

Evaluation of fungicides and cultivars for control of downy mildew on cucumber, Kinston 2018.

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. The previous year the field was planted with sweetpotato. Cucumber was direct seeded on 17 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 hollow cone nozzle (TXVS-26). Applications were made on 8, 14, 21 and 28 Aug and 4 Sep. Disease severity was assessed on 14, 21 and 28 Aug and 4 and 12 Sep as percent leaf area with necrosis per plot. Fruit were harvested on 7, 13, 21 and 27 Sep. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's Protected LSD test to separate means.

Downy mildew was first detected on 8 Aug at approximately 2% disease severity in the field and progressed throughout the course of the trial. Non-treated Peacemaker and Non-treated Citadel had the lowest level of disease. Liszt treated with Ranman produced the greatest weight of total marketable fruit. No other treatments provided commercially acceptable levels of disease control. No phytotoxicity was observed. No further disease evaluations or yield assessments were conducted due to the trial being destroyed by Hurricane Florence.

Treatment and rate of product per acre	Application no. ^y	Disease severity ^z (%)			Marktable yield (lb/plot)
		14 Aug	28 Aug	12 Sep	
Nontreated Peacemaker	N/A	5.0 e ^x	20.8 g	38.5 g	46.23 b
Nontreated Citadel	N/A	6.3 de	23.0 fg	44.3 g	40.63 b-e
Ranman 3.33 SC 2.75 fl oz	1-5				
Induce SL 0.25% v/v	1-5	9.0 bc	25.3 f	56.5 f	58.65 a
Omega 500 F 24 fl oz	1-5	9.0 bc	36.0 de	58.5 ef	45.18 b
Gavel 75 WG 32 oz	1-5	8.3 bcd	37.5 cde	60.8 def	41.85 bc
Elumin 4 SC 8 fl/oz	1-5	9.8 bc	37.5 cde	64.8 cde	41.28 bcd
Previcur Flex 6 F 19.2 fl oz	1-5	10.3 b	35.0 e	65.0 cde	42.05 bc
Zampro 4.33 SC 14 fl oz	1-5	10.3 b		66.5 bcd	
Induce SL 0.25% v/v	1-5		36.3 de		44.35 bc
Tanos 50 WG 8 oz	1-5	10.5 b	40.5 bc	67.5 bc	34.93 c-f
Zing! 4.9 SC 36 fl oz	1-5	10.3 b	40.4 bc	69.3 bc	38.95 b-e
Presidio 4 SC 4 fl oz	1-5	8.0 bcd			
Induce SL 0.25% v/v	1-5		38.8 cde	70.5 bc	31.68 def
Orondis Opti 0.83 OD fl oz	1-5	8.5 bcd	38.5 b-e	71.0 bc	37.15 b-e
Revus 2.08 SC 8 fl oz	1-5	7.3 cde	41.5 b	72.0 b	31.30 ef
Non-treated Liszt	N/A	15.5 a	50.5 a	81.0 a	26.25 f

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

^y Application dates; 1=8 Aug, 2=14 Aug, 3=21 Aug, 4=28 Aug and 5=4 Sep.

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