

Evaluation of fungicides for control of downy mildew on cucumber, Kinston 2015.

The experiment was conducted at the Cunningham Research Station in Kinston, NC (N35°18.084'; W077°34.384'). Plots were single beds on 5-ft centers covered with white plastic mulch; 12-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 cucumber. Cucumber was direct seeded on 13 Aug (1.5-ft in-row spacing, 2 seed/hill) in raised beds and thinned to one plant per hill after emergence (8 plants/plot). Irrigation and fertilization 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 nozzles (TXVS-26) delivering 40 gal/A at 45 psi. The first two spray applications were made with a single-nozzle boom and the last two with a 2-nozzle boom (19-in. spacing). Applications were made on 7-day intervals: 8, 14, 21 and 28 Sep. Disease severity was assessed on 21 and 28 Sep and 8 Oct as percent leaf area with necrosis per plot. Fruit were harvested on 22 and 29 Sep and 6 Oct. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and the Waller-Duncan test to separate means.

Downy mildew was first detected on 8 Sep at approximately <1% disease severity in the field and progressed throughout the course of the trial. Orondis and Ranman controlled downy mildew when compared to the non-treated and produced the greatest weight of total marketable fruit. No other treatments provided commercially acceptable levels of disease control or produced marketable fruit weights comparable to that of Orondis or Ranman. No phytotoxicity was observed. In the table, treatments are sorted by disease severity on 8 Oct.

Treatment and rate of product per acre	Application No.	Disease Severity* (%)			Mkt Yield (lb/plot)
		21 Sep	28 Sep	8 Oct	
Orondis 0.83OD 0.6 fl oz	1-4	5.0 i [*]	11.0 i	35.3 m	20.96 a
Ranman 3.33SC 2.75 fl oz	1-4	8.0 i	15.7 i	43.3 l	17.29 ab
Omega 500F 1.5 pt	1-4	22.3 c-h	32.7 gh	67.0 k	9.58 c-f
Ridomil Gold Bravo 36.4WP 40 oz	1-4	21.0 e-h	33.3 fgh	69.5 jk	10.45 cde
Zing 4.9SC 36 fl oz	1-4	23.0 b-h	35.7 fgh	72.3 ijk	11.19 bc
Gavel 75WG 2 lb	1-4	21.5 d-h	33.7 fgh	73.3 h-k	7.75 c-f
Previcur Flex 6F 1.2 pt	1-4	23.5 b-g	35.3 fgh	76.5 g-j	8.78 c-f
Tanos 50WG 8 oz	1-4	20.3 fgh	33.0 gh	77.3 f-i	7.43 c-f
V-10208 4SC 8 fl oz	1-4	19.3 gh	34.0 fgh	77.5 f-i	11.06 cd
Zampro 4.33SC 14 fl oz	1-4	22.5 c-h	34.7 fgh	77.5 f-i	11.23 bc
Curzate 60DF 5 oz	1-4	19.0 gh	31.7 h	80.3 e-h	10.22 cde
Revus 2.08SC 8 fl oz	1-4	18.5 h	33.0 gh	82.5 d-g	9.13 c-f
Manzate Pro Stick 75DG 1.5 lb	1-4	24.5 a-f	38.0 d-h	82.8 d-g	9.42 c-f
Evito 40.3SC 5.7 fl oz	1-4	24.5 a-f	39.3 c-g	83.3 d-g	9.15 c-f
Bravo Weather Stik 6SC 2 pt	1-4	21.3 e-h	35.3 fgh	83.3 d-g	9.29 c-f
Merivon 42.5SC 6.7 fl oz	1-4	24.8 a-f	40.3 b-f	83.5 c-g	5.27 f
Presidio 4SC 4 fl oz	1-4	24.3 b-f	36.3 fgh	84.3 b-f	7.93 c-f
Forum 43.5SC 6 fl oz	1-4	23.5 b-g	40.3 b-f	85.8 a-e	7.94 c-f
Flint 50EG 4 oz	1-4	27.0 abc	43.7 a-e	87.3 a-e	6.30 def
Cueva 10SC 2 gal/100gal	1-4	23.3 b-h	36.7 e-h	88.3 a-d	6.74 c-f
Non-treated	N/A	29.3 a	45.7 abc	88.5 a-d	6.03 ef
Reason 500SC 5.5 fl oz	1-4	23.5 b-g	44.0 a-d	89.3 a-d	7.72 c-f
Quadris 2.08SC15.5 fl oz	1-4	26.3 a-d	44.0 a-d	90.8 abc	6.75 c-f
Cabrio 20EG12 oz	1-4	26.8 abc	45.0 a-d	91.5 ab	5.77 ef
OSO 5SC 13 fl oz	1-4	27.5 ab	47.0 ab	91.5 ab	6.90 c-f
Oxidate 29.1SC 1 gal/100gal	1-4	25.3 a-e	47.0 ab	91.5 ab	5.98 ef
Actigard 50W 1oz	1-4	24.3 b-f	48.3 a	91.5 ab	7.30 c-f
Pristine 38EG 18.5 oz	1-4	24.5 a-f	45.7 abc	91.8 a	7.48 c-f

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

** Treatments followed by the same letter(s) within a column are not statistically different ($P=0.05$, Waller-Duncan $k=100$).