

Evaluation of fungicides and cultivars for control of downy mildew on cucumber, Kinston, NC 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 and 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). Two non-treated commercial cucumber varieties were included in the trial in addition to non-treated Liszt and Liszt treated with different fungicide applications. 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). Applications were made on 15, 21 and 28 Aug and 3, 13 and 20 Sep. Disease severity was assessed on 30 Aug and 3, 10 and 17 Sep as percent leaf area with necrosis per plot. Fruit were harvested on 30 Aug and 4, 11, 18 and 26 Sep. 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. Non-treated Peacemaker had the lowest level of disease. Non-treated Citadel also controlled *P. cubensis* well. All other treatments provided lower levels of disease than the non-treated Liszt but the level of control would not be considered commercially acceptable. No phytotoxicity was observed.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)		
		30-Aug	10-Sep	24-Sep
Non-treated Peacemaker	N/A	8.0g ^x	23.3f	46.3d
Non-treated Citadel	N/A	10.8fg	26.8f	47.8cd
Ranman 3.33SC 2.75 fl oz/a	1-6	12.0ef	41.5e	61.3bc
V-10365 0.83SC 13.6 fl oz/a	1-6	13.8cde	41.8de	65.5b
Tanos 50WG 8 oz/a	1-6	15.0bcd	49.3b	66.0b
Orondis Opti 3.37SC 32 fl oz/a	1-6	13.8cde	43.3cde	66.5b
Elumin 4SC 8 fl oz/a	1-6	13.0def	46.3bcd	68.5b
Previcur Flex 6F 19.2 fl oz/a	1, 4	16.0bc	47.5bc	69.5b
Zampro 4.33SC 14 fl oz/a	1-6	14.8b-e	47.3bc	71.0ab
Revus 2.08SC 8 fl oz/a	1-6	17.5b	49.3b	71.8ab
Zing! 4.9SC 36 fl oz/a	1-6	14.5cde	47.5bc	71.8ab
Gavel 75WG 32 oz/a	1-6	15.0bcd	46.8bc	74.0ab
Omega 500F 24 fl oz/a	1-6	13.3c-f	44.5cde	74.8ab
Presidio 4SC 4 fl oz/a	1-6	13.8cde	50.5b	75.0ab
Non-treated Liszt	N/A	24.5a	62.3a	84.8a

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

^y Application dates; 1=15 Aug, 2=21 Aug, 3=28 Aug, 4=3 Sep, 5=13 Sep and 6=20 Sep.

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