

POTATO (*Solanum tuberosum* 'Lamoka')  
Early Blight; *Alternaria solani*  
Brown Spot; *Alternaria alternata*

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### **Evaluation of foliar fungicides to manage foliar diseases of potato in Michigan, 2022.**

A field trial was established at the Montcalm Research Center in Stanton, MI to assess the efficacy of experimental and commercially available fungicides at managing potato early blight and brown spot. A randomized complete block design was used, and treatments were replicated four times. Soil type is a loamy sand. US#1 'Lamoka' potatoes were cut into 2-oz seed pieces and left to suberize before planting. The trial was planted 1 Jun. Plots were two rows wide (34-in row spacing) by 20 ft long, and seeded at 1.2 seed/row-ft. Four foliar application timings (A, B, C, and D) were tested. A weekly blanket application of Manzate Max (1.6 qt/A) was included in all programs to inhibit late blight from developing in the commercial potato growing region. Treatment applications began at 10% bloom and occurred on 21 Jul, 4 Aug, 10 Aug, and 18 Aug. A CO<sub>2</sub>-powered backpack sprayer (TJ8004XR nozzles) was used to apply treatments at 20 gal/A (38 psi). Plots were inoculated on 28 Jul with an *A. solani* solution (9x10<sup>3</sup> conidia/mL) at 20 gal/A using the previously mentioned equipment. Stand establishment was monitored and foliar disease data (combined early blight and brown spot observations) were collected regularly throughout the growing season. The trial was harvested 29 Sep, and both rows were dug and later graded. The final disease incidence (DI), disease severity (DS), estimated yield, and estimated marketable yield (cwt/A) were compared among treatments. A generalized linear mixed model procedure was used to conduct the ANOVA and mean separations at the  $\alpha=0.05$  significance level (SAS version 9.4).

Differences were observed among the foliar DI ( $P < 0.0001$ ) and foliar DS ( $P < 0.0001$ ) values of programs. Tested programs had DI values ranging between 35.0 and 53.8%, and the control had a DI of 81.3%; the lowest incidences were observed in programs 2-5. All programs had significantly lower severity than the control ( $P < 0.0001$ ) but did not differ from one another. Significant differences were not observed among total yield ( $P > 0.05$ ) or marketable yield ( $P > 0.05$ ).

No.	Treatment, Rate <sup>z</sup> , and Timing <sup>y</sup>	Foliar Disease Incidence (%) <sup>x, w</sup>		Foliar Disease Severity (%)		Total Yield (cwt/A)	Marketable Yield (cwt/A)
1	Treated Control	81.3	a	6.3	a	338	293
2	Topguard (14 fl oz) ABD	43.8	cd	3.0	b	356	314
3	Lucento (5.5 fl oz) ABD	37.5	d	2.8	b	390	344
4	Lucento (5.5 fl oz) ABD; Endura (7 oz) ABD	35.0	d	0.5	b	369	321
5	Topguard EQ (8 fl oz) ABD	42.5	cd	1.0	b	360	313
6	Luna Tranquility (11.2 fl oz) ABD	50.0	bc	2.5	b	345	303
7	Exp <sup>v</sup> (12 fl oz) AB	51.3	bc	2.8	b	360	321
8	Exp (16 fl oz) AB	53.8	b	3.0	b	382	332
9	Exp (16 fl oz) AC	50.0	bc	1.5	b	395	346

<sup>z</sup> All rates are listed as a measure of product per acre. MasterLock was added to all tank mixes at a rate of 0.25 % v/v.

<sup>y</sup> Application letters code for the following dates: A=21 Jul (10% bloom), B=4 Aug (10% bloom + 14 days), C=10 Aug (10% bloom + 21 days), and D=30 Aug (10% bloom + 28 days).

<sup>x</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 means were not significantly different.

<sup>w</sup> Final disease incidence and severity ratings (combined early blight and brown spot), collected 7 Sep.

<sup>v</sup> Exp=Experimental compound