

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

Chris Bloomingdale and Jaime Willbur, Michigan State University

<b>Location:</b> Frankenmuth (SVREC)	<b>Treatment Timings:</b> Seed Treatment
<b>Planting Dates:</b> May 7, 2019	<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> SV.16.7179.27.11.1001

**Summary:** In this study, we observed severely high percentages of dead beets from 1.8-100.0% with corresponding root rot indices of 12.7-81.7% and yields of 0.7-10.9 t/A. Yield was negatively correlated with percent dead beets ( $r=-0.36$ ,  $P<0.05$ ). Treatment significantly affected yield ( $P<0.01$ ), however, did not have a significant effect on percentage of dead beets or root rot disease index (DX;  $P>0.05$ ). The background control (Trt 1) had a mean root rot DX of 50.1% and yield of 6.0 t/A. Treatments resulted in mean root rot indices of 30.2-58.8%. In-furrow applications of experimental product S-2399 (Trts 8-9) yielded statistically similar to the baseline control. All other treatments did not perform as well as the background control.

Table 1. End of season disease index and yield from the tested fungicide programs.

No.	Treatment	Rate	Timing <sup>a</sup>	Disease Index <sup>b,c</sup>	Yield (t/A)
7	Metlock	0.007 fl oz/unit	ST	30.2	4.7 bc
	Rizolex Fungicide	0.031 fl oz/unit	ST		
	Kabina ST	7.0 g ai/unit	ST		
	Tachigaren	45.0 g/unit	ST		
	Experiemntal	0.23 fl oz/1000 row-ft	IF		
9	Sebring 318 FS	0.015 fl oz/unit	ST	34.3	5.4 ab
	Experimental	0.004 fl oz/unit	ST		
	Metlock	0.007 fl oz/unit	ST		
	Rizolex Fungicide	0.031 fl oz/unit	ST		
	Intego Solo	4.0 g ai/unit	ST		
	Experimental	0.23 fl oz/1000 row-ft	IF		
8	Sebring 318 FS	0.015 fl oz/unit	ST	39.1	7.4 a
	Metlock	0.007 fl oz/unit	ST		
	Rizolex Fungicide	0.031 fl oz/unit	ST		
	Kabina ST	7.0 g ai/unit	ST		
	Intego Solo	4.0 g ai/unit	ST		
	Experimental	0.23 fl oz/1000 row-ft	IF		
2	Sebring 318 FS	0.015 fl oz/unit	ST	42.6	4.1 b-d
	Systiva XS	0.52 fl oz/unit	ST		
	Intego Solo	4.0 g ai/unit	ST		
1	Sebring 318 FS	0.015 fl oz/unit	ST	50.1	6.0 ab
	Systiva XS	0.52 fl oz/unit	ST		
	Tachigaren	45.0 g/unit	ST		
5	Sebring 318 FS	0.015 fl oz/unit	ST	54.5	1.9 d
	Metlock	0.007 fl oz/unit	ST		
	Rizolex Fungicide	0.031 fl oz/unit	ST		
	Kabina ST	7.0 g ai/unit	ST		
	Intego Solo	4.0 g ai/unit	ST		
3	Sebring 318 FS	0.015 fl oz/unit	ST	54.6	2.1 cd
	Experimental	0.004 fl oz/unit	ST		
	Intego Solo	4.0 g ai/unit	ST		
6	Sebring 318 FS	0.015 fl oz/unit	ST	54.7	4.6 b
	Experimental	0.004 fl oz/unit	ST		
	Metlock	0.007 fl oz/unit	ST		
	Rizolex Fungicide	0.031 fl oz/unit	ST		
	Intego Solo	4.0 g ai/unit	ST		
4	Sebring 318 FS	0.015 fl oz/unit	ST	58.8	3.8 b-d
	Metlock	0.007 fl oz/unit	ST		
	Rizolex Fungicide	0.031 fl oz/unit	ST		
	Kabina ST	7.0 g ai/unit	ST		
	Tachigaren	45.0 g/unit	ST		

<sup>a</sup> ST = applied as seed treatment, IF = applied in-furrow at planting.

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

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