

Evaluation of fungicides for control of downy mildew on cucumber, Kinston, NC III 2019.

The experiment was conducted at the Cunningham Research Station in Kinston, 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. In 2018, the field was planted with sweetpotato. Cucumber was direct seeded on 24 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 a hollow cone nozzle (TXVS-26). Applications were made on 21 and 28 Aug and 6, 13, 20 and 27 Sep. Disease severity was assessed on 30 Aug and 3, 10, 17 and 24 Sep and 1 Oct as percent leaf area with necrosis per plot. Fruit were harvested on 30 Aug and 4, 11, 18 and 26 Sep and 2 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 21 Aug at approximately 3% disease severity in the field and progressed throughout the course of the trial. Orondis Opti had the lowest level of *P. cubensis* and highest yield. Ranman alternated with Previcur Flex also managed downy mildew and yielded well when compared to the non-treated. No phytotoxicity was observed.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)			Mkt yield (lb/plot)
		3-Sep	17-Sep	1-Oct	
Orondis Opti 3.37SC 32 fl oz/a	1-6	12.5c ^x	25.5d	44.3d	51.55a
Ranman 3.33SC 2.75 fl oz/a	1, 3, 5				
Previcur Flex 6F 19.2 fl oz/a	2, 4, 6	16.8c	36.3c	53.5c	40.63b
Prolivo 300SC 5 fl oz/a	1-6	27.0ab	50.8b	84.3b	22.18c
Aviv SC 20 fl oz/100 gal	1-6	26.0b	48.5b	85.5b	18.48c
Non-treated	N/A	31.0a	58.5a	93.3a	17.00c

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

^y Application dates: 1=21 Aug, 2=28 Aug, 3=6 Sep, 4=13 Sep, 5=20 Sep and 6=27 Sep.

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