

Evaluation of fungicides for powdery mildew management on pumpkins, Goldsboro 2022.

The experiment 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. Pumpkin 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. Five 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 7 and 19 Jul and 2 19 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.

Powdery mildew was first detected on 19 Jul at approximately 3% disease severity in the field. No phytotoxicity was observed in the experiment. At the disease severity data obtained on 9 Aug there was not a significant difference between the treatments and the non-treated control. For the data recorded on 25 Aug the treatment Pyraziflumid was significantly different from the control but not for the higher rate for Flutianil SC. The disease summary for the season (AUDPC) showed no significant differences between the treatments and the non-treated control.

Treatments	Rate	Disease Severity ^z (%)	Disease Severity (%) ^y	AUDPC ^x
		9 Aug	25 Aug	
Non-treated control	–	23.8 a ^w	96.3 a	1315.50 a
Gatten EC 4.7% Dyne-amic 99.0 %	3.2 fl oz/a 0.125 % v/v	26.3 a	87.5 abc	1078.50 a
Gatten EC 4.7% Dyne-amic 99.0 %	6.4 fl oz/a 0.125 % v/v	37.5 a	88.8 ab	1312.25 a
Flutianil SC ^v 40.0% Dyne-amic 99.0 %	3.2 fl oz/a 0.125 % v/v	25.0 a	92.5 ab	1270.00 a
Flutianil SC 40.0% Dyne-amic 99.0 %	6.4 fl oz/a 0.125 % v/v	20.0 a	77.5 bc	1048.63 a
Pyraziflumid ^v Dyne-amic 99.0 %	3.2 fl oz/a 0.125 % v/v	25.0 a	72.5 c	1040.00 a

^z Disease rating scale based on percent necrotic foliage caused by *P. xanthii*. / Data point 9 Aug.

^y Disease rating scale based on percent necrotic foliage caused by *P. xanthii*. / Data point 25 Aug.

^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).

^v Product not registered for formulation/product.