

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

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Fungicide evaluation for control of Phytophthora blight of processing pumpkin, 2004.

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 21 Oct, 2003, and was deep plowed on 7 May, 2004. Fertilizers, 80 lb phosphorus and 200 lb potassium, per acre, were broadcast and incorporated into soil in the fall of 2003. Anhydrous ammonium (180 lb/A) was applied to soil on 7 May. In addition, 30 lb of urea-ammonium nitrate (28% N) per acre was applied through the irrigation system on 4 Jul. Processing pumpkin cultivar Dickinson was planted on 18 May. Seeds were slurry-treated with Apron XL LS on 17 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. Command 3ME herbicide (1.7 pt in 25 gal water/A) was applied over the entire field and incorporated on 7 May. During the season, weeds were controlled by cultivating spaces between the plots and by hand weeding. Insecticide Pounce 2.2EL (2 oz/A) was applied on 27 May to control cucumber beetles and other insects. 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 82/61, 82/59, 85/62, 80/55, and 91/59 for 18-31 May, Jun, Jul, Aug, and 1-4 Sep, respectively. Recorded precipitation in the field was 4 days (3.0 in.), 2 days (2.15 in.), 4 days (2.4 in.), 3 days (1.4 in.), and 0 days (0.0 in.) for 18-31 May, Jun, Jul, Aug, and 1-4 Sep, respectively. The field was irrigated 1 day (0.3 in.), 6 days (1.8 in.), and 2 days (0.6 in.) during 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.

Mean percent seedling damping-off on 23 Jun ranged from zero (most treatments) to 11.7% (untreated check). The first vine and leaf infection was observed on 23 Jun. Due to drier weather than normal, disease progression was slow. All fungicide treatments provided some control of Phytophthora foliar blight and fruit rot. Mean percent leaves infected with *P. capsici* ranged from zero to 8.3% with very low disease severity. Mean percent vines infected with *P. capsici* ranged from zero to 16.7% and 1.7 to 36.7% on 23 Jun and 8 Aug, respectively. Mean percent fruit infected with *P. capsici* ranged from 4.3 to 21% and from 8.5 to 49.4% on 8 Aug and 4 Sep, respectively. Most of the treatments reduced vine and fruit infection significantly when compared to the untreated check. Harvested fruit number and yield were lower in untreated plots than fungicide-treated plots. Harvested fruit number and yield were the highest in the plots treated with Ranman plus Tanos.

Treatment, rate/A (application) ^z	Infected vines (%) (8 Aug)	Infected fruit (%) (4 Sep)	Yield/plot	
			Marketable fruit (no.)	Fruit weight (lb)
Untreated check	36.7 a ^y	49.4 a	15 b	308 c
Apron XL LS, 0.64 fl oz ^x + Cuprofix 36.9DF, 1.5 lb (4-13)	15.0 b	26.6 bc	17 ab	424 bc
Apron XL LS, 0.64 fl oz + Acrobat 50WP, 6.4 oz + Cuprofix 36.9DF, 1.5 lb (4,6,8,10,12) <i>alt</i> Cuprofix 36.9DF, 1.5 lb (5,7,9,11,13)	15.0 b	17.7 bc	22 ab	441 a-c
Apron XL LS, 0.64 fl oz + Phostrol 53.5F, 5 pt (1-10)	6.7 b	18.2 bc	28 ab	489 a-c
Apron XL LS, 0.64 fl oz + AgriFos 400FL, 5 pt 5 pt (1-10)	13.3 b	32.8 ab	19 ab	314 c
Apron XL LS, 0.64 fl oz + AgriFos 400FL, 5 pt (1-3) AgriFos 400FL, 5 pt + Acrobat 50WP, 6.4 oz + Cuprofix 36.9DF, 1.5 lb (4,6,8,10) <i>alt</i> AgriFos 400FL, 5 pt + Cuprofix 36.9DF, 1.5 lb (5,7,9)	15.0 b	21.7 bc	20 ab	440 a-c
Apron XL LS, 0.64 fl oz + Acrobat 50WP, 6.4 oz + Kocide-2000, 53.8DF 1.5 lb (4,6,8,10,12) <i>alt</i> Kocide-2000 53.8DF, 1.5 lb (5,7,9,11,13)	6.7 b	21.9 bc	18 ab	365 c
Apron XL LS, 0.64 fl oz + Tanos 50WG, 8 oz + Manex 37F, 4 pt + Kocide-2000 53.8DF, 1.5 lb (4,6,8,10,12) <i>alt</i> Acrobat 50WP, 6.4 oz + Kocide-2000, 53.8DF 1.5 lb (5,7,9,11,13)	8.3 b	22.4 bc	21 ab	509 a-c
Apron XL LS, 0.64 fl oz + Tanos 50WG, 10 oz + Manex 37F, 4 pt + Kocide-2000 53.8DF, 1.5 lb (4,6,8,10,12) <i>alt</i> Acrobat 50WP, 6.4 oz + Kocide-2000, 53.8DF 1.5 lb (5,7,9,11,13)	11.7 b	9.8 c	27 ab	511 a-c
Apron XL LS, 0.64 fl oz + Curzate 60DF, 3.2 oz + Kocide-2000, 53.8DF 1.5 lb (4,6,8,10,12) <i>alt</i> Acrobat 50WP, 6.4 oz + Kocide-2000 53.8DF, 1.5 lb (5,7,9,11,13)	10.0 b	18.1 bc	29 a	654 ab
Apron XL LS, 0.64 fl oz + Ranman 400SC, 2.75 fl oz + Silwet L-77, 2 fl oz (4-13)	13.3 b	24.2 bc	20 ab	425 bc
Apron XL LS, 0.64 fl oz + Ranman 400SC, 2.75 fl oz + Acrobat 50WP, 6.4 oz + Silwet L-77, 2 fl oz (4-13)	1.7 b	8.5 c	23 ab	419 bc
Apron XL LS, 0.64 fl oz + Ranman 400SC, 2.75 fl oz + Tanos 50WG, 8 oz + Silwet L-77, 2 fl oz (4-13)	5.0 b	18.5 bc	30 a	693 a
Apron XL LS, 0.64 fl oz + Acrobat 50WP, 6.4 oz + Cuprofix 36.9DF, 1.5 lb (4,6,8,10,12) <i>alt</i> Pristine 38WG, 11 oz + Cuprofix 36.9DF, 1.5 lb (5,7,9,11,13)	18.3 ab	26.7 bc	22 ab	521 a-c
Tanos 50WG, 8 oz + Manex 37F, 4 pt + Kocide-2000 53.8DF, 1.5 lb (3,5,7,9,11) <i>alt</i> Acrobat 50WP, 6.4 oz + Kocide-2000, 53.8DF 1.5 lb (4,6,8,10,12)	10.0 b	17.8 bc	19 ab	397 bc
Tanos 50WG, 10 oz + Manex 37F, 4 pt + Kocide-2000, 53.8DF 1.5 lb (3,5,7,9,11) <i>alt</i> Acrobat 50WP 6.4 oz + Kocide-2000 53.8DF 1.5 lb (4,6,8,10,12) ...	11.7 b	16.7 bc	25 ab	571 a-c
Ridomil Gold 47.6EC, 2 pt (0) + Ranman 400SC, 2.75 fl oz + Silwet L-77, 2 fl oz (4-13)	5.0 b	15.7 bc	21 ab	411 bc
Ridomil Gold 47.6EC, 2 pt (0)	15.0 b	18.6 bc	20 ab	500 a-c
LSD ($P=0.05$)	19.0	19.1	13	267

^z 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.

^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 17 May (1 day prior sowing seeds).