

**Evaluation of fungicides for control of downy mildew of winter squash, Kinston 2020.**

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. Squash was direct seeded on 14 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 CO<sub>2</sub>-pressurized backpack sprayer equipped with a single-nozzle, handheld boom with a hollow cone nozzle (TXVS-26) delivering 40 gal/A at 45 psi. Applications were made on 4, 11, 21 and 28 Sep and 5 and 13 Oct. Disease severity was assessed on 28 Sep and 5, 13 and 20 Oct as percent leaf area with necrosis per plot. 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 13 Sep at approximately 3% disease severity in the field. Disease progressed rapidly throughout the course of the experiment. All treatments had significantly less disease than the non-treated plots. Orondis Opti provided excellent control of *P. cubensis*. Omega, Ranman, Revus and Zampro also provided control of downy mildew. No phytotoxicity was observed. In the table, treatments are sorted by the disease severity rating on 13 Oct.

Treatment and rate of product per acre	Application no. <sup>y</sup>	Disease severity <sup>z</sup> (%)		
		28 Sep	5 Oct	13 Oct
Orondis Opti 0.83 OD 32 fl oz	1-6	3.3f <sup>x</sup>	12.3c	33.3f
Omega 500 F 24 fl oz	1-6	4.5def	12.5c	38.0ef
Ranman 3.33 SC 2.75 fl oz	1-6	4.3ef	13.8c	40.3def
Revus 2.08 SC 8 fl oz	1-6	8.5b	17.0b	44.3cde
Zampro 4.33 SC 14 fl oz	1-6	5.8cd	14.3c	46.3bcd
Presidio 4 SC 4 fl oz	1-6	7.0c	17.3b	50.0bc
Previcur Flex 6 F 19.2 fl oz	1-6	4.8de	17.0b	52.8b
Non-treated	N/A	13.3a	36.3a	78.0a

<sup>z</sup> Disease rating scale based on percent necrotic foliage caused by *P. cubensis*.

<sup>y</sup> Application dates: 1=4 Sep, 2=11 Sep, 3=21 Sep, 4=28 Sep, 5=5 Oct and 6=13 Oct.

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