SQUASH, WINTER (*Cucurbita pepo* 'Table Queen')
Powdery mildew; *Podosphaera xanthii*

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

The experiment was conducted at the Cunningham Research Station in Kinston, NC (N35°18.357'; W077°34.826'). 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 13 Jul (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 Aug. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO_2-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: 11, 18, 24 and 31 Aug and 7 and 14 Sep. Fruit were harvested on 28 Sep with no significant differences among treatments. Disease severity was assessed on 24 and 31 Aug and 7 and 14 Sep as percentage of total area colonized by *P. xanthii*. 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.

Powdery mildew was first detected on 11 Aug at approximately 3% disease severity in the field. Disease progressed throughout the course of the experiment. Combination treatments containing Topguard, Serenade, Torino, Mettle, Merivon, Quintec, Prolivo and Fracture as well as stand-alone treatments of Mettle and Prolivo provided control of powdery mildew. No phytotoxicity was observed. In the table, treatments are sorted by the final disease severity rating on 14 Sep.

Treatment and rate of product per acre	Application no.[y]	Disease severity[z] (%) 31-Aug	7-Sep	14-Sep
Topguard 4.29SC 7 fl oz	1, 3, 5			
Serenade ASO 1.34SC 4 qt	2, 4, 6	8.8 b[x]	14.0 d	32.0 c
Torino 10FL 3.4 fl oz	1, 3, 5			
Mettle 125ME 6 fl oz	2, 4, 6	11.3 b	17.0 cd	32.0 c
Mettle 125ME 8 fl oz	1-6	15.0 b	21.5 bc	33.0 c
Merivon 42.5SC 4 fl oz	1, 3, 5			
Quintec 2.08SC 6 fl oz 4 fl oz	2, 4, 6	12.5 b	17.5 cd	34.8 c
Mettle 125ME 6 fl oz	1-6	14.0 b	25.0 b	35.8 c
Prolivo 300SC 4 oz	1-6	10.0 b	16.0 cd	35.8 c
Prolivo 300SC 4 oz	1-6			
Induce 100L 0.25% V/V	1-6	12.5 b	19.3 bcd	36.5 c
Topguard 4.29SC 7 fl oz	1, 3, 5			
Fracture 20SC 24 fl oz	2, 4, 6	15.0 b	22.0 bc	37.8 c
Timorex Gold 1.86EC 14 fl oz	1-6	22.5 a	32.0 a	48.0 b
Non-treated	N/A	25.0 a	37.3 a	56.3 a

[z] Disease rating scale based on percent of total leaf area colonized by *P. xanthii*.
[y] Application dates: 1=11 Aug, 2=18 Aug, 3=24 Aug, 4=31 Aug, 5=7 Sep, 6=14 Sep.
[x] Treatments followed by the same letter(s) within a column are not statistically different (*P*=0.05, Fisher's Protected LSD).