

PUMPKIN (*Cucurbita moschata* 'Dickinson')  
Phytophthora blight; *Phytophthora capsici*

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### **Fungicide evaluation for control of Phytophthora blight of processing pumpkin, 2005.**

A trial was conducted in an irrigated field near Pekin, IL, to evaluate the efficacy of selected fungicides to control Phytophthora blight of processing pumpkin, caused by *Phytophthora capsici*. The field was naturally infested with *P. capsici*. Soil was chisel-plowed on 8 Oct, 2003, and was deep plowed on 17 May, 2005. Fertilizers, 80 lb phosphorus, 240 lb potassium, and 140 lb anhydrous ammonium, per acre, were broadcast and incorporated into soil in October 2004. Seeds of processing pumpkin cultivar Dickinson were slurry-treated with Apron XL LS on 17 May and planted on 18 May. Seeds were sown 18-in. apart in single-row plots, 20 ft long. The plots were spaced 28 ft apart in a randomized complete block design with three replications. Command 3 ME herbicide (1.67 pt in 25 gal water/A) was applied over the entire field and incorporated on 16 May. During the season, weeds were controlled by cultivating and hand weeding. Initial soil application of fungicides was at planting on 18 May. Subsequent spray application of fungicides began 1 Jun and continued until 24 Aug at 7-day intervals. Fungicides were applied with a backpack sprayer using 50 gal of water per acre. Average monthly high and low temperatures (°F) were 76/53, 88/65, 89/66, 86/66, and 88/61 for 18-31 May, Jun, Jul, Aug, and 1-6 Sep, respectively. Recorded precipitation in the field was 3 days (0.5 in.), 2 days (1.7 in.), 2 days (1.5 in.), 3 days (2.4 in.), and 0 days (0.0 in.) for 18-31 May, Jun, Jul, Aug, and 1-6 Sep, respectively. The field was irrigated 2 days (0.6 in.), 3 days (0.75 in.), 4 days (1.2 in.), and 1 day (0.3 in.) during May, Jun, Jul, and Aug, respectively. Plants were examined biweekly for Phytophthora damping-off, foliar blight, and fruit rot from 7 Jun to 4 Sep. Disease incidence and severity were assessed by examining all seedlings, 40 leaves in four spots (10 leaves per spot), 20 vines in four spots (five vines per spot), and all fruit in each plot.

Due to drier weather and soil conditions than normal, there was low incidence of seedling damping-off in the plots. Also, there were no measurable Phytophthora leaf infections in the plots. The first vine infection was observed on 5 Jul, and the first fruit infection was observed on 15 Jul. Due to the dry conditions, disease progression on vines and fruit was slow. All fungicide treatments provided some control of Phytophthora vine blight and fruit rot. Mean percent vines infected with *P. capsici* ranged from zero to 1.2% and 1.2 to 17.5% on 5 Jul and 12 Aug, respectively. Mean percent fruit infected with *P. capsici* ranged from 3.2 to 16.2% and from 5.3 to 28.2% on 12 Aug and 6 Sep, respectively. Most of the treatments reduced vine and fruit infection significantly when compared to the untreated check. Marketable fruit (no.) and yield per acre ranged from 16 to 37 and 40,772 to 62,291 lb, respectively. Marketable fruit number and yield were the lowest in untreated plots.

Treatment, rate/A (application) <sup>z</sup>	Infected vines (%) (12 Aug)	Infected fruit (%) (6 Sep)	Yield/plot	
			Marketable fruit (no.)	Fruit weight (lb)
Untreated check .....	17.5 a <sup>y</sup>	28.2 a	25 b-e	40,772 a
Apron XL LS, 0.64 fl oz (seed) <sup>x</sup> .....	17.2 a	25.2 ab	22 b-e	43,190 a
Cuprofix 80 DU, 1.5 lb (5-14) .....	7.5 a-e	13.0 b-d	29 a-d	41,839 a
Ranman 400 SC, 2.75 fl oz + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Topsin 4.5 FL, 10 fl oz + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	3.7 c-e	10.8 cd	30 a-c	61,877 a
Omega 500 F: 1.5 pt ( soil) (1); Omega 500 F: 1.0 pt ( foliar) (2,3,4) Ranman 400 SC, 2.75 fl oz + Silwet L-77, 2.0 fl oz (5,6,7,12,13,14) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (8,10) <i>alt</i> Tanos50 WG, 8 oz + Kocide 2000 DF, 1.5 lb (9,11) .....	6.2 a-e	17.3 a-d	23 b-e	43,974 a
Omega 500 F: 1.5 pt ( soil) (1); Omega 500 F: 1.0 pt ( foliar) (2,3,4) Ranman 400 SC, 2.75 fl oz + ProPhyt 4.2 F, 6pt + Silwet L-77, 2.0 fl oz (5,6,7,12,13,14) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (8,10) <i>alt</i> Tanos 50 WG, 8 oz + Kocide 2000 DF, 1.5 lb (9,11) .....	16.2 ab	12.0 cd	23 b-e	45,172 a
Ranman 400 SC, 2.75 fl oz ( soil) (1); Omega 500 F: 1.0 pt ( foliar) (2,3,4) Ranman 400 SC, 2.75 fl oz + Silwet L-77, 2.0 fl oz (5,6,7,12,13,14) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (8,10) <i>alt</i> Tanos 50 WG, 8 oz + Kocide 2000 DF, 1.5 lb (9,11) .....	10.0 a-e	14.4 b-d	20 de	41,338 a
Tanos 50 WG, 8 oz + Manex 37 F, 1.6 qt + Kocide 2000 DF, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Kocide 2000 DF, 1.5 lb (6,8,10,12,14).....	12.5 a-e	13.8 b-d	27 a-d	56,280 a
Tanos 50 WG, 8 oz + Manex 37 F, 1.6 qt + Kocide 2000 DF, 0.8 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Kocide 2000 DF, 0.8 lb (6,8,10,12,14) .....	2.5 de	8.9 cd	37 a	62,291 a
Tanos 50 WG, 8 oz + Manex 37 F, 1.6 qt + DPX-GFJ52 46.1 WG, 0.8 lb + Kocide 2000 DF, 0.8 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Kocide 2000 DF, 0.8 lb (6,8,10,12,14) .....	5.0 b-e	5.3 d	28 a-d	56,955 a
Tanos 50 WG, 10 oz + Manex 37 F, 1.6 qt + Kocide 2000 DF, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Kocide 2000 DF, 1.5 lb (6,8,10,12,14) .....	3.7 c-e	9.7 cd	28 a-d	57,216 a
Manex 37 F, 1.6 qt + Kocide 2000 DF, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Kocide 2000 DF, 1.5 lb (6,8,10,12,14) .....	13.7 a-d	17.5 a-d	27 a-d	48,068 a
Tanos 50 WG, 10 oz + Manex 37 F, 1.6 qt + Kocide 2000 DF, 1.5 lb (5,8,11,14) <i>alt</i> Gavel 75 DF, 2 lb + Kocide 2000 DF, 1.5 lb (6,9,12) <i>alt</i> Acrobat 50 WP, 6.4 oz + Kocide 2000 DF, 1.5 lb (7,10,13) .....	1.2 e	7.1 d	31 a-c	61,441 a
Curzate 60 DF, 3.2 oz + Kocide 2000 DF, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	8.7 a-e	11.8 cd	24 b-e	47,916 a
ProPhyt 4.2 F, 6 pt ( soil) (1) Forum 4.16 SC, 6.2 fl oz + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Tanos 50 WG, 8 oz + Kocide 2000 DF, 1.5 lb (6,8,10,12,14) .....	12.5 a-e	17.9 a-d	23 b-e	42,754 a
Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	8.7 a-e	10.2 cd	31 a-c	55,779 a
Gavel 75 DF, 2 lb + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	8.7 a-e	9.5 cd	32 ab	54,528 a
ProPhyt 4.2 F, 6 pt + Kocide 2000 DF, 1.5 lb (5-14) .....	13.7 a-d	6.6 d	30 a-c	56,345 a
Reason 500 SC, 5.5 fl oz + Previcur Flex 66.5 F, 1.2 pt + Kocide 2000 DF, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	7.5 a-e	12.5 b-d	24 b-e	46,304 a
Forum 4.16 SC, 6.2 fl oz + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> ProPhyt 4.2 F, 6 pt + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	15.0 a-c	10.7 cd	29 a-d	51,466 a
NOA-446510 250 SC, 8 fl oz + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Tanos 50 WG, 8 oz + Kocide 2000 DF, 1.5 lb (6,8,10,12,14) .....	5.0 b-e	20.2 a-c	16 e	41,447 a
V-10161 4.0 F, 2.84 fl oz + Previcur Flex 66.5 F, 1.2 pt(5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	10.0 a-e	13.8 b-d	21 c-e	45,150 a
Agri-Fos 400 FL, 5 pt + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	6.2 a-e	8.0 cd	31 a-c	55,779 a
Phostrol 53.6 F, 5 pt + Cuprofix 80 DU, 1.5 lb (5,7,9,11,13) <i>alt</i> Acrobat 50 WP, 6.4 oz + Cuprofix 80 DU, 1.5 lb (6,8,10,12,14) .....	11.2 a-e	7.1 d	28 a-d	49,027 a
LSD ( $P=0.05$ ) .....	12.43	13.08	10	21,949

<sup>z</sup> Application time: 0 = 18 May, 1 = 1 Jun, 2 = 8 Jun, 3 = 15 Jun, 4 = 22 Jun, 5 = 29 Jun, 6 = 6 Jul, 7 = 13 Jul, 8 = 20 Jul, 9 = 27 Jul, 10 = 3 Aug, 11 = 10 Aug, 12 = 17 Aug, and 13 = 24 Aug.

<sup>y</sup> Values within each column with a letter in common are not significantly different ( $P=0.05$ ) from each other according to Fisher's protected LSD test.

<sup>x</sup> Seeds were treated with Apron XL LS (0.64 fl oz/100 lb seed) on 16 May (2 day prior sowing seeds). Seeds for all treatments, except seeds for untreated check, were treated with Apron XL LS (0.64 fl oz/100 lb seed) on 16 May.