

Evaluation of fungicides for downy mildew management of winter squash, Kinston, NC 2021.

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 as a rotational crop. Squash was direct seeded on 13 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. Eight treatments were tested in a randomized complete block design with 4 repetitions. Fungicide treatments were applied using a CO₂-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 7 and 15 Sep. Disease severity was assessed on 15 Sep as percent leaf area with necrosis per plot. Hand harvest data was obtained four times through the season and classified as marketable or non-marketable based on shape, size and appearance. 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 15 Sep at approximately 2% disease severity in the field. No phytotoxicity was observed in the experiment. For the last disease severity, data obtained on 20 Oct the treatments that included Revus, Ranman 400 SC, Orondis Opti, Previcur Flex, Omega 500F, and Zampro were statistically different from the non-treated control. Yields were assessed in two different categories: marketable and non-marketable (data not shown). For the marketable yields all the treatments but Ranman 400 SC were statistically different from the non-treated control.

Treatments	Rate fl oz /acre)	Disease Severity ^z 20 Oct – Week 9	Yields ^y
Non-treated control	32.0	88.3 a ^x	18.28 c
Ranman 400 SC	2.75	73.3 a	21.28 bc
Orondis Opti	14.0	62.5 d	25.10 ab
Previcur Flex	4.0	74.8 c	25.70 a
Omega 500F	8.0	58.8 d	26.20 a
Zampro	24.0	78.8 bc	25.93 a
Presidio	19.2	85.5 ab	26.10 a
Revus	--	76.3 c	25.65 a

^zDisease rating scale based on percent necrotic foliage caused by *P. cubensis*. / Last data point 20 Oct.

^yMarketable yields (lbs./treatment).

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