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, Cleveland 2015.

The experiment was conducted at the Piedmont Research Station in Cleveland, NC (N35°42.063'; W080°37.251'). Plots were single beds on 5-ft centers covered with black 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 raspberry followed by wheat as a cover crop. Squash was direct seeded on 12 Aug (2-ft in-row spacing, 2 seed/hill) in raised beds and thinned to one plant per hill after emergence (7 plants/plot). Irrigation and fertilization were applied via drip tape. 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 7-day intervals: 16, 23 and 30 Sep and 7 Oct. Fruit were harvested on 12 Oct. Disease severity was assessed on 23 and 30 Sep and 7 and 15 Oct 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 the Waller-Duncan test to separate means.

Powdery mildew was first detected on 23 Sep at very low levels (3%) in the field. Disease progressed throughout the course of the experiment. Bravo Weather Stik alternated with Torino and Quintec provided excellent control of powdery mildew. The Experimental 1 and 2 treatments and treatments with Quintec and Procure also controlled *P. xanthii* well in comparison to the non-treated plots. No phytotoxicity was observed. In the table, treatments are sorted by the final disease severity rating on 15 Oct.

Treatment and rate of product per acre	Application No.	Disease Severity* (%) 30 Sep	7 Oct	15 Oct
Bravo Weather Stik 6SC 2 pt	1,2			
Torino 10SC 3.4 fl oz	3			
Induce 100L 0.250% v/v	3			
Quintec 22.6SC 6 fl oz	4	2.7 b**	8.5 e	19.3 f
Experimental 1 (Comp A) 10.9 fl oz	1-4			
Experimental 1 (Comp B) 10.9 fl oz	1-4	4.2 ab	16.3 cde	30.1 ef
Quintec 22.6SC 6 fl oz	1-4	4.7 ab	10.8 e	30.2 ef
Procure 43SC 6 fl oz	1-4	4.1 ab	12.5 de	34.8 de
Experimental 1 (Comp A) 5.4 fl oz	1-4			
Experimental 1 (Comp B) 5.4 fl oz	1-4	6.3 ab	21.0 b-e	43.2 cde
Experimental 2 (Comp A) 9.6 fl oz	1-4			
Experimental 2 (Comp B) 9.6 fl oz	1-4	5.2 ab	25.3 b-e	47.8 bcd
Experimental 2 (Comp A) 19.2 fl oz	1-4			
Experimental 2 (Comp B) 19.2 fl oz	1-4	8.3 ab	30.0 a-d	54.6 a-d
Tebustar 38.7SC 3 fl oz	1-4	6.4 ab	27.5 b-e	56.1 abc
Experimental 3 5.4 fl oz	1-4	10.3 ab	35.0 abc	57.4 abc
Quadris 22.9SC 7.75 fl oz	1-4	8.3 ab	27.5 b-e	59.0 abc
Tebustar 38.7SC 6 fl oz	1-4	10.4 ab	35.8 ab	59.2 abc
Experimental 3 10.8 fl oz	1-4	7.8 ab	36.8 ab	60.9 abc
Quadris 22.9SC 15.5 fl oz	1-4	8.4 ab	25.5 b-e	61.6 abc
Experimental 4 19.5 fl oz	1-4	9.5 ab	33.8 abc	63.7 abc
Experimental 4 9.75 fl oz	1-4	12.3 ab	34.5 abc	69.3 ab
Non-treated	N/A	19.9 a	48.5 a	81.9 a

* Disease rating scale based on percent of total leaf area colonized by *P. xanthii*.
** Treatments followed by the same letter(s) within a column are not statistically different (P=0.05, Waller-Duncan k=100).