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

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Evaluation of fungicides allowed for organic production on downy mildew of cucumber, 2012.

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 oat cover crop was plowed under in May. 'Diva' seeds were direct seeded on 17 Jul into raised beds with 1.25 mil black polyethylene and drip irrigation. A solution of 0.5oz/gal Fertrell fish oil emulsion was applied at emergence. Granular fertilizer (Fertrell 5-5-3) was added during bed making at 18 lb/A since manure had been applied the previous fall. 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 feet 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 13 Aug just after the first downy mildew report in Western New York. Three more sprays were applied on 20, 28 Aug, and 5 Sep and plants were evaluated for the percent leaf area covered with downy mildew lesions four times 22, 29 Aug, 5, 12 Sep. These data were evaluated using the area under the disease progress curve (AUDPC). Average maximum temperatures for Jul, Aug, and Sep were 84, 81 and 80˚F; average minimum temperatures were 64, 60, and 58˚F. Rainfall amounts (in.) were 2.8, 2.3, and 0.32 for Jul, Aug, and 1-12 Sep respectively.

The downy mildew developed in the field slowly with a very low severity until after the second rating in mid Aug. The Cueva treatment significantly decreased disease severity over the OxiDate and Yucca alone as well as the Sonata and untreated plots. The OxiDate + Yucca combination was significantly more effective at controlling disease than OxiDate alone, but was not significantly better than the untreated control. No phytotoxicity was observed with any of the treatments.

Treatment and rate	AUDPC[z]
Cueva FL 0.5gal/100gal…. …….	51.1 c[y]
Sonata FL 4 qt/A……..	91.5 ab
OxiDate FL 128 oz/A +Yucca Ag Aide FL 0.125% (v/v)…….....	72.0 bc
OxiDate FL 128 oz/A ……..	112.5 a
Yucca Ag Aide FL 0.125% (v/v)…….	88.8 ab
Non-treated control ……..	109.3 ab

[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