

Evaluation of fungicides for control of downy mildew on cucumber, 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 sweetpotato. 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 23 and 30 Aug and 8 and 14 Sep. Disease severity was assessed on 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 23 Aug at approximately 4% disease severity in the field and progressed throughout the course of the trial. Orondis Opti A controlled *P. cubensis* and produced the highest level of marketable fruit. Previcur Flex also managed downy mildew and produced a high yield when compared to the non-treated. No other treatment provided a commercially acceptable level of disease control. No phytotoxicity was observed. In the table, treatments are sorted by disease severity on 15 Sep.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)		Mkt Yield (lb/plot)
		8-Sep	15-Sep	
Orondis Opti A 0.83OD 0.6 fl oz	1-4	14.0 c ^x	42.0 d	18.63 a
Previcur Flex 6F 19.2 fl oz	1-4	18.9 bc	46.8 cd	17.73 a
Zampro 4.33SC 14 fl oz	1-4	24.8 b	51.3 bc	18.35 a
Ranman 3.33SC 2.75 fl oz	1-4	20.8 b	57.5 b	16.20 ab
Timorex Gold 1.86EC 12 fl oz	1-4	35.0 a	68.3 a	11.93 bc
Timorex Gold 1.86EC 18 fl oz	1-4	37.5 a	70.5 a	9.8 c
Non-treated	N/A	40.5 a	72.5 a	10.48 c

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

^y Application dates: 1=23 Aug, 2=30 Aug, 3=8 Sep and 14 Sep.

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