

Evaluation of fungicides for control of downy mildew on cucumber, Clinton 2013.

The experiment was conducted at the Horticultural Crops Research Station in Clinton, NC (N35°01.390'; W078°16.578'). Plots were single beds on 5-ft centers, covered with black plastic mulch; 20-ft long with 5-ft fallow borders at each end. The previous year the field was planted with sweetpotato followed by rye as a cover crop. Cucumbers were direct seeded in the field on 13 Aug (2-ft in-row spacing, 2 seed/hill) and thinned to one plant per hill after emergence (10 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 three spray applications were made with a single-nozzle boom and the last four with a two-nozzle boom (19 in. spacing). Applications were made on a 7-day interval: 3, 10, 17 and 25 Sep and 2, 8 and 16 Oct. Disease severity was assessed on 25 Sep and 2, 8, 16 and 22 Oct as percent leaf area with necrosis. Data was 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 3 Sep at approximately 2% disease severity in the field and progressed rapidly throughout the course of the trial. Treatments with A20638A and A18269A alternated with Manzate Pro-Stick provided good control of downy mildew but A20638A provided significantly better control. Although all other treatments suppressed downy mildew severity when compared to the non-treated plots, none provided commercially acceptable control of *P. cubensis*. In the table, treatments are sorted by disease severity on 22 Oct. No phytotoxicity was observed.

| Treatment and rate of product per acre, applied at 7-day intervals | Disease Severity* [%] | | |
|--|-----------------------|--------|--------|
| | 25 Sep | 8 Oct | 22 Oct |
| A20638A 250SC 2.05 fl oz alt w/ Manzate Pro-Stick 75WG 2 lb | 8.5 fg** | 14.3 g | 14.8 g |
| A18269A 0.83OD 2.05 fl oz alt w/ Manzate Pro-Stick 75WG 2 lb | 16.0 cd | 25.3 f | 22.3 f |
| Ranman 400SC 2.75 fl oz + Matrixx 100L 0.25% v/v + Manzate Pro-Stick 75WG 1.34 lb alt w/ Presidio 4SC 4 fl oz + Manzate Pro-Stick 75WG 1.34 lb alt w/ Previcur Flex 6F 1.2 pt + Matrixx 100L 0.25% v/v + Manzate Pro-Stick 75WG 1.34 lb | 10.5 ef | 32.5 e | 53.0 e |
| Ranman 200SC 2.75 fl oz + Matrixx 100L 0.25% v/v + Manzate Pro-Stick 75WG 1.34 lb alt w/ Previcur Flex 6F 1.2 pt + Manzate Pro-Stick 75WG 1.34 lb | 9.0 fg | 34.0 e | 55.0 e |
| V-10208 4SC 8 fl oz + Matrixx 100L 0.25% v/v | 7.0 g | 43.0 d | 65.0 d |
| Omega 4SC 12 fl oz alt w/ Manzate Pro-Stick 75WG 2 lb | 22.3 b | 45.8 d | 66.5 d |
| V-10208 4SC 4 fl oz + Manzate Pro-Stick 75WG 1.34 lb + Matrixx 100L 0.25% v/v | 6.5 g | 54.5 c | 75.0 c |
| Gavel 75WG 2 lb + Matrixx 100L 0.25% v/v | 13.8 de | 54.8 c | 85.3 b |
| Ranman 400SC 2.75 fl oz + Matrixx 100L 0.25% v/v alt w/ Zampro 525SC 14 fl oz + Matrixx 100L 0.25% v/v | 17.3 c | 65.8 b | 85.5 b |
| Non-Treated | 35.8 a | 88.3 a | 98.3 a |

* 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 $k=100$).