

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

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Introduction

Powdery mildew (caused by the fungus *Podosphaeria xanthii*) 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

Squash seeds were planted on 21 Aug in black plastic mulch covered beds at the RDC Expo Area Farm, a unit of the Coastal Plain Experiment Station in Tifton, GA. Mulched beds had a 32-in. top, were planted on 6-ft centers, and were painted white to reduce heat stress to plants. Seeds 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 3 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 a CO₂-pressurized backpack sprayer calibrated to deliver 40 gal/A at 75-80 psi through TX-18 hollow cone nozzles. Plots were oversprayed with Reason at 8.0 fl oz/acre on 24 Sep to control downy mildew. Rainfall during the experiment was below the 77-yr average.

Results

Powdery mildew was first observed on 2 Oct. Compared to the non-treated control, all fungicides significantly suppressed disease on the topside of leaves (adaxial leaf surface) on 14 Oct except QRD 137 (Table 1). All fungicides except QRD 137 and QRD 601 significantly suppressed disease on the bottom side of leaves (abaxial leaf surface) on 14 Oct compared to non-treated plots. No phytotoxicity was observed with any treatments.

Table 1. Effect of fungicides and biopesticides on powdery mildew severity.

Treatments, rates, and (spray times) ^z	Powdery mildew 14 Oct ^y	
	Topside	Bottom
Procure 50WS, 6.0 oz/A (1, 3)		
Flint 50WG, 2.0 oz/A (2).....	1.0 d ^x	1.3 c
Procure 50WS, 6.0 oz/A (1, 3)		
Cabrio 50WG, 12.0 oz/A (2).....	1.0 d	1.5 c
Nova 40W, 4.0 oz/A (1, 3)		
Flint 50WG, 2.0 oz/A (2).....	1.0 d	2.3 c
Procure 50WS, 6.0 oz/A (1-3)	1.0 d	1.3 c
Procure 50WS, 4.0 oz/A (1-3)	1.0 d	1.3 c
QRD 137 WP, 4.0 lb/100 gal (1-3).....	4.0 ab	7.3 ab
QRD 141 B9 WP, 2.3 lb/100 gal (1-3)	2.3 cd	5.3 b
QRD 131 AS, 1% v/v (1-3).....	2.8 bc	5.3 b
QRD 131 AS, 1% v/v + QRD 601, 0.125% w/w (1-3).....	2.0 cd	5.3 b
QRD 601, 0.125% w/w (1-3).....	2.5 c	6.0 ab
Non-treated	5.0 a	7.8 a

^zSpray dates were: 1=24 Sep; 2=2 Oct; 3=9 Oct.

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

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