

EVALUATION OF DRENCH & FOLIAR APPLIED E2Y45 INSECTICIDE TREATMENTS IN SQUASH 2007

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Introduction

Summer squash is heavily targeted in the fall growing seasons in southern Georgia by the b-strain sweetpotato whitefly, *Bemisia tabaci* (Gennadius) or silverleaf whitefly. This experiment evaluated various drench and foliar control options for this pest in 2007.

Materials and Methods

Yellow squash, Hyb. Destiny III, was direct seeded into 2 rows per 6-ft bare ground beds on 25 August and maintained with standard cultural practices at the Lang Farm, Georgia Coastal Plain Experiment Station at Tifton. A total of 500 lbs/a of 10-10-10 was applied at planting to Tift pebbly clay loam field plots followed by two side-dress applications of 150 lbs/a Cal-nitrate. Irrigation was applied weekly with an overhead sprinkler system. Drench treatments of insecticide were made over the seed furrow using 1 gallon of water per 40 ft row on 28 August. Seven foliar applications of insecticide using 61 gallons/a, 60 psi, and 3 TX18 hollow cone tips per row were made on 4, 7, 11, 13, 18, and 25 September. Scouting was initiated on 5 September and continued weekly until harvest. One sample of 5 plants, with one leaf per plant for whitefly and aphid counts, was scouted per plot after weekly applications. Silverleaf ratings were done on ten plants per plot with a rating of 0=dark green to 3=severely silvered leaves (maximum damage value of 30). A plant vigor rating was given for the entire plot from 0=severely stunted or dead to 3=apparent normal growth. Squash was harvested from 40 ft of 2 rows on 27 September and 2, and 5 October. Fruit were categorized as marketable, pickleworm damage, or virus damaged and the average weight was measured. Squash fruit color ratings for whitefly induced whitening were also reported with 0=no fruit harvested, 1=all white fruit, 2= mixed white and yellow fruit, and 3=normal yellow colored fruit and summed over 3 harvests (maximum value of 9). Data was analyzed using GLM and LSD tests for separation of means (SAS Institute 1990).

Results and Discussion

The best treatments in terms of whitefly control were the combination drench and foliar treatments, E2Y45 plus either Admire or Knack. These treatments provided the greatest control of whitefly damage, as indicated by silver-leaf symptom and plant vigor ratings, and highest marketable yield. The fruit from this treatment was also the closest to a normal yellow color. The whitefly pressure during this test was the highest seen by this author in over ten years, causing the check plot plants to collapse by the harvest date. Because of this, the plots with the most protection against whitefly remained greener longer causing even more insects to visit these plots than the untreated plots that were stunted early on. Thus the foliar insect counts were of little value in trying to assess efficacy. Most of the foliar treatments were similar in that almost no fruit were harvest in these treatments, with the exception of E2Y45 plus Dynamic. The adjuvant,

Dynamic which includes methylated seed oil, assists in the entry of the insecticide into the plant tissue. These results indicated the importance of systemic insecticides with severe whitefly.

Treatment - rate per acre (type of application)	Silverleaf rating on 19 Sept 0 to 30 (silvered)	Silverleaf rating on 1 Oct 0 to 30 (silvered)	Silverleaf rating averaged 0 to 30 (silvered)	Plant vigor rating on 19 Sept 0 to 3	Plant vigor rating on 1 Oct 0 to 3	Plant vigor rating averaged 0 to 3	Fruit Color rating 0 to 9 (normal yellow)	Number of clean marketable fruit	Weight of clean marketable fruit
1. Untreated Check	30 a	30 a	30.0 a	0.0 d	0.0 f	0.0 f	0.0 e	0 d	0.0 b
2. E2Y45 200g/l 0.066 lb ai/a (foliar) + Dynamic 0.5% v/v	8 bcd	19 b	14.8 d	2.5 ab	1.8 bc	2.1 bc	2.8 bc	10 cd	1.3 b
3. E2Y45 200g/l 0.066 lb ai/a (foliar)	28 a	30 a	29.0 a	0.3 cd	0.0 f	0.3 ef	0.5 de	3 d	0.3 b
4. E2Y45 200g/l 0.088 lb ai/a (foliar)	26 a	27 a	27.4 a	0.8 c	0.5 ef	0.6 e	0.0 e	0 d	0.0 b
5. Provado 3.75 oz/a (foliar)	28 a	28 a	28.8 a	0.5 cd	0.3 ef	0.3 ef	0.0 e	0 d	0.0 b
6. E2Y45 200g/l 0.066 lb ai/a (drench)	7 bcd	21 b	15.0 cd	2.3 b	1.3 cd	1.8 cd	2.5 bcd	32 bc	2.3 b
7. E2Y45 200g/l 0.088 lb ai/a (drench)	10 b	26 a	19.8 bc	2.3 b	0.8 de	1.5 d	1.3 cde	8 d	0.8 b
8. Admire Pro 10.5 oz/a (drench)	10 bc	30 a	20.5 b	2.5 ab	0.3 ef	1.4 d	0.5 de	8 d	0.6 b
9. Admire Pro 10.5 oz/a (drench) + E2Y45 0.066 lb a (foliar)	3 cd	17 b	10.7 de	3.0 a	2.3 b	2.5 ab	4.5 b	62 a	8.1 a
10. E2Y45 200g/l 0.066 lb ai/a (drench) + Knack 0.83EC 8 oz/a (foliar)	2 d	10 c	6.9 e	2.8 ab	3.0 a	2.8 a	7.8 a	43 ab	7.6 a

* Means within columns followed by the same letter are not significantly different (LSD, P<0.05).