

**Evaluation of fungicides for control of powdery mildew of winter squash, Waynesville 2013.**

The experiment was conducted at the Mountain Research Station in Waynesville, NC (N35°28.910'; W082°57.856'). Plots were single beds on 5-ft centers covered with black plastic mulch; 14-ft long with 6-ft fallow borders on each end and non-treated guard rows on each side. The previous year the field was planted with corn followed by wheat as a cover crop. Squash was direct seeded on 13 Jun (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<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 a 7-day interval: 10, 18, 24 and 30 Jul and 8, 15, 22 and 29 Aug. Disease severity was assessed on 15, 22 and 29 Aug and 4 Sep as percentage of total area colonized by *P. xanthii*. Data was 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 30 Jul at very low levels (<1%) in the border rows. Disease progressed moderately throughout the course of the trial. Quintec and Quintec alternated with Procure provided excellent control of powdery mildew. The treatments with Procure, Rally, IRF169, Topguard (high rate) and Pristine applied alone also controlled *P. xanthii* in comparison to the non-treated plots. No phytotoxicity was observed. In the table, treatments are sorted by the final disease severity rating.

Treatment and rate of product per acre, applied at 7-day intervals	Disease Severity* [%]		
	22 Aug	29 Aug	4 Sep
Quintec 2.08SC 6 fl oz + Induce 90L 0.25% v/v .....	1.3 g**	1.3 e	1.3 f
Quintec 2.08SC 6 fl oz alt w/ Procure 480SC 6 fl oz .....	5.0 fg	5.0 e	6.3 f
Procure 480SC 6 fl oz + Induce 90L 0.25% v/v .....	11.3 ef	16.3 d	18.8 e
Rally 40WP 5 oz .....	13.8 cde	20.0 cd	20.0 de
IRF169 2.61SC 15 oz.....	13.8 cde	18.8 cd	20.0 de
Topguard 1.04SC 28 fl oz .....	12.5 de	17.5 cd	20.0 de
Pristine 38WG 18.5 oz + Induce 90L 0.25% v/v .....	10.0 ef	17.5 cd	22.5 de
IR14360 1SC 8 oz .....	15.0 cde	21.3 bcd	23.8 cde
Topguard 1.04SC 7 fl oz + Induce 90L 0.25% v/v .....	16.3 b-e	22.5 bcd	25.0 cde
IRF169 2.61SC 12 oz.....	16.3 b-e	22.5 bcd	26.3 b-e
IR14360 1SC 6 oz .....	18.8 bcd	25.0 bcd	27.5 b-e
Topguard 1.04SC 14 fl oz .....	18.8 bcd	26.3 bc	27.5 b-e
ISA010F 1.5SC 12 oz .....	20.0 bc	25.0 bcd	28.8 bcd
Topguard 1.04SC 10 fl oz .....	20.0 bc	26.3 bc	28.8 bcd
ISA010F 1.5SC 10 oz .....	20.0 bc	26.3 bc	32.5 bc
Topguard 1.04SC 7 fl oz .....	22.5 b	30.0 b	35.0 b
Non-Treated .....	45.0 a	57.5 a	67.5 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  $k=100$ ).