

EFFICACY OF ASSAIL FOR MANAGEMENT OF SILVERLEAF IN SQUASH

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Introduction

Squash grown in south Georgia in the fall is attacked by a variety of insect pests. The silverleaf whitefly is one of several pests that can render a field unmarketable. Whitefly feeding on squash results in silverleaf symptoms (silver appearance of the foliage) and bleaching of the fruit even under relatively mild pest pressure. Many growers rely on preventative soil applications of neonicotinoid insecticides. Those not using this preventative approach are faced with limited options for foliar insecticides to manage this problem. An insecticide that has shown promise in this area is Assail, a foliar applied neonicotinoid insecticide. This test was originally intended to evaluate selected insecticides for control of pickleworm in squash; however, pest pressure was such that pickleworm data was of no significance but plant response clearly showed the efficacy of Assail against silverleaf whitefly.

Materials and Methods

The test was conducted at the University of Georgia's Horticulture Farm in Tifton, Georgia. A virus resistant yellow crookneck squash was direct seeded with two rows (36 inch between rows) on six foot beds with a fallow bed between adjacent plots. Experimental plots were 2 rows (on six foot bed) by 27 feet and were arranged in a randomized complete block with four replications. Admire was applied as an over-the-row drench for whitefly on 24 Aug. but uncharacteristically provided little or no control. Foliar treatments were applied on 3, 9 and 18 Sept. with a CO₂ pressurized backpack sprayer (60 PSI) in 30 GPA with 3 hollow cone nozzles per row (1 over-the-top, 2 on drops).

Foliar insecticide treatments evaluated were: Assail 30WDG at 2.8 and 4 oz/ac; Assail 30WDG at 4 oz/ac + spray oil at 1% v/v; SpinTor 2SC at 6 oz/ac; Avaunt 30WDG at 0.045 and 0.065 lb AI/ac; Warrior at 0.03 lb AI/ac; and Rimon (novaluron) 0.83EC at 12 oz/ac. These insecticides were intended for control of pickleworm, but were also rated for management of silverleaf. A non-treated control was included for comparison.

Pickleworm data was collected but is not presented nor discussed as pest pressure was very light. Foliage ratings for silverleaf symptoms were taken between the second and third foliar application. Plots were visually rated based on the amount of silverleaf in the plot: 0 = no silverleaf, 1 = light or very spotty distribution, 2 = light and evenly distributed throughout the plot, 3 = heavy spots within the plot, 4 = heavy and evenly distributed throughout the plot, 5 = all foliage silver.

All fruit were harvested in each plot on 13, 16 and 20 Sept. Yields were very low

on 13 Sept. and fruit were not rated for color on 20 Sept. On 16 Sept. all fruit were categorized on a color scale of 1 to 5, with a 2 being near white, a 3 cream colored, and a 5 being a typical yellow (as expected for yellow squash). While a 3 may be acceptable for marketing, a four or higher would be preferred. Data were analyzed with the PROC ANOVA procedure of PC-SAS. Where significant differences were detected ($P < 0.05$), means were separated with LSD ($P = 0.05$).

Results and Discussion

Only the Assail treatments reduced the impact of silverleaf whitefly on the crop. Assail prevented silvering of the foliage and yielded 80 percent of the fruit in a near-yellow to yellow color category at the higher rate. There was a slight rate effect, but no obvious effect of the addition of oil.

Table 1. Silverleaf symptom ratings and harvested fruit color ratings, squash efficacy trail, Tifton, Georgia, 2004.

Treatment	Foliar Rating	No. fruit per plot (9/16)		Percent of fruit rated 4-5
		Rated 2-3	Rated 4-5	
Check	4.25 a	18.50 a	1.00 c	5.2 c
SpinTor	3.50 a	22.00 a	0.00 c	0.0 c
Avaunt.45	3.50 a	16.00 a	0.25 c	1.5 c
Avaunt.65	4.00 a	19.25 a	0.00 c	0.0 c
Warrior	3.50 a	18.50 a	0.00 c	0.0 c
Rimon	3.75 a	19.25 a	0.00 c	0.0 c
Assail2.8	1.50 b	4.25 b	9.75 b	66.2 b
Assail4	1.25 b	1.50 b	11.25 ab	80.0 a
Assail4+Oil	1.50 b	3.50 b	15.50 a	81.9 a

Numbers within columns followed by the same letter are not statistically different (LSD, $P=0.05$).