

**Evaluation of fungicide programs for managing Phytophthora blight in cucurbits, 2007.**

Acorn squash was direct-seeded on 29 Jun in a field dedicated to research on Phytophthora blight, which developed in at least part of the field in 1991 to 1993, 1995 to 1999, and 2003 to 2006. A late planting date was used because conditions are more likely to be favorable for blight development late in the growing season in the experiment area. Plots were single, 30-ft-long rows with about 15 plants. The plots were 15 ft apart in the row. A randomized complete block design with five replications was used. Treatment applications were made weekly on a preventive schedule using a backpack CO<sub>2</sub>-pressurized sprayer operated at 40 psi and 60 gal/A. Programs included combinations of currently-registered products and two new fungicides expected to be registered in 2008 (Presidio and Revus). There were two sets of parallel programs: one with calendar-based applications of the products with targeted activity for *P. capsici* and the other following an IPM schedule with only copper or Bravo applied when rain was not forecasted. All programs were started on 18 Jul, 3 weeks after seeding before symptoms were seen, and continued on a weekly schedule through 3 Oct for a total of 12 applications. Weeds were controlled by applying Strategy (2 pt/A) over the seeded rows on 29 Jun, and by cultivating and hand weeding as needed. Cucumber beetles were managed by applying Admire 2 F (20 fl oz/A) over the planted rows with Strategy on 29 Jun. Powdery mildew was managed by selecting a resistant variety and by applying Quintec (6 oz/A) on 4, 13, and 23 Sep and Procure 480SC (8 fl oz/A) on 27 Aug and 23 Sep. Average monthly high and low temperatures (°F) were 82/66 in Jul, 82/65 in Aug, 77/60 in Sep, and 70/56 in Oct. Rainfall (in.) was 3.63, 2.60, 1.51, and 1.84 for these months, respectively. Overhead irrigation was used as needed to supplement rainfall and to provide conditions favorable for Phytophthora blight. Fruit and foliage were examined for symptoms of Phytophthora blight on 18 Sep, 25 Sep, 3 Oct, 16 Oct, and 1 Nov. Symptoms with spores of the pathogen were considered definitive. Fruit with suspected symptoms were also counted.

Conditions were generally dry and unfavorable for blight in 2007; however, the few rain events were adequate for blight to develop. All of the fungicide programs tested were effective: 9-22% fruit rotted in treated plots by 1 Nov compared to 71% in non-treated plots. The IPM fungicide programs were as effective as the calendar-based programs that had 4 to 5 more applications of the fungicides with specific activity for *P. capsici*. All programs also effectively managed downy mildew, which was not surprising considering that most of these fungicides are also labeled for this disease.

Treatment	Fungicide and rate/A (foliar application time) *	Mature fruit with Phytophthora fruit rot (%)	
		16-Oct	1-Nov
Nontreated		58.4	71.3
Program #1 weekly	Forum 6.2 fl oz + Cuprofix 2.5 lb (1), ProPhyt 6 pt + Bravo Ultrex 2.7 lb (2, 4), Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Cuprofix 2.5 lb (3, 7, 10), Tanos 10 oz + Manex F 1.6 qt + Cuprofix 2.5 lb (5, 8, 11), Forum 6.2 fl oz + Bravo Ultrex 2.7 lb (6, 9, 12)	9.6	11.6
Program #2 weekly	Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Cuprofix 2.5 lb (1, 3, 5, 7, 9, 11), ProPhyt 6 pt + Bravo Ultrex 2.7 lb (2, 4, 6, 8, 10), Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Bravo Ultrex 2.7 lb (12)	14.6	17.7
Program #2 IPM	Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Cuprofix 2.5 lb (1), Bravo Ultrex 2.7 lb (2, 8, 10), Cuprofix 2.5 lb (3, 5), ProPhyt 6 pt + Bravo Ultrex 2.7 lb (4), Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Bravo Ultrex 2.7 lb (6, 12), ProPhyt 6 pt + Cuprofix 2.5 lb (7, 9, 11), Bravo Ultrex 2.7 lb (10)	14.0	18.4
Program #3 weekly	Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Cuprofix 2.5 lb (1, 9), Revus Opti 3 pt (2, 8), Cuprofix 2.5 lb (3), LBG-31 4.5 pt (4, 6, 10), Presidio 4SC 4 fl oz + Cuprofix 2.5 lb (5, 7, 11), Revus 7.7 fl oz + Bravo Ultrex 2.7 lb (12)	21.8	22.5
Program #3 IPM	Ranman 400SC 2.75 fl oz + Silwet 2 fl oz + Cuprofix 2.5 lb (1, 9), Bravo Ultrex 2.7 lb (2, 8, 10), Cuprofix 2.5 lb (3), LBG-31 4.5 pt (4, 6), Presidio 4SC 4 fl oz + Cuprofix 2.5 lb (5, 7, 11), Revus 7.7 fl oz + Bravo Ultrex 2.7 lb (12)	6.9	9.2
P-value		0.0277	0.0014

\*Foliar treatment application dates were 1=18 Jul, 2=25 Jul, 3=1 Aug, 4=9 Aug, 5=15 Aug, 6=22 Aug, 7=28 Aug, 8=4 Sep, 9=12 Sep, 10=19 Sep, 11=25 Sep, and 12=3 Oct. All fungicide treatments included a soil drench application of ProPhyt at 5 pt/A applied on 2 Jul in a 12-in band over treatment rows.

\*\*Numbers in each column with a letter in common are not significantly different according to Fisher's Protected LSD ( $P = 0.05$ ).