MICHIGAN STATE UNIVERSITY EXTENSION

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Evaluation of fungicide seed treatments to manage Aphanomyces root rot of sugar beet

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Location: Saginaw (Spero Farms)	**Treatment Timings:** Seed Treatment
Planting Dates: May 1, 2018 & May 18, 2018	**Pesticides:** see table
Soil Type: Sandy Loam	**O.M.:** 3.0 **pH:** 7.2
Replicates: 4	**Variety:** Valent Lot 7179.27.11.1001

Table 1. Sugar beet stand counts, disease index ratings, and yield parameters from the two tested planting dates.

Treatment	Stand Count[a]	Disease Index (%)[b]	Yield (t/A)	Sugar (%)	RWST
Planting 1	262.9	29.1	50.7 a	14.7	211.9
Planting 2	258.0	28.6	44.2 b	14.5	208.4

Table 2. Sugar beet stand counts, disease index ratings, and yield parameters by fungicide seed treatment programs.

Treatment and Rate/Acre	Stand Count[a]	Disease Index (%)[b]	Yield (t/A)	Sugar (%)	RWST
Non-treated control	259.0 a-c	30.6	47.5	14.6	211.7
Sebring 318FS 0.015 fl oz + Systiva XS 0.52 fl oz + Tachigaren 70WP 1.59 oz	254.6 bc	27.8	47.0	14.6	209.8
Sebring 318FS 0.015 fl oz + Systiva XS 0.52 fl oz + Intego Solo 3.2FS 0.35 fl oz	245.1 c	26.9	46.5	14.7	212.0
Sebring 318FS 0.015 fl oz + Experimental 0.04 fl oz + Intego Solo 3.2FS 0.35 fl oz	272.8 a	30.0	47.4	14.4	208.1
Sebring 318FS 0.015 fl oz + Experimental 0.04 fl oz + Metlock 3.7FS 0.015 fl oz + Rizolex 4.17FS 0.031 fl oz + Intego Solo 3.2FS 0.35 fl oz	269.1 a	30.1	48.5	14.7	211.2
Sebring 318FS 0.015 fl oz + Experimental 0.04 fl oz + Metlock 3.7FS 0.015 fl oz + Rizolex 4.17FS 0.031 fl oz + Intego Solo 3.2FS 0.35 fl oz + Aveo EZ 0.14 fl oz	262.0 ab	27.8	47.9	14.5	208.2

[a] Column values followed by the same letter are not significantly different based on Fisher's Protected LSD (α=0.05); if no letter, then the effect is not significant.

[b] Disease index was calculated by multiplying the disease incidence (0-100%) by the severity (0-7), then dividing by 7.

Summary: There was not a significant planting date x seed treatment interaction (P>0.05) for any of the parameters analyzed, so planting date and seed treatments were analyzed separately. Planting date did not have a significant effect on stand establishment (P>0.05). There were significant differences among seed treatments in stand establishment (P<0.01). Treatments with compound A did have numerically greater stand counts, but these values were not significantly different from the non-treated control. Analysis of root disease ratings revealed no effects of planting date or seed treatment on disease index (P>0.05). Yield was significantly affected by planting date (P<0.0001) but not by seed treatment (P>0.05). Plots planted at the earlier timing averaged 6.5 t/A more than the later planting date. Percent sugar did not differ among treatments or planting dates (P>0.05), with the trial average being 14.6%. Mean RWST also did not differ between planting dates or among seed treatments (P>0.05).

This trial was not inoculated with *Aphanomyces* sp. but was planted in a grower field with a previous history of disease. End-of-season root evaluations suggest that *Aphanomyces* sp. were widespread throughout the trial, but roots were unaffected by seed treatments. The Aphanomyces root rot symptoms observed were more consistent with the chronic phase of the disease, onset between June and harvest, than with the acute seedling blight. If seed treatments were targeted at early season prevention, then they may have been more effective if seedling blight had been an issue in this field. All yields were greater than the 30 t/A averages for Michigan in 2017. No significant stand loss was detected and Rhizoctonia and leaf spot diseases were heavily managed with foliar programs. This in combination with low early season disease pressure likely accounts for the high yields observed in this trial.