

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

The experiment was conducted at the Central Crops Research Station in Clayton, 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 13 Aug (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 9, 14, 23 and 28 Sep and 5, 12 and 19 Oct. Disease severity was assessed on 14, 23 and 28 Sep and 5, 12, 19 and 26 Oct as percent leaf area with necrosis per plot. Fruit were harvested on 21 and 28 Sep and 5, 12 and 19 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 9 Sep at approximately 3% disease severity in the field and progressed throughout the course of the trial. Treatments with Orondis Opti, Previcur Flex, Ranman, Zampro and Lektivar all controlled *P. cubensis* and produced a high yield 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)
		23 Sep	5 Oct	19 Oct	
Orondis Opti 0.83OD 32 fl oz	1-7	7.0c ^x	25.0d	40.8c	11.78a
Previcur Flex 6F 19.2 fl oz	1-7	11.5b	33.0bc	40.8c	14.40a
Ranman 3.33SC 2.75 fl oz	1-7	10.0bc	28.3cd	42.0bc	13.88a
Zampro 4.33SC 14 fl oz	1-7	11.8b	32.5bc	43.8bc	11.70a
Lektivar 40SC 24 fl oz	1-7	12.8b	35.0b	46.3b	9.03ab
Non-treated	N/A	23.5a	55.5a	84.3a	6.10b

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

^y Application dates: 1=9 Sep, 2=14 Sep, 3=23 Sep, 4=28 Sep, 5=5 Oct, 6=12 Oct and 7=19 Oct.

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