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TOMATO: *Lycopersicon esculentum* (Mill.) ‘Grape’

CONTROL OF SILVERLEAF WHITEFLY ON GRAPE TOMATO IN FLORIDA, 2007

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Silverleaf whitefly (SLW): *Bemisia tabaci* Gennadius

Silverleaf whitefly (SLW) *Bemisia tabaci* Biotype “B” also known as *B. argentifolii* and the tomato yellow leaf curl virus (TYLCV) it carries remain a significant problem for tomato production in Florida and elsewhere around the world. For this trial, commercially grown seedlings of grape tomato were transplanted 27 Sept at 18-inch spacing on 2 sets of 3 beds 235 ft in length covered with whiteface polyethylene film mulch. Approximately 20% of the fertilizer applied soil incorporated preplant with the remainder applied through the drip tape with 12-inch emitter spacing and drip rate of

0.36 gph per emitter.

Bacillus thuringiensis (Dipel or Xentari) were applied to control lepidopteron pests on 6, 13, 19 – Nov and 17 - Dec at a rate of 1.5 lbs/acre. Maintenance fungicides Kocide , Maneb and Pro-phyte were applied on 20-Dec to control foliar diseases at rates of 2 lb ,1 lb and 2.5 lb per acre, respectively. A randomized complete block (RCB) design was used consisting of 4 replicates and 6 treatments. Plots contained 23 plants with 3 left at the ends as buffers. The center row of each set of beds was left untreated to serve as a whitefly reservoir throughout the experiment.

Foliar sprays were applied to a single row with a high clearance sprayer operating at 200 psi and 2.3 mph with the spray delivered through two vertical booms each fitted with 5 yellow Albuz® hollow cone nozzles, delivering 10 gpa each for a total of 100 gpa. Applications were made on 14-Nov, 21 Nov, 28- Nov, 5- Dec, 12- Dec, 19- Dec, and 26 – Dec with the QRD 416 and Assail combination rotated during the first three spray dates then applied as a tank mix throughout the rest of the trial.

Whitefly adults were monitored weekly from 20- Nov thru 27- Dec by striking the south side of four randomly selected plants per plot, twice with a 9 x 12 inch black baking pan coated with a 9:1 mixture of vegetable oil and liquid dish detergent and counting the number of adult whiteflies collected.

Immature stages were counted under a stereoscopic microscope from a true leaf trifoliolate taken 8 nodes below the top of the plant on 5 centrally located plants in each plot on 19- Nov, 26 – Nov, 3 –Dec, 10 –Dec, 17- Dec and 04 – Jan 2008. For the last two sample late instar nymphs observed to contain parasitoid pupae of *Encarsia* spp. or *Eretmocerus* spp. were recorded.

No significant treatment effect was observed with respect to the number of adult whiteflies or small nymphs over all dates. Only plants receiving Assail at every application showed significant reduction in the number of large nymphs (3rd and 4th instars) compared to untreated plants. Likewise, only the Assail treatment reduced the incidence of parasitism compared to untreated plants.

Table 1

Treatment	Rate	Adults per beatpan	Small nymphs per leaflet	Large nymphs per leaflet	Percent Parasitized
Control		7.8 a	8.9 a	10.6 ab	15.4 ab
Assail	4 oz/acre	7.5 a	6.0 a	4.1 c	5.9 c
QRD 400	2 qts/acre	6.9 a	9.1 a	9.7 ab	17.0 ab
QRD 416	2 qts/acre	6.5 a	6.7 a	9.1 ab	23.6 a
QRD 416	3 qts/acre	6.5 a	9.3 a	10.9 a	20.3 ab
QRD 416	2 qts/acre	7.9 a	9.7 a	7.5 b	14.8 b
With Assail	2 oz/acre				

Means within the same column followed by the same letter are not significantly different (LSD $P < 0.05$)

Part II: Materials Tested for Arthropod Management

TOMATO: *Lycopersicon esculentum* Mill. ‘Tygress’

**CONTROL OF SILVERLEAF WHITEFLY ON STAKED TOMATO WITH INSECTICIDES,
2008**

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Common name	Trade name	Concentration/ Formulation	Chemical name	Manufacture/source
Experimental	QRD 400		Experimental	AgraQuest 1540 Drew Avenue Davis, CA 95618
Experimental	QRD 416		Experimental	AgraQuest 1540 Drew Avenue Davis, CA 95618
Acetamiprid	Assail	30 SG	(<i>E</i>)- <i>N</i> ¹ -[(6-chloro-3-pyridyl)methyl]- <i>N</i> ² -cyano- <i>N</i> ¹ -methylacetamidine	Cerexagri, Inc. 630 Freedom Bus. Center. Suite 402 King of Prussia, PA 19406