

**Evaluation of fungicides for control of downy mildew of winter squash, Kinston 2017.**

The experiment was conducted at the Cunningham Research Station in Kinston, NC (N35°18.335'; W077°34.901'). 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 11 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 on 9, 17, 23 and 29 Aug, 6, 12, 19 and 27 Sep and 5, 10 and 17 Oct. 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: 6, 13, 19 and 26 Sep and 4, 10 and 17 Oct. Fruit were harvested on 27 Oct with no significant differences among treatments. Disease severity was assessed on 13, 19 and 26 Sep and 4, 10, 17 and 26 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 and the combination treatment containing Presidio, Elumin, Ranman, Orondis Opti A and Bravo Weather Stik provided the highest level of downy mildew control. No phytotoxicity was observed. In the table, treatments are sorted by the final disease severity rating on 26 Oct.

Treatment and rate of product per acre	Application no. <sup>y</sup>	Disease severity <sup>z</sup>		
		10-Oct	17-Oct	26-Oct
Presidio 4SC 4 fl oz	1, 3			
Elumin 4SC 8 fl oz	2, 6			
Ranman 3.33SC 2.75 fl oz	4			
Orondis Opti A 0.83OD 2 fl oz	5, 7			
Bravo Weather Stik 6SC 32 fl oz	1-7			
Syl-Coat 100SL 0.125 % V/V	1-7	29.0 e <sup>x</sup>	35.8 e	45.5 e
Presidio 4SC 4 fl oz	1, 3			
Elumin 4SC 8 fl oz	2, 5			
Ranman 3.33SC 2.75 fl oz	4, 6			
Zampro 4.33SC 14 fl oz	7			
Bravo Weather Stik 6SC 32 fl oz	1-7			
Syl-Coat 100SL 0.125 % V/V	1-7	35.5 d	44.0 d	54.5 d
Presidio 4SC 4 fl oz	1-7			
Syl-Coat 100SL 0.125 % V/V	1-7	35.8 d	43.5 d	59.0 d
Bravo Weather Stik 6SC 32 fl oz	1-7	43.5 c	53.3 c	67.8 c
Forum 43.5SC 6 fl oz	1-7	44.0 c	54.3 c	70.5 c
Previcur Flex 6F 19.2 fl oz	1-7	57.5 b	73.3 b	89.3 b
Non-treated	N/A	76.3 a	89.8 a	100.0 a

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

<sup>y</sup> Application dates: 1=6 Sep, 2=13 Sep, 3=19 Sep, 4=26 Sep, 5=4 Oct, 6=10 Oct and 7=17 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).