline, Eminent and Gem were used. Rates used were; Headline 9 fl oz., Eminent 13 fl oz., Gem SC 3.6 fl oz. Gem WP 7 oz. Quadris 9.2 fl oz., and Amistar 3 oz. per acre. In years 2005-2007, there was an early and late application of each treatment, and in 2008, only one application of each. The days before harvest of each application are in Table 1.

**TABLE 1:**

**Application Days Before Harvest  
Michigan Sugar Company**

Year	Location	Days Before Harvest	
		Early	Late
2005		71	51
2006	Kawkawlin	51	27
	Quanicassee	88	58
2007		61	47
2008	St Louis		30
	Kawkawlin		39

Sugarbeet Advancement applied either Headline or Eminent as the last fungicide application for Cercospora control. One location had three total applications of a fungicide and the other had four applications.

**Results:**

At the two Sugarbeet Advancement trial locations, there was no significant difference in the treatments in any production factor, (Tables 2 and 3). There were very few differences between treatments in any of the Michigan Sugar Company trial locations. In 2005 there was no significant difference in any treatment, (Table 4). At the 2006 location (Table 5) in Kawkawlin, the only significant difference was Headline early over Quadris late in Recoverable White Sugar per Acre (RWSA). In 2006 at Akron (Table 6), the Headline early treatment was significantly better than some treatments in Recoverable White Sugar per Ton (RWST) and percent sucrose but never better than Eminent late and there was no difference in RWSA in any treatments. The 2007 trial indicated no advantage to any treatment over the Check treatment, (Table 7). In 2008 at the Sandusky location, Headline was significantly better than Gem in RWST and percent sucrose, (Table 8). At both locations in 2008 there was no difference in RWSA and Headline was never better than Eminent or the Check in any factor, (Tables 9).

**TABLE 2:**

**Sugarbeet Advancement  
Lakke-Ewald**

Treatment	RWSA	RWST	Tons/A	%Suc	%CJP
Eminent-Super Tin-Headline	10122	308.0	32.89	20.10	96.40
Headline-Super Tin-Eminent	9941	304.0	32.73	19.80	96.60
LSD (P=.05)	NS	NS	NS	NS	NS
CV	4	2.0	1.7	2.4	0.40
Grand Mean	10026	306.0	32.81	19.90	96.50

**TABLE 3:**

Sugarbeet Advancement  
Sherwood

Treatment	RWSA	RWST	Tons/A	%Suc	%CJP
Eminent-Super Tin- Topsin+Penncozeb-Headline	7479	268.0	27.91	18.00	95.30
Headline-Eminent-Super Tin- Topsin+Penncozeb-Eminent	7463	269.0	27.78	18.00	95.50
LSD (P=.05)	NS	NS	NS	NS	NS
CV	5	1.0	4.6	1.0	0.30
Grand Mean	7471	268.0	27.84	18.00	95.40

**TABLE 4:**

Michigan Sugar Company  
2005

Treatment	RWSA	RWST	Tons/A	% Suc.	% CJP
Headline, Late*	8109	277.5	28.85	18.25	96.36
Amistar, Early**	7799	284.5	27.47	18.42	97.15
Gem, Early	7684	276.7	27.77	18.06	96.78
Headline, Early	7468	278.0	26.86	18.34	96.16
Eminent, Late	7448	283.6	26.28	18.39	97.03
Gem, Late	7117	284.4	24.56	18.38	97.20
Amistar, Late	7041	271.2	26.89	17.85	96.35
Eminent, Early	6921	267.4	25.92	17.64	96.35
Untreated	6853	263.1	26.66	17.42	96.14
LSD (P=.05)	NS	NS	NS	NS	NS
CV	9.3	4.43	7.45	3.55	0.63
Grand Mean	7382	276.3	26.81	18.08	96.61

**TABLE 5:**

Michigan Sugar Company  
Kawkawlin, MI  
2006

Treatment	RWSA	RWST	Tons/A	%Suc	%CJP
Headline (early)	8192	271.7	30.21	18.32	95.20
Gem (early)	7815	259.3	30.15	17.52	94.50
Eminent (early)	7800	265.7	29.83	18.04	94.80
Eminent (late)	7614	261.2	27.67	18.05	94.00
Headline (late)	7575	257.4	29.42	17.61	94.50
Gem (late)	7201	255.2	28.38	17.51	94.30
Quadris (early)	7155	241.8	29.77	16.58	94.70
Quadris (late)	6960	243.6	28.66	16.89	94.10
LSD (P=.05)	1207	NS	NS	NS	NS
CV	11.0	8.8	12.4	7.3	1.00
Grand Mean	7539	257.0	29.26	17.57	94.51

**TABLE 6:**

Michigan Sugar Company  
Akron, MI  
2006

Treatment	RWSA	RWST	Tons/A	%Suc	%CJP
Gem (late)	9403	269.4	34.94	18.71	93.64
Headline (early)	9326	274.8	33.95	18.90	94.04
Eminent (late)	9325	272.8	34.21	18.96	93.58
Eminent (early)	9033	261.5	34.62	18.51	92.79
Headline (late)	8986	262.9	34.20	18.39	93.37
Gem (early)	8941	253.7	35.26	18.09	92.56
Quadris (late)	8906	255.5	34.86	18.01	93.08
Quadris (early)	8835	260.2	34.00	18.31	93.11
LSD (P=.05)	NS	14.7	NS	0.71	0.89
CV	6.1	4.8	6.2	3.3	0.82
Grand Mean	9094	263.8	34.51	18.48	93.27

**TABLE 7:**

Michigan Sugar Company  
2007

Treatment	RWSA	RWST	Tons/A	% Suc	% CJP
Eminent Late	6754	254.6	26.57	17.73	93.69
Amistar Early	6730	258.2	26.05	17.94	93.77
Check	6708	259.6	25.84	17.98	93.92
Headline Early	6668	246.7	27.00	17.48	93.00
Gem Early	6638	253.1	26.17	17.73	93.44
Gem Late	6632	256.8	25.81	18.03	93.27
Headline Late	6509	253.4	25.63	17.59	93.84
Eminent Early	6476	256.1	25.25	17.82	93.73
Amistar Late	6442	255.7	25.20	17.91	93.41
LSD (P=.05)	NS	12.0	NS	NS	NS
CV	9.48	4.0	7.90	2.90	0.97
Grand Mean	6617.4	254.9	25.95	17.80	93.56

**TABLE 8:**

Michigan Sugar Company  
Sandusky  
2008

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

**TABLE 9:**

Michigan Sugar Company  
St. Louis, MI - Bebow  
2008

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

**Conclusion:**

Sugarbeet Advancement trials found no advantage to Headline applied last compared to Eminent applied last. The results from Michigan Sugar Company research indicated no improvement in production to Headline application. The conclusion is no benefit was found to Headline as a yield enhancer on sugarbeets in Michigan.