

Evaluation of fungicides allowed for organic production on powdery mildew of zucchini, 2011.

The trial was conducted on a field managed using practices allowed for organic production since 2008 at the New York State Experiment Station in Geneva, NY. An overwintered rapeseed cover crop was plowed under in May. ‘Tigress’ zucchini seeds were sown into 50 cell flats in an organic mix on 13 May. Seedlings were maintained in the greenhouse and watered regularly until transplanted on 13 Jun. The transplants were set by hand using a Water wheel transplanter with a solution of 0.5oz/gal Fertrell fish oil emulsion into raised beds with 1.25 mil black polyethylene and drip irrigation. Annual ryegrass was seeded between the rows for weed control. Six treatments and an untreated control were arranged in a randomized complete block design with four replications. Each plot consisted of five plants spaced 18 in apart with 7 ft between rows and 3 feet between treatments. The squash were irrigated to provide approximately 1 in of water per week during the trial. Sprays were applied with a CO₂ pressurized backpack sprayer at 40 psi delivering 40 gal/A through two TeeJet 8002VS flat fan nozzles spaced 19 in apart. The first spray was applied 5 Jul after the first powdery mildew lesion was noted in the field. Two more sprays were applied on 14 and 21 Jul and both upper and lower leaf surfaces were evaluated for the percent leaf area covered with powdery mildew lesions weekly, 13-27 Jul. The data were entered into the area under the disease progress curve to analyze the differences between treatments. The plots were harvested twice per week to maintain plant vigor. Average maximum temperatures for Jun and Jul were 77 and 84.7°F; average minimum temperatures were 58.1, and 63.8 °F. Rainfall amounts (in.) were 2.2 and 0.72 for Jun and Jul, respectively.

The average of the % lesions covering both top and bottom leaf surfaces at the last rating date showed all products significantly reduced the severity of powdery mildew compared with the untreated control. The MilStop, M-Pede, and Sonata were significantly more effective than the Sporatec in this rating. The upper leaf surfaces had more infection regardless of treatment as expected with this pathogen but although there were large differences in AUDPC means, high variability among replications contributed to lack of significance. No phytotoxicity was noted with any of the treatments.

Treatment and Rate/A	% Leaf area infected ^z	AUDPC ^y mean	
		Upper leaf surface	Lower leaf surface
MilStop 2.5lb.....	3.7 a ^x	19.2 a	13.5 a
M-Pede 2% v/v.....	4.0 a	20.9 a	11.5 a
Sonata 4 qt.....	5.9 ab	37.7 a	14.4 a
Serenade Max 3lb.....	7.7 abc	56.4 a	29.0 a
OxiDate FL 128 oz +			
Yucca Ag Aide 0.125%.....	14.9 bc	82.7 a	49.7 a
Sporatec AG 3 pt.....	17.5 c	96.9 a	81.3 a
Non-treated control	28.5 d	230 a	119.5 a

^zAverage of upper and lower leaf surfaces on last evaluation date (Tukey-Kramer HSD at 0.05)

^yArea Under the Disease Progress Curve

^x numbers followed by the same letter are not significantly different (Tukey-Kramer HSD at 0.05)