

Evaluation of fungicides for control of downy mildew on cucumber II, Clinton 2017.

The experiment was conducted at the Horticultural Crops Research Station in Clinton, NC (N35°01.451'; W078°17.457'). Plots were single raised beds on 5-ft centers covered with white plastic mulch; 14-ft long with 5-ft fallow borders on each end with non-treated guard rows on each side. The previous year the field was planted with cucumber. Cucumber was direct seeded on 20 Jul (2-ft in-row spacing, 2 seed/hill) and thinned to one plant per hill after emergence (7 plants/plot). Irrigation and fertilization (4-0-8, N-P-K) were applied via drip tape on 1, 3, 18, 21, 23 and 30 Aug, and 5, 8, 11, 15 and 19 Sep. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO₂-pressurized backpack sprayer equipped with a handheld boom with a hollow cone nozzle (TXVS-26) delivering 40 gal/A at 45 psi. Applications were made on 17 and 25 Aug and 1, 8 and 15 Sep. Disease severity was assessed on 1, 8, 15 and 21 Sep as percent leaf area with necrosis per plot. Fruit were harvested on 5, 13 and 19 Sep. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's Protected LSD test to separate means.

Downy mildew was first detected on 17 Aug at approximately 3% disease severity in the field and progressed throughout the course of the trial. All treatments had significantly less disease than the non-treated plots and the combination treatments with Orondis Opti A, Zampro, Ranman, V-10365, Elumin and Bravo Weather Stik provided the highest level of downy mildew control. The combination treatment of Orondis Opti A, Zampro, Ranman and Bravo Weather Stik produced the highest level of marketable fruit. No phytotoxicity was observed. In the table, treatments are sorted by disease severity on 21 Sep.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)			Mkt yield (lb/plot)
		8-Sep	15-Sep	21-Sep	
Orondis Opti A 0.83OD 2 fl oz	1, 4				
Zampro 4.38SC 14 fl oz	2, 5				
Ranman 3.33SC 2.74 fl oz	3, 5				
Bravo Weather Stik 6SC 32 fl oz	1-5				
Syl-Coat 100L 0.125% V/V	1-5	12.3 cd ^x	34.5 d	53.8 d	54.55 a
Orondis Opti A 0.83OD 2 fl oz	1, 4				
V-10365 0.83SC 12.1 fl oz	2, 5				
Ranman 3.33SC 2.74 fl oz	3, 5				
Bravo Weather Stik 6SC 32 fl oz	1-5				
Syl-Coat 100L 0.125% V/V	1-5	9.8 d	35.3 d	54.3 d	49.15 ab
Orondis Opti A 0.83OD 2 fl oz	1, 4				
Elumin 4SC 8 fl oz	2, 5				
Ranman 3.33SC 2.74 fl oz	3, 5				
Bravo Weather Stik 6SC 32 fl oz	1-5				
Syl-Coat 100L 0.125% V/V	1-5	11.3 d	36.5 d	58.5 d	45.90 ab
Presidio 4SC 4 fl oz	1				
V-10365 0.83SC 12.1 fl oz	2, 4				
Elumin 4 SC 8 fl oz	3, 5				
Bravo Weather Stik 6SC 32 fl oz	1-5				
Syl-Coat 100L 0.125% V/V	1-5	18.8 c	57.8 c	78.0 c	43.73 b
Presidio 4SC 4 fl oz	1				
Elumin 4SC 8 fl oz	2, 4				
Ranman 3.33SC 2.74 fl oz	3, 5				
Bravo Weather Stik 6SC 32 fl oz	1-5				
Syl-Coat 100L 0.125% V/V	1-5	28.3 b	70.5 b	87.3 b	42.05 b
Non-treated	N/A	53.8 a	85.3 a	95.3 a	25.50 c

^z Disease rating scale based on percent necrotic foliage caused by *P. cubensis*.

^y Application dates: 1=17 Aug, 2=25 Aug, 3=1 Sep, 4=8 Sep and 5=15 Sep.

^x Treatments followed by the same letter(s) within a column are not statistically different ($P=0.05$, Fisher's Protected LSD).