

SQUASH (*Cucurbita maxima* ‘Taybelle PM’)
 Downy mildew; *Pseudoperonospora cubensis*
 Phytophthora blight; *Phytophthora capsici*

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Evaluation of drip- and foliar-applied fungicides for the control of downy mildew and Phytophthora blight of winter squash, 2007.

The experiment was conducted at the Ohio Agricultural Research and Development Center’s Muck Crops Agricultural Research Station in Celeryville, OH on Linwood muck soil, pH 5.4. Fertilizer (18-17-17, 500 lb/A) was incorporated into the test field on 2 May. Plots were disked, leveled and raised beds on 6 ft centers were prepared on 11 Jun. ‘Taybelle PM’ (resistant to powdery mildew) squash seeds were sown on 25 May into 72-cell plug trays containing Scott’s 360 Metro seedling mix. Squash seedlings were transplanted on 14 Jun. Plots were arranged in a randomized complete block design with four replications. Each plot consisted of one row with 15 plants spaced 2 ft apart. Treatment rows were alternated with untreated guard rows. Treatments were applied directly to the target root zone via drip irrigation application on 6 Jun and 3 and 27 Jul using a MixRite Mediator injector from Gillis Agricultural Systems, Inc. and drip irrigation hose (flow 0.5 GPM/100 ft at 12 psi, drip emitters space every 12 in.) from Chapin Watermatics Inc.. Treatment V10161 4.00SC (4 fl oz/A) was the only treatment applied as foliar application using a backpack CO₂-pressurized sprayer (40 psi, 32.4 gal/A, 0.5 mph). The insecticides Sevin XLR Plus (1 qt/A) was applied on 3, 12, 18, and 31 Jul. Plants were overhead irrigated with 0.5 in. water on 14 and 22 Jun. Severity of downy mildew was evaluated on 9 Aug using a scale of 0-100 percent foliage affected. Due to 2.4 in. rain received from 7-10 Aug, Phytophthora blight spread throughout the entire field. Fruit were harvested from the entire row of each treatment on 17 Aug, and the number and weight of marketable fruit and fruit with Phytophthora were determined. Average maximum temperatures for 14-30 Jun, Jul, 1-17 Aug were 82.6, 80.9, and 84.4°F; average minimum temperatures were 58.7, 57.6, and 64.5°F; and rainfall amounts were 0.51, 4.50, and 3.19 in., respectively. Data were analyzed by ANOVA using SAS statistical software. Means were separated using Fisher’s protected least significant difference test.

Downy mildew appeared mid-Aug and pressure was low in this trial. Phytophthora blight appeared naturally in the plots after 4 days of rainfall (2.4 in.) between 7 and 10 Aug. None of the treatments significantly suppressed downy mildew on foliage and Phytophthora blight on fruit compared to the untreated control. Marketable yield did not differ between treatments and the untreated control.

Treatment and rate/A (application timing ^z)	% downy mildew ^y (9 Aug)	% Phytophthora infected fruit ^x	Marketable yield ^x
Presidio 4.00SC 2 fl oz (1-3).....	2.8 a ^w	35.9 a	24.0 a
Presidio 4.00SC 4 fl oz (1-3).....	2.8 a	37.1 a	25.0 a
Presidio 4.00SC 8 fl oz (1-3).....	2.8 a	40.6 a	22.8 a
Presidio 4.00SC 4 fl oz foliar (1-3).....	2.1 a	36.8 a	30.3 a
Ridomil Gold EC 6.4 fl (1-3).....	3.4 a	22.5 a	34.3 a
Untreated control.....	1.4 a	42.9 a	23.8 a
<i>P</i> value	0.6661	0.9514	0.9435

^zApplication dates were: 1= 6 Jun; 2= 3 Jul; 3= 27 Jul.

^yDisease rating was based on percent foliar disease.

^xNumber of fruit per plot.

^wValues are the means of four replicate plots; treatments followed by the same letter within a column are not significantly different at $P \leq 0.05$. Means were separated using Fisher’s protected least significant difference test.