

Evaluation of fungicides for downy mildew management on cantaloupe, Goldsboro 2022.

The research trial was conducted at the Cherry Farm Research Station in Clinton, NC. Experimental 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 field was planted last year with cucurbits crop. Cantaloupe was directly seeded on 15 Jun (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. Three treatments and the non-treated control were tested in a randomized complete block design with four 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 35 psi. Applications were made on 19 and 26 Jul, 2, 9 and 16 Aug. Disease severity per plot was assessed on 14, 19 and 25 Jul and 2, 9, 19 and 25 Aug. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's protected least significant differences (LSD) test to separate the means.

Downy mildew was first detected on 19 Jul at approximately 6% disease severity in the field. No phytotoxicity was observed in the experiment. At the disease severity data obtained on 2 Aug 7 weeks after planting all treatments were statistically different from the non-treated control. For the data recorded on 25 Aug 10 weeks after planting, the treatment Zing! was significantly different from the non-treated control but not for Previcur Flex. The disease summary for the season (AUDPC) showed that treatment Zing! was statistically different from the non-treated control but not for Previcur Flex.

Treatments	Rate	Disease Severity ^z (%) 2 Aug – Week 7	Disease Severity ^y (%) 25 Aug – Week 10	AUDPC ^x
Non-treated control	–	37.5 a ^w	90.0 a	1849.75 a
Reason 44.4%	5.5 fl oz/A	23.8 b	87.5 a	1703.75 ab
Dyne-amic 99.0%	0.25 %v/v			
Previcur Flex 66.5%	1.2 pt/A	23.8 b	76.3 ab	1507.00 bc
Zing! 46.8%	36 fl oz/A	19.5 b	65.0 b	1248.13 c

^z Disease rating scale based on percent necrotic foliage caused by *P. cubensis*. / Data point 2 Aug, 7 weeks after planting.

^y Disease rating scale based on percent necrotic foliage caused by *P. cubensis*. / Data point 25 Aug, 10 weeks after planting.

^x Area under disease progress curve for total of all the foliar diseases present. $AUDPC = \sum_{i=1}^{n-1} \frac{y_i + y_{i+1}}{2} x(t_{i+1} - t_i)$

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