

Evaluation of selected fungicides for management of powdery mildew of squash, spring 2012.

On 29 Feb 2012, plots were established at the University of Florida's Gulf Coast Research and Education Center in Balm, FL to evaluate selected fungicides for the control of powdery mildew on squash. Plots consisted of 21 ft-long bed sections within 300 ft-long, raised beds with 5 ft center-to-center bed spacing. Beds were covered with black virtually impermeable mulch and irrigated with a drip system. Seeds were sown at 18-in spacing along beds skipping a 6-ft alley between plots and either a solid planted spreader bed or 25-ft ditch as a buffer between treatment beds. Fungicide treatments were initiated 26 Mar with the first appearance of powdery mildew in nearby sentinel plots and grower fields. Treatments were applied on 26 Mar, 2 Apr, 9 Apr, and 16 Apr (corresponding with applications 1 to 4 below) with a CO2 back pack sprayer calibrated to deliver 40 (app. 1), 60 (apps. 2,3), and 100 gal/A (app. 4) at 40 psi. Treatments, including a non-treated control, were arranged in a completely randomized block design with each treatment repeated four times. Plots were monitored regularly for powdery mildew, and rated on 9 Apr and 20 Apr after disease reached appreciable levels. Alternating applications of Previcur Flex (1.2 pt/A) and Curzate 60DF (3.2 oz/A) were applied to minimize the impact of downy mildew. The trial was terminated prematurely after 20 Apr, due to a weather event on 21-22 Apr that severely damaged the plots.

| Treatment, rate/A (application) ^z | Disease severity (%) ^y | | AUDPC ^x |
|---|-----------------------------------|---------|--------------------|
| | 9 Apr | 20 Apr | |
| Torino, 3.4 fl oz (1,3); Quintec, 6 fl oz (2,4)..... | 0.38 d ^w | 1.13 g | 8.25 i |
| Quintec, 6 fl oz (1,4); Torino, 3.4 fl oz (2); Procure, 8 oz (3)..... | 1.13 cd | 6.00 g | 39.2 i |
| Rally 40WSP, 5 oz (1); Torino, 3.4 fl oz (2,4); Quintec, 6 fl oz (3)..... | 0.38 d | 0.75 g | 6.19 i |
| Fontelis, 1 pt (1-4)..... | 2.25 cd | 32.8 cd | 193 ef |
| Fontelis, 2 pt (3,4)..... | 23.3 a | 43.8 c | 369 c |
| Fontelis, 1 pt (1-4); Quintec, 4 fl oz (3,4)..... | 1.50 cd | 11.4 fg | 70.8 hi |
| Fontelis, 1 pt (1-4); Bravo WeatherStik, 2 pt (1-4)..... | 2.25 cd | 28.0 de | 166 fg |
| Tetraconazole, 6 oz (1-4)..... | 1.50 cd | 28.0 de | 162 fg |
| Tetraconazole, 8 oz (1-4)..... | 23.3 a | 67.3 b | 498 b |
| Merivon (BAS 70301), 4 fl oz (1-4); Latron B-1956, 0.05% v/v (1-4)..... | 0.38 d | 1.50 g | 10.3 i |
| Merivon (BAS 70301), 5.5 fl oz (1-4); Latron B-1956, 0.05% v/v (1-4)..... | 0.75 d | 1.50 g | 12.4 i |
| Pristine, 18.5 oz (1-4); Latron B-1956, 0.05% v/v (1-4)..... | 0.75 d | 18.5 ef | 106 gh |
| Luna Experience, 10 fl oz (2,4); Bravo WeatherStik, 2 pt (1,3)..... | 1.88 cd | 9.00 fg | 59.8 hi |
| Bravo WeatherStik, 2 pt (1-4); Synbiont, 48 fl oz (1-4)..... | 9.00 b | 37.5 cd | 256 de |
| Bravo WeatherStik, 2 pt (1-4); Procidic, 12 fl oz (1-4)..... | 6.75 bc | 43.8 c | 278 d |
| Procidic, 12 fl oz (1-4)..... | 9.00 b | 79.1 a | 485 b |
| Bravo WeatherStik, 2 pt (1-4)..... | 9.00 b | 43.8 c | 290 d |
| Water-treated control..... | 28.0 a | 89.8 a | 648 a |
| <i>P > F</i> | <0.0001 | <0.0001 | <0.0001 |

^z Listed treatment rates are on a per acre basis unless noted otherwise; numbering (1-4) corresponds to applications on 26 Mar, 2 Apr, 9 Apr, and 16 Apr.

^y The severity of bacterial spot was assessed as the percentage of canopy affected. The Horsfall-Barratt scale was used for all ratings, but values were converted to mid-percentages prior to statistical analyses.

^x Area under the disease progress curves (AUDPC) was calculated using the formula: $\Sigma[(x_i+x_{i-1})/2](t_i-t_{i-1})$ where x_i is the rating at each evaluation time and (t_i-t_{i-1}) is the time between evaluations.

^w Means followed by the same letter are not significantly different according to Fisher's LSD test ($\alpha=0.05$).