

Evaluation of fungicides for control of downy mildew on cucumber, Clinton, NC III 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 with 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 handheld boom 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 3% disease severity in the field and progressed throughout the course of the trial. Combination treatments containing weekly rotations of Previcur Flex, Orondis Opti, Ranman and Bravo Weather Stik as well as Lektivar + Bravo Weather Stik provided control of downy mildew. All treatments 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	16 Sep	1 Oct	
Previcur Flex 19.2 fl oz	1, 4, 7				
Bravo Weather Stik 32 fl oz	1, 3, 4, 6, 7				
Orondis Opti 32 fl oz/	2, 5				
Ranman 2.75 fl oz	3, 6	15.5bc ^x	24.3bc	38.8c	53.30a
Lektivar 24 fl oz	1-7				
Bravo Weather Stik 32 fl oz	1-7	16.5b	29.0b	40.3c	50.00ab
Ranman 2.75 fl oz	1, 4, 7				
Bravo Weather Stik 32 fl oz	1, 2, 4, 5, 7				
Previcur Flex 19.2 fl oz	2, 5				
Orondis Opti 32 fl oz	3, 6	12.0c	20.8c	41.3c	59.30a
Orondis Opti 32 fl oz	1, 4, 7				
Ranman 2.75 fl oz	2, 5				
Bravo Weather Stik 32 fl oz	2, 3, 5, 6				
Previcur Flex 19.2 fl oz	2, 6	12.5c	22.5c	45.5c	51.65ab
Bravo Weather Stik 32 fl oz	1-7	13.5bc	24.5bc	62.8b	39.18b
Non-treated	N/A	25.5a	46.0a	95.3a	18.68c

^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).