

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

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Evaluation of selected fungicides for control of Phytophthora blight of processing pumpkin, 2003.

A field experiment was conducted in an irrigated field near Pekin, IL, to evaluate the efficacy of selected fungicides for control of Phytophthora blight (caused by *Phytophthora capsici*) of processing pumpkin. The field was naturally infested with *P. capsici*. Soil was chisel-plowed in the fall of 2002 and was deep plowed on 19 May, 2003. Fertilizers, 100 lb phosphorus and 300 lb potassium, per acre, were broadcast and incorporated into soil in the fall of 2002. Anhydrous ammonium (140 lb/A) was applied to soil on 19 May. In addition, 50 lb of urea-ammonium nitrate (28% N) per acre was applied through the irrigation system during the season. Processing pumpkin cultivar Dickinson was planted on 21 May. Seeds were sown 18-in. apart in single-row plots, 20 ft long. The plots were spaced 25 ft apart in a randomized complete block design with three replications. Herbicide Command 3ME (2 pt/A), in 20 gal water/A, was applied over the entire field and incorporated on 19 May. Insecticide Sevin XLR (2 pt/A) was applied on 17 Jun to control squash bug (*Anasa tristis*) and other insects. During the season, weeds were controlled by cultivating spaces between the plots and by hand weeding. Seeds were slurry-treated with Apron XL LS on 20 May. Spray application of fungicides began 11 Jun and continued until 20 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 67/47, 81/58, 88/64, 87/64, and 83/55 for 21-31 May, Jun, Jul, Aug, and 1-11 Sep, respectively. Recorded precipitation in the field was 1 day (0.05 in.), 4 days (5.4 in.), 4 days (5.5 in.), 2 days (3.6 in.), and 0 days (0.0 in.) for 21-31 May, Jun, Jul, Aug, and 1-11 Sep, respectively. The field was irrigated 1 day (0.3 in.), 4 days (1.2 in.), 3 days (0.9 in.), and 5 days (1.5 in.) during 21-31 May, Jun, Jul, and Aug, respectively. Plants were examined weekly for Phytophthora damping-off, foliar blight, and fruit rot from 10 Jul to 11 Sep. Disease incidence and severity were evaluated at three locations (11 sq. ft each) in each plot.

The incidence of seedling damping-off in the plots was negligible. The first vine and leaf infection was observed on 10 Jul. Due to drier weather than normal, disease progression was slow. All fungicide treatments provided some control of Phytophthora foliar blight and fruit rot. The incidence of vine infection with *P. capsici* in untreated plots was significantly higher than those of plots treated with fungicides. Similarly, the incidence of fruit infection with *P. capsici* in untreated plots was significantly higher than those in the plots of eight of 15 treatments. Fruit number and yield in the plots treated with Tanos plus Cuprofix in alternation with Acrobat plus Cuprofix were significantly higher than those of all other plots.

Treatment, rate/A (application) ^z	Infected vines (%) (2 Sep)	Infected fruit (%) (11 Sep)	Mean yield (11 Sep)	
			Fruit (no.)	Yield/plot (lb)
Untreated Control	35.0 a ^y	73.6 a	4.0 c	79 b
Apron XL LS, 0.64 fl oz ^x + Cuprofix DF 2.0 lb (4-12)	5.0 c	61.6 ab	6.0 bc	128 b
Apron XL LS, 0.64 fl oz + Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (4,6,8,10,12) <i>alt</i> Cuprofix DF 2.0 lb (5,7,9,11)	6.7 c	32.4 bc	9.0 abc	193 ab
Apron XL LS, 0.64 fl oz + Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (4,6,8,10,12) <i>alt</i> Zoxium 80W, 6.4 oz + Cuprofix DF 2.0 lb (5,7,9,11)	6.6 c	24.0 c	10.7 abc	216 ab
Apron XL LS, 0.64 fl oz + Phostrol DF 5 pt (4-10)	5.0 c	32.9 bc	9.7 abc	132 b
Apron XL LS, 0.64 fl oz + Ranman 400SC 2.75 fl oz + Silwet L-77 2 fl oz (4,6,8,10,12) <i>alt</i> Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (5,7,9,11)	6.5 c	38.8 bc	8.3 abc	170 b
Apron XL LS, 0.64 fl oz + AgriFos 400FL 5 pt (2-12)	11.7 bc	47.5 abc	6.0 bc	83 b
Apron XL LS, 0.64 fl oz + Pristine 38WG 11 oz (4,6,8,10,12) <i>alt</i> Cuprofix DF 2.0 lb (5,7,9,11)	21.7 b	54.3 abc	6.3 bc	123 b
Apron XL LS, 0.64 fl oz + Tanos 50WG 8 oz + Cuprofix DF 2.0 lb (4,6,8,10,12) <i>alt</i> Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (5,7,9,11)	8.3 c	41.7 abc	8.7 abc	160 b
Apron XL LS, 0.64 fl oz + A1662 480SC 2.85 fl oz + Cuprofix DF 2.0 lb (4-11)	8.3 c	34.9 bc	8.7 abc	167 b
Tanos 50WG 8 oz + Cuprofix DF 2.0 lb (3,5,7,9,11) <i>alt</i> Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (4,6,8,10)	15.0 bc	57.2 ab	6.0 bc	87 b
Tanos 50WG 10 oz + Cuprofix DF 2.0 lb (3,5,7,9,11) <i>alt</i> Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (4,6,8,10)	6.5 c	32.1 bc	16.3 a	400 a
Acrobat 50WP, 6.4 oz + Cuprofix DF 2.0 lb (3,5,7,9,11) <i>alt</i> Cuprofix DF 2.0 lb (4,6,8,10)	16.7 bc	37.2 bc	9.3 abc	122 b
AgriFos 400FL 5 pt (2-11)	16.7 bc	51.8 abc	9.0 abc	194 ab
A1662 480SC 2.145 fl oz + Cuprofix DF 2.0 lb (3-11)	10.0 bc	44.6 abc	11.3 abc	276 ab
A1662 480SC 2.85 fl oz + Cuprofix DF 2.0 lb (3-11)	11.7 bc	32.0 bc	13.7 ab	249 ab
LSD (<i>P</i> =0.05)	12.24	33.1	9.7	208

^z Application time: 1=20 May, 2= 1 Jun, 3= 8 Jun, 4= 5 Jun, 5=2 Jul, 6 =9Jul, 7=16 Jul, 8=23 Jul, 9=30 Jul, 10=6 Aug, 11=13 Aug, and 12=20 Aug.

- ^y The 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.
- ^x Seeds were slurry-treated with Apron XL LS at 0.64 fl oz/100 lb seed on 20 May (1 day prior sowing seeds).