POTATO (*Solanum tuberosum* 'Lamoka')
Pythium Leak; *Pythium ultimum*

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Evaluation of seed treatment and in-furrow fungicides to manage Pythium leak of potato in Michigan, 2023.

A field trial was established at the Montcalm Research Center in Stanton, MI to test the efficacy of seed treatment and in-furrow fungicides for managing Pythium leak of potato. A randomized complete block design was used, and treatments were replicated four times. US#1 'Lamoka' potatoes were cut into 2-oz seed pieces and left to suberize. Seed was treated 23 May via slurry (3.2 fl oz/cwt) in a cement mixer and the trial was hand-planted 24 May in loamy sand soil. Plots were two rows wide (34-in row spacing) by 20 ft long and seeded at 1.2 seed/row-ft. Inoculations and in-furrow applications were made before closing furrows. Plots were inoculated with a wet millet and rye mix infested with *P. ultimum* at a volume of 12.5 mL/row-ft. Fungicides were applied using a CO_2-powered backpack sprayer, equipped with TJ2503 nozzles (6 gal/A; 43 psi). Program 10 received three foliar applications using a CO_2-powered backpack sprayer, equipped with TJ8003 nozzles (20 gal/A; 40 psi). Application dates were 4 Jul (nickel size tubers), 11 Jul, and 18 Jul. Stand establishment was monitored early season and disease data were collected after harvest. Both rows of plots were harvested on 10 Oct. After grading, a target of 50 tubers were selected to put in storage to assess leak incidence at a future time. Stored tubers were longitudinally cut in half 16 Nov to assess internal leak incidence. Stem counts from 29 Jun, internal leak incidence (DI), 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 α=0.05 significance level (SAS version 9.4).

Significant differences were observed among stem counts ($P < 0.001$). Stem counts in the trial ranged from 49.5 to 86.5 stems per plot, with the highest stem counts observed in programs 1, 5, 6, and 7. No differences were observed in DI ($P > 0.05$), and incidence was overall low in the trial. Marketable yield did not differ among treatments, however, all programs except 1, 3, and 10 had numerically greater yields than the inoculated control.

No.	Treatment[z] (Rate[y]) Timing[x]	Stem Counts (29 Jun)[w]		Internal Leak Incidence (%)[v]	Marketable Yield (cwt/A)
1	Non-Inoculated Control	76.5	abc	0.5	271
2	Inoculated Control	66.5	cd	0.0	286
3	Revus 2.09 SC (0.4 fl oz) A	49.5	e	0.0	244
4	Revus 2.09 SC (8 fl oz) B	66.5	cd	0.6	328
5	Revus 2.09 SC (8 fl oz) B Orondis Gold DC (27.8 fl oz) B	83.3	ab	0.0	353
6	Orondis Gold DC (27.8 fl oz) B	86.5	a	0.6	357
7	Orondis Gold DC (48 fl oz) B	77.5	abc	0.0	298
8	Elumin (8 fl oz) B	75.3	abc	0.7	319
9	Ridomil Gold 465 SL (6.1 fl oz) B	69.5	bd	0.0	312
10	Phostrol (7 pt) CDE	61.0	de	0.0	271
11	Vibrance Ultra Potato (0.5 fl oz) A Cruiser 600 FS (0.128 fl oz) A Orondis Gold DC (27.8 fl oz) B	64.8	cd	0.0	293

[z] Programs 1-10 included a seed treatment of CruiserMaxx Vibrance Potato (0.5 fl oz/cwt) to manage off-target pests.
[y] Application rates for A=quantity/cwt and B, C, D, and E=quantity/A
[x] Application timings were: A (seed treatment) = 23 May; B (in-furrow) = 24 May; C = 4 Jul; D =11 Jul; E =18 Jul.
[w] Column values followed by the same letter were not significantly different based on Fisher's Protected LSD (α=0.05).
[v] Internal leak incidence for each plot was calculated from 50 arbitrarily selected tubers cut in half.