

Evaluation of fungicides for reduction of *Phytophthora* blight in tropical pumpkin, 2006.

C. R. Semer IV and R. J. McGovern, University of Florida-IFAS,
Department of Plant pathology and Plant Medicine Program
Gainesville, FL

A field (Kendrick loamy sand) at the University of Florida-IFAS Plant Science Research and Education Unit (PSEU) in Citra, Florida was used for experimentation. On 17 Jul, 2006 seedlings of tropical pumpkin (a.k.a. "calabaza") 'La Estrella' were planted 3 ft apart in 3-ft-wide raised beds on 6 ft centers previously fumigated with methyl bromide plus chloropicrin and covered with 1.25 mil reflective plastic mulch. Plants were irrigated and fertilized by drip-irrigation. Fungicides were applied seven times at a 7-day interval starting at planting and ending on 28 Sept (Table 1). The first three sprays were applied using a CO₂ backpack sprayer at 30 lb/in² (psi) in 50gpa water through a single 8008 TeeJet® flat fan tip. Subsequent spray applications were applied at 30 psi using two 8004 TeeJet® flat fan tips on a 30 in. boom. Each fungicide treatment and a non-treated control were replicated five times using ten-plant plots which were arranged in a randomized complete block design. Inoculum sources for the experiment were provided by two plants infected with *P. capsici* located on the ends of each plot of controls and fungicide-treated plants. These *P. capsici* source plants were inoculated on 25 Aug by applying 10 ml of a suspension of 1.38x10⁶ zoospores/ml of the fungus to the base of each plant. Following fungicide application, plants were routinely inspected for symptoms of phytotoxicity (necrosis, plant distortion, etc.). Plants were monitored for *Phytophthora* blight incidence on 1, 7, 20 and 29 Sept. Fruit was harvested on 11 Oct and the incidence of *Phytophthora* fruit rot was recorded.

Rainfall at the experiment site for July, August and September was 9.17 in., 6.24 in., and 3.67 in., respectively. No symptoms of fungicide-induced phytotoxicity were detected. *Phytophthora* blight, indicated by dead and dying plants, was pronounced shortly after inoculation but developed more slowly during September due to lower than normal precipitation and reached 54% in non-treated controls by the termination of the experiment on 11 Oct.

Phytophthora blight incidence was significantly reduced by treatments 11 and 12 compared with the untreated check and treatments 2, 4, 5, 8, while treatments 3, 6, 7, 9, and 10 were intermediate in terms of disease reduction. No significant differences were noted between any of the treatments and untreated check in terms of the number of diseased fruit. Yield (fruit weight/plot) was significantly increased by treatment 8 when compared with the untreated check and treatments 2, 4, 5, 6, 9, and 11, while treatments 3, 7, and 10 were intermediate in terms of yield.

*[[Need to calculate AUDPC for *Phytophthora* blight (perhaps teach Tim to do this in future) and include number of marketable fruit/plot. Should use percentage of diseased fruit based on number of healthy fruit, instead of just number of diseased fruit.]]*

Treatment number	Treatment, rate/A	Application schedule ^x	Phytophthora blight incidence (%)	Diseased Fruit (number/plot)	Fruit weight (lb/plot)
1	Untreated check	-	54.0 ab ^y	0.6ab	45.8 b
2	Tanos, 10 oz + Manex, 1.6 qt alternated with Forum, 6.2 oz + Kocide, 2 lb	ACEG BDF	64.0 a	0.0b	37.6 b
3	V-10161 4F, 2.81 oz + Previcur Flex 6F alternated with Kocide 2000, 2 lb	ACEG BDF	50.0 ab	0.2b	60.6 ab
4	Reason 500 SC, 5.5 oz + Previcur Flex 6F, 1.2 pt alternated with Kocide 2000, 2lb	ACEG BDF	66.0 a	0.2b	43.1 b
5	Maestro 80 DF, 6 lb	ACEGBDF	62.0 a	0.4ab	58.9 b
6	Forum 4.16 SC, 6.2 oz + Kocide 2000, 2 lb alternated with Prophyt 4L, 4 pt + Kocide 2000, 2 lb	ACEG BDF	50.0 ab	0.4ab	51.1 b
7	Forum 4.16 SC, 6.2 oz alternated with Manex, 1.6 qt	ACEG BDF	46.0 ab	0.8ab	60.5 ab
8	Ridomil Gold MZ 65 WP, 2.5 lb alternated with Maneb 75 WP, 2 lb	ACEG BDF	62.0 a	1.4a	89.6 a
9	Acrobat 50 WP, 6.4 oz + Maneb 75 WP, 2 lb alternated with Maneb 75 WP, 2 lb	ACEG BDF	54.0 ab	0.8ab	40.1 b
10	Mandipropamid, 8.2 fl oz + NIS alternated with Ridomil Gold/Copper 65 WP, 2.5 lb [Ridomil Gold Plus A9601B]	ACEG BDF	40.0 ab	0.6ab	67.3 ab
11	A14576, 6.84 fl oz + NIS alternated with Ridomil Gold/Copper 65 WP, 2.5 lb [Ridomil Gold Plus A9601B]	ACEG BDF	34.0 b	0.4ab	53.5 b
12	Mandipropamid, 8.2 fl oz + NIS + Maneb 75 WP, 2 lb Alternated with Ridomil Gold/Copper 65 WP, 2.5 lb [Ridomil Gold Plus A9601B]	ACEG BDF	30.5 b	0.0b	44.6b

^xA=10 Aug, B=17 Aug, C=24 Aug, D=31 Aug, E=7 Sept, F=14 Sept, G=21 Sept.

^yMeans followed by the same letter are not significantly different using Duncan's Multiple Range Test ($P<0.05$).