

Evaluation of fungicides for control of downy mildew on cucumber, Clinton, NC 2020.

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 and non-treated guard rows on each side. In 2019, the field was planted with cucumber. Cucumber was direct seeded on 28 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 hollow cone nozzle (TXVS-26) delivering 40 gal/A at 45 psi. Applications were made on 19 and 27 Aug and 3, 10, 18 and 24 Sep and 1 Oct. Disease severity was assessed on 27 Aug and 3, 10, 16 and 24 Sep and 1 and 8 Oct as percent leaf area with necrosis per plot. Fruit were harvested on 10, 17 and 24 Sep and 1 and 8 Oct. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's protected least significant difference (LSD) test to separate the means.

Downy mildew was first detected on 19 Aug at approximately 4% disease severity in the field and progressed throughout the course of the trial. Orondis Opti had the lowest level of disease and yielded well. Treatments with Omega, Previcur Flex, Zampro and Ranman also produced a high yield. No other treatments provided adequate *P. cubensis* control.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)			Mkt yield (lb/plot)
		3 Sep	16 Sep	1 Oct	
Orondis Opti 0.83OD 32 fl oz	1-7	14.8d ^x	21.0e	44.0e	48.90a
Previcur Flex 6F 19.2 fl oz	1-7	17.3c	24.8de	53.0d	46.35ab
Zampro 4.33SC 14 fl oz	1-7	17.5c	28.5cd	56.0d	41.98ab
Omega 500F 24 fl oz	1-7	17.0c	31.0c	59.0cd	48.35a
Ranman 3.33SC 2.75 fl oz	1-7	18.0c	29.5c	60.8cd	41.95ab
Presidio 4SC 4 fl oz	1-7	16.8cd	37.5b	66.0bc	35.20bc
Revus 2.08SC 8 fl oz	1-7	20.3b	38.5b	72.0b	28.25cd
Non-treated Check	N/A	32.8a	58.5a	87.0a	23.95d

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

^y Application dates; 1=19 Aug, 2=27 Aug, 3=3 Sep, 4=10 Sep, 5=18 Sep, 6=24 Sep and 7=1 Oct.

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