

EVALUATION OF FUNGICIDES AND SPRAY PROGRAMS FOR CONTROL OF POWDERY MILDEW IN SUMMER SQUASH

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Introduction

Powdery mildew (caused by the fungus *Sphaerotheca fuliginea*) affects squash grown in Georgia each year. This fungus thrives during dry, hot, low humidity conditions and generally attacks squash once fruit begin to form. Squash that are under heat and drought stress during the harvest period will not be as productive if powdery mildew goes unchecked. More fungicide options are available to growers for control of powdery mildew than ever before. This study examines many new and potential fungicides for efficacy against powdery mildew of squash.

Materials and Methods

Summer squash (*Cucurbita pepo* 'Enterprise') were transplanted on 2 May in black plastic mulch covered beds at Hort Hill, a unit of the Coastal Plain Experiment Station in Tifton, GA. Mulched beds had a 36-in. top and were planted on 6-ft centers. Plants were planted in one row per bed and were spaced 2 ft apart within the row, resulting in 8 plants per plot. Plots were 15 ft long, were separated on each end by 5 ft of bare plastic, and were arranged in a randomized complete block design with 4 replications. Fertility, insects and weeds were managed according to standard University of Georgia Extension Service recommendations. Fungicide treatments were applied with Lee Spider Spray Trac® calibrated to deliver 40 gal/A at 75-80 psi through TX-18 hollow cone nozzles. Rainfall for May and June combined was 1 in. above the 91 yr average.

Results and Discussions

Powdery mildew was first observed on 8 June and increased to high levels by 2 July. Treatments containing QRD 141, Flint alone, and Prevam did not significantly suppress disease on either rating date compared to the non-treated check. On the 2 July rating, treatments containing Pristine and V-10118 demonstrated significantly greater disease suppression compared to all other treatments except the treatment containing two sprays of Quintec. No phytotoxicity was observed with any of the treatments. These data indicate that Pristine has replaced the sterol-inhibiting fungicides as the treatment of choice for powdery mildew and that V-10118 (a fungicide produced by Valent) will be an excellent tool for powdery mildew suppression and offers a good rotation partner for resistance management. The efficacy of both Procure and Nova indicate a gradual shift towards insensitivity may be occurring.

Table 1. Effect of various fungicides on powdery mildew of summer squash.

Treatments, rates, and (spray times) ^z	Powdery mildew ^y	
	23 Jun	2 Jul
Pristine 38WG, 14.5 oz/A (1-4).....	1.8 ef ^x	1.5 e
V-10118, 9.3 fl oz/A (1-4).....	1.0 f	1.8 de
V-10118, 6.2 fl oz/A (1-4).....	1.3 f	2.3 de
Procure 480SC, 6.0 fl oz/A (1-4).....	1.5 ef	4.8 b
Procure 480SC, 6.0 oz/A (1,3) Quintec, 4.0 oz/A2 (2,4).....	2.8 c-e	3.0 cd
Procure 480SC, 6.0 fl oz/A (1,3) Flint 50WG, 2.0 oz/A (2,4).....	2.0 c-f	4.3 bc
Procure 50WS, 6.0 oz/A (1-4).....	3.3 bc	5.3 b
Nova 40W, 5.0 oz/A (1-4).....	3.3 bc	5.3 b
Procure 50WS, 6.0 oz/A (1,3) Flint 50WG, 2.0 oz/A (2,4).....	3.0 b-d	5.3 b
Flint 50WG, 2.0 oz/A (1-4).....	4.3 ab	8.3 a
QRD 141, 1.0 lb/100 gal + Biotune, 0.2% v/v (1-4).....	4.8 a	8.3 a
QRD 141, 2.0 lb/100 gal + Biotune, 0.2% v/v (1-4).....	4.6 a	8.5 a
QRD 141, 1.0 lb/100 gal + Biotune, 0.2% v/v + Flint 50WG, 2.0 oz/A (1-4).....	5.1 a	9.0 a
Prevam, ½ fl oz/gallon (1-4).....	5.3 a	9.3 a
Non-treated.....	5.5 a	9.6 a

^zSpray dates were: 1=2 Jun; 2=8 Jun; 3=15 Jun; 4=23 Jun.

^yPowdery mildew was rated on a 1-10 scale where 1=1-10% leaf area affected by powdery mildew and 10=100% leaf area affected by powdery mildew on both upper and lower leaf surfaces.

^xMeans followed by the same letter(s) are not significantly different according to Fisher's protected LSD test at $P \leq 0.05$.