

Evaluation of fungicides for control of downy mildew on cucumber, Clinton 2018.

The experiment was conducted at the Horticultural Crops Research Station in Clinton, NC. 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 27 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. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO₂-pressurized backpack sprayer equipped with a handheld boom with hollow cone nozzle (TXVS-26). Applications were made on 22 and 29 Aug and 5 and 11 Sep. Disease severity was assessed on 29 Aug and 5 and 11 Sep as percent leaf area with necrosis per plot. Fruit were harvested on 4 and 11 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 22 Aug at approximately 2% disease severity in the field and progressed throughout the course of the trial. Omega alternated with Orondis Opti provided the highest level of downy mildew control. Omega alternated with Ranman controlled *P. cubensis* well and produced the highest level of marketable fruit. All treatments had significantly less disease than the non-treated plots and yielded well. No phytotoxicity was observed. No further disease evaluations or yield assessments were conducted due to the trial being destroyed by Hurricane Florence.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)			Marktable yield (lb/plot)
		29 Aug	5 Sep	11 Sep	
Omega 500F 24 fl oz	1, 3				
Orondis Opti 0.83 OD 2 fl oz	2, 4	10.5 bc ^x	15.5 d	29.5 d	38.35 b
Omega 500F 24 fl oz	1, 3				
Ranman 3.33 SC 2.75 fl oz	2, 4	11.5 b	16.8 cd	30.0 cd	47.50 a
Orondis Opti 0.83OD 2 fl oz	1, 3				
Ranman 3.33SC 2.75 fl oz	2, 4	9.0 cd	16.5 d	31.8 cd	42.75 ab
Previcur Flex 6F 19.2 fl oz	1, 3				
Zampro 4.33SC 14 fl oz	2, 4	8.0 d	17.3 cd	32.3 cd	42.15 ab
Zampro 4.33SC 14 fl oz	1, 3				
Orondis Opti 0.83OD 2 fl oz	2, 4	12.3 b	19.5 c	34.0 c	40.90 ab
Previcur Flex 6F 19.2 fl oz	1, 3				
Ranman 3.33SC 2.75 fl oz	2, 4	9.5 cd	23.3 b	39.3 b	40.40 ab
Non-treated	N/A	16.8 a	35.8 a	62.8 a	25.98 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).