CUCUMBER (*Cucumis sativus*'Diva')
Downy mildew; *Pseudoperonospora cubensis*

L.A. Jones H.W. Lange, C.D. Smart, and A.J. Seaman
Department of Plant Pathology and Plant-Microbe Biology
NYS Integrated Pest Management Program
Cornell University, NYSAES
Geneva, NY 14456-0462

Evaluation of fungicides allowed for organic production against downy mildew of cucumber, 2013.

The trial was conducted on a field managed using practices allowed for organic production since 2008 at the New York State Agricultural Experiment Station in Geneva, NY. An overwintered triticale/red clover cover crop was plowed under in May. 'Diva' seeds were planted on 28 Jun into 72 cell flats and grown in a greenhouse. Plants were transplanted into raised beds with 1.25 mil black polyethylene and drip irrigation on 17 Jul. A solution of 0.5oz/gal Fertrell fish oil emulsion was applied during transplant. Annual ryegrass was seeded between the rows for weed control. Five treatments and an untreated control were arranged in a randomized complete block design with four replications. Each plot consisted of six plants spaced 18 in apart with 7 ft between rows and 3 ft between treatments. The cucumbers were irrigated to provide approximately 1 in of water per week during the trial. Sprays were applied with a CO_2 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 2 Aug just after the first downy mildew report in Western New York. Three more sprays were applied on 9, 16, and 22 Aug, and plants were evaluated for the percent leaf area covered with downy mildew lesions three times on16, 23, and 30 Aug. These data were evaluated using the area under the disease progress curve (AUDPC). Average maximum temperatures for Jul and Aug were 81 and 77˚F; average minimum temperatures were 61 and 58˚F. Rainfall amounts (in.) were 4.68 and 4.05 in Jul and Aug, respectively.

The downy mildew developed quickly after the first rating in early Aug. The Cueva treatment significantly decreased disease severity compared to the Regalia, OxiDate + Yucca combined, and the untreated control. OxiDate + Yucca combined, OxiDate alone, and Actinovate were significantly more effective at controlling disease when compared to the untreated control. The Regalia treatment was not significantly better than the untreated control. No phytotoxicity was observed with any of the treatments.

Treatment and rate	AUDPC[z]
Cueva FL 0.5 gal/100 gal…. ……	286.1 c[y]
Regalia 3 pt /50 gal ……..	464.6 ab
OxiDate FL 128 oz/A +Yucca Ag Aide FL 0.125% (v/v)…….....	437.5 b
OxiDate FL 128 oz/A ……...	372.8 bc
Actinovate 6 oz/50 gal ..……	360.5 bc
Non-treated control ……..	593.3 a

[z]Area Under the Disease Progress Curve
[y] values not followed by the same letter are significantly different as determined by Fisher's LSD *P*=0.05