

**Evaluation of fungicide programs for Pythium leak control, 2007.**

Potatoes (cut seed, treated with Maxim FS at 0.16 fl oz/cwt) were planted at the Michigan State University Muck Soils Experimental Station, Bath, MI on 13 Jun into two-row by 25-ft plots (34-in row spacing), separated by a five-foot unplanted row and replicated four times in a randomized complete block design. Plots were irrigated as needed with sprinklers and were hilled immediately before sprays began. All rows were inoculated (3.4 fl oz/25-ft row) with an oospore suspension of *Pythium ultimum* (sensitive to mefenoxam) at 10<sup>2</sup> oospores/fl oz on 20 Jun [7 days after planting (DAP)]. In-furrow and foliar-banded applications were applied with an R&D spray boom delivering 8 gal/A (80 p.s.i.) and using one XR11003VS nozzle per row. Foliar applications were applied with an ATV rear-mounted R&D spray boom calibrated to deliver 25 gal/A (80 p.s.i.) using three XR11003VS nozzles per row. Bravo WS 6SC was applied on a 14-day interval from 27 Jul to 15 Sep (4 applications) to protect against foliar late blight. Weeds were controlled by hilling and with Dual 8E (2 pt/A on 25 May), Basagran (2 pt/A on 28 Jun and 11 Jul) and Poast (1.5 pt/A on 11 Jul). Insects were controlled with Admire 2F (20 fl oz/A at planting and on 28 Jun), Sevin 80S (1.25 lb/A on 11 and 25 Jul), Thiodan 3EC (2.33 pt/A on 1 and 21 Aug) and Pounce 3.2EC (8 oz/A on 11 Jul). Tuber number per plant was rated on 27 Jul and 27 Aug from samples of four plants per plot. Vines were killed with Reglone 2EC (1 pt/A on 21 Sep). Plots (2 x 25-ft row) were harvested on 10 Oct and individual treatments were weighed and graded and tuber number in size grades US-1 and b-grade determined. Samples of 50 tubers/plot were stored in the dark at 50°F and 95% RH for 60 days after harvest and the percentage of tubers with Pythium leak determined. Meteorological variables were measured with a Campbell weather station located at the farm, latitude 42.8269 and longitude -84.365deg. Maximum, minimum and average daily soil temperatures (°F) were 75.1, 53.1 and 65.8 (May); 82.1, 53.2 and 68.2 (Jun); 83.1, 53.7 and 65.3 (Jul); 80.5, 54.5 and 67.1 (Aug); 77.1, 51.3 and 66.4 (Sep). Maximum, minimum and average soil moistures (% of field capacity) were 79.0, 75.2 and 77.3 (May); 91.7, 77.2 and 81.3 (Jun); 82.1, 74.1 and 77.9 (Jul); 98.1, 75.4 and 80.7 (Aug); 76.2, 66.6 and 69.8 (Sep). Precipitation was 0.99 in. (May), 3.91 in. (Jun), 0.80 in. (Jul), 6.18 in. (Aug) and 1.09 in. (Sep). Plots were irrigated to supplement precipitation and enhance Pythium leak development to about 0.1 in./A/4 day period with overhead sprinkle irrigation.

No treatments had any effect on tuber number per plant measured pre-harvest. All treatments had significantly more US-1 grade tubers per plot at harvest in comparison with the untreated control except IR6141 69WG 0.21 lb/A applied during early senescence (timing D). Treatments with greater than 46.3 b-grade tubers per plot at harvest had significantly more tubers than the untreated control. All treatments had significantly greater US-1 grade yield in comparison with the untreated control. Ridomil Gold 4EC 0.42 fl oz/A produced significantly greater tuber numbers and yield (US-1 and b-size) than most other treatments, with yields 68-88% higher than the untreated control. Pythium leak was evident in all plots at harvest but there was no difference in the percentage measured among any treatments. After about 60-days in storage, no treatments had significantly less incidence of tubers with Pythium leak than the untreated control although the incidence was low.

Treatment and rate/A or rate/1000 row ft	Tuber number per plant		Tuber number/plot at harvest		Yield (cwt/A)		Pythium leak (% incidence)	
	27 Jul	27 Aug	US-1	b-size	US-1	b-size	Harvest	Storage
Ridomil Gold 4EC 0.42 fl oz/1000 row ft (A)...	9.8	9.6	80.8 b	43.0abc <sup>y</sup>	202 b	61abc	0.8	0.0
Ridomil Gold 4EC 0.42 fl oz 1000 row ft (A); Ridomil Gold 4EC 0.42 fl oz/A (B).....	10.9	9.6	109.3a	51.0a	290a	74a	0.7	1.0
Phostrol 6.69SC 0.66 fl oz/1000 row ft + Ultra Flourish 4SC 0.84 fl oz/1000 row ft (A)...	13.4	9.9	83.0 b	46.3ab	212 b	64ab	1.4	2.0
Ranman 400SC 0.42 fl oz 1000 row ft (A); Ranman 400SC 2.7 fl oz/A + Silwet SL 2.0 fl oz/A + Phostrol 6.69SC 8.0 pt/A (B); Phostrol 6.69SC 10.0 pt/A (C,D).....	12.2	9.9	86.5 b	46.8ab	221 b	66ab	0.9	1.0
IR6141 69WG 0.21 lb/A (C,D).....	12.9	9.9	81.8 b	40.8abc	219 b	56a-d	0.9	2.0
IR6141 69WG 0.21 lb/A (C).....	12.3	10.1	83.5 b	36.5 bcd	221 b	53 bcd	1.3	2.0
IR6141 69WG 0.21 lb/A (D).....	13.4	10.3	75.3 bc	27.5 d	191 b	37 d	0.7	1.0
Untreated.....	13.4	10.3	63.8 c	32.3 cd	154 c	44 cd	1.7	5.0
LSD <sub>0.05</sub>	3.04	1.95	13.30	12.24	36.8	19.9	1.01	2.80

<sup>z</sup> Application dates: A= 13 Jun (in-furrow at planting); B= 29 Jun (95% emergence, banded application); C= 25 Jul; D= 8 Aug.

<sup>y</sup> Values followed by the same letter are not significantly different at  $p = 0.05$  (Fishers protected LSD).