

**Evaluation of in-furrow and banded fungicides treatments to manage *Rhizoctonia* root and crown rot of sugar beet**

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<b>Location:</b> Frankenmuth (SVREC)	<b>Treatment Timings:</b> In-Furrow & Banded at 6-8 leaves
<b>Planting Dates:</b> April 26, 2018	<b>Pesticides:</b> see table
<b>Soil Type:</b> Loam	<b>O.M.:</b> 5.0 <b>pH:</b> 7.5
<b>Replicates:</b> 4	<b>Variety:</b> C-G351NT

Table 1. Disease index (root rating at harvest), seasonal plant loss, and yield parameters of fungicide programs.

No.	Treatment, Rate/A	Application Type	Disease Index (%) <sup>a,b</sup>	Total Plant Loss (%)	Yield (t/A)	Sugar (%)	RWST
1	Serenade ASO 2 qt Quadris 13.9 fl oz Proline 480SC 5.7 oz	In-Furrow, In-Furrow, Banded	16.1 c	17.3 d	13.9 a	12.7	171.3
2	Experimental 12.8 fl oz Quadris 13.9 fl oz Proline 480SC 5.7 fl oz	In-Furrow, In-Furrow, Banded	29.8 bc	23.0 cd	10.5 ab	12.8	173.9
3	Proline 480SC 5.7 fl oz Quadris 13.9 fl oz	In-Furrow, In-Furrow	31.2 bc	29.5 b-d	8.5 b	13.1	179.3
4	Serenade ASO 2 qt Propulse 10 fl oz Quadris 13.9 fl oz	In-Furrow, In-Furrow, Banded	39.0 b	30.3 bc	8.9 b	12.7	172.0
5	Serenade ASO 2 qt Proline 480SC 5.7 fl oz Quadris 13.9 fl oz	In-Furrow, In-Furrow, Banded	41.4 b	35.5 bc	9.6 ab	12.6	169.4
6	Quadris 13.9 fl oz	In-Furrow	45.5 b	27.3 cd	7.2 bc	12.5	168.8
7	Propulse 10 fl oz	In-Furrow	45.9 b	41.3 b	5.7 bc	12.9	176.4
8	Non-Treated Control	N/A	77.7 a	71.8 a	1.7 c	12.6	170.9

<sup>a</sup> Column values followed by the same letter are not significantly different based on Fisher's Protected LSD ( $\alpha=0.05$ ); if no letter, then the effect is not significant.

<sup>b</sup> Disease index was calculated by multiplying the disease incidence (0-100%) by the mean symptomatic root severity (1-7) and dividing by 7.

**Summary:** Mean disease index values were significantly different among treatments ( $P<0.01$ ), with all treatments exhibiting significantly lower levels of root infection than the non-treated control plot. The lowest disease ratings were observed in treatments 1, 2, and 3, with an index ranging between 16.1% and 31.2%. The percent of plants lost during the season was significantly different among treatments ( $P<0.0001$ ); the non-treated control had significantly greater losses than other plots, with a mean loss of 71.8%. Treatments with the lowest levels of loss included 1, 2, 3, and 6, with values between 16.1% and 29.5%. Despite having overall low yield values, there were significant differences among treatments ( $P<0.05$ ). Treatment 1 provided the greatest mean yield, 13.9 t/A; treatments 2 and 5 performed similarly. The lowest mean yield was obtained in non-treated plots, which did not differ from treatments 6 or 7. The range of mean yields for these treatments was 1.7-7.2 t/A. There were no differences in percent sugar or RWST values among the tested treatments ( $P>0.05$ ). To prevent residual foliar fungicide effect on *Rhizoctonia* infection, no foliar leaf spot management was conducted; this, combined with the severe *Rhizoctonia* root rot, may account for the low yield parameters observed in this trial. Taking this into consideration, program 1 performed overall better than the other programs in this study.