

Fungicide efficacy against *Podosphaera xanthii*, the powdery mildew pathogen on melons, 2009.

Honeydew variety Greenflesh was planted 31 March on 40-inch beds each containing a single line of plants spaced 12-inches apart. Each plot was 25 feet long. The experiment was a randomized complete block design with 5 replications per treatment. Treatments included Torino (Cyflufenamid, Gowan Co.), Luna Sensation (Fluopyram + Trifloxystrobin, Bayer Crop Science), grower standard: Rally 40WSP (Myclobutanil) followed by Procure 50WS (Triflumizole), and an untreated control. Torino was applied in two schedules, as needed or every 10 days. Disease was first observed on 11 June. Ten random leaves from each of the plots were evaluated for percent area of upper and lower leaves with fungal colonies of *P. xanthii* in increments of 10% (0% = no fungal colonies, 100% = completely covered by fungal colonies). Plots were evaluated for powdery mildew prior to every treatment application, and at the end of the trial. The first application of treatments Torino, Luna Sensation and the grower standard (Rally) were made 12 June. The second treatment of Torino (10 days), Luna Sensation, and grower standard (Procure) were applied 21 June. However, the Torino “as needed” treatment was only applied once, as there was no significant increase in disease development after the first fungicide application date compared to the other treatments. All treatments were applied in 15 gallons water per acre using a CO₂ backpack sprayer with 40 psi pressure. The CO₂ sprayer was equipped with a 4.75-foot spray boom, with four Tj8002VS nozzles spaced 19 inches apart, applied at a speed of 250 feet per minute. All treatments were applied in combination with a non-ionic surfactant (Exit, Miller Co.) at 0.05% v/v. Data were evaluated using statistical analysis software SAS 9.2 (SAS Institute, Cary, NC).

Prior to the first fungicide applications on 12 June the severity of disease between plots was not significantly different. After the first fungicide application (21 June) the percent disease on upper and lower surface of leaves was evaluated and were found to be significantly lower in the Torino (as needed) plots in comparison to all other treatments, and all fungicide treatments were significantly different than the untreated control. Torino (every 10 days), Torino (as needed), Luna Sensation and Standard (Rally 40WSP followed by Procure 50WS) were all significantly different from the untreated control after the second application in the final evaluation. There was no significant difference between the upper and lower leaf surfaces, therefore the data means were combined for analysis for each evaluation date. There was no significant difference in disease severity between the treatment schedules of Torino at the final evaluation date, indicating that an as needed treatment schedule is sufficient for control. No phytotoxicity was observed.

Treatment and rate/A	Application Date(s)	Mean percent severity ^Z		
		6/12/09 (Pre-treatment)	6/21/09	7/10/09
Luna Sensation, 3.4 fl oz	12 June, 21 June	4	14 b ^Y	6 b
Torino (10 days), 3.4 fl oz.....	12 June, 21 June	9	9 b	4 b
Torino (as needed), 3.4 fl oz.....	12 June	3	2 c	1 b
Rally 40WSP 5 oz	12 June	1	9 b	4 b
Procure 50WS 5 fl oz	21 June			
Untreated control	-	5	49 a	45 a

^Z Mean percent severity of combined upper and lower leaf surface covered by colonies of *Podosphaera xanthii*

^Y Column numbers followed by the same letter are not significantly different at P=0.05 as determined by Fisher’s least significant difference test.