

(E97)

TOMATO: *Lycopersicon esculentum* Mill. 'Solimar'

Silverleaf whitefly: *Bemisia argentifolii* Bellows & Perring

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CONTROL OF SILVERLEAF WHITEFLY ON STAKED TOMATO WITH FOLIAR INSECTICIDES, 1998: Although cultural and chemical control practices have greatly reduced the threat to tomato of silverleaf whitefly and associated gemini virus in southwest Florida, it is necessary to monitor continually the efficacy of new and commonly used insecticides in order to maintain or improve the present level of management. To this end, greenhouse raised tomato seedlings were planted 12 Mar at 18-inch spacing on 2 sets of 3 beds. The beds were 32 inches wide, 238 ft long, on 6 ft centers covered with black polyethylene film and irrigated with Netafim7 streamline drip-tape containing emitters at 12-inch intervals. Beds had been fertilized with 800 lbs/acre of 5-16-8 dry bottom mix and fumigated with 300 lbs/acre of 67/33% mixture of methyl bromide/chloropicrin. Additional fertilization was supplied through the drip tubes to supply 175 lb N and 225 lb of K₂O total for the growing season. Tomatoes were staked and tied according to standard practices. Plants were sprayed with a combination of Maneb 80 WP at 1 lb/acre plus Kocide 101 at 3 lb/acre for disease control. NoMate was applied to all plots for control of pinworm larvae on 27 May. The middle "inoculum" row of each 3-bed set was left untreated, and the remaining beds divided into 34-ft long plots. The six treatments and an untreated check were assigned to the 7 plots in each bed in a RCB design with four replications. Foliar treatments were applied with a high clearance sprayer utilizing a hydraulic pump operating at 200 psi and delivering the spray through two drop booms equipped with 2 yellow hollow cone Albus7 nozzles each for a rate of 44 gpa. Adult whitefly were sampled by a beat-pan method employing 9 x 13 inch metal cake pan painted black and covered with a 10 % detergent/vegetable oil mixture. On 24 Apr, an average of 0.8 adult whiteflies was counted from 4 beats of 10 sub-samples/rep. All treatments were initiated 28 Apr with weekly applications of S-1812 and Provado on 7, 15 and 21 May. A second application of Knack at both rates and EXP-61486A was applied 15 May. Sampling for adults began 1 May. The total number of adults captured from three beats on one side of 6 separate plants was counted as a sub-sample with 3 sub-samples collected/plot. Immatures were counted from 4 trifoliolate leaves/plot collected from the 6-7th node of plants beginning 5 May. Harvest were made on 18 and 26 May from 12 plants per plot. The fruit was graded for size and marketability on a commercial grading table. Data was analyzed using a GLM and LSD.

Numbers of adults built up to an average of 15 per beat sample in the control by 27 May. Few differences among treatments were observed prior to that date. On the last sample date and over all dates fewest were observed on plants treated with Provado and no differences with the untreated check were seen with Knack at 0.066 lb (AI)/acre or S-1812 at 0.075 lb (AI)/acre. There were no significantly more adults on plants treated with Acetamiprid than on Provado-treated plants over all dates. Fewest small nymphs were observed over all dates on plants treated with 0.066 lb (AI)/acre Knack but not significantly less than those treated at the 0.044 lb (AI)/acre rate or with Provado. The remaining treatments were not different from the untreated check. Results for large nymphs were similar except that the rate response with Knack was inexplicably reversed. Thus Provado provided best control all stages although Knack provided good control of immatures.

Treatment/formulation	Rate lb (AI)/acre	No. adult whiteflies/beat sample/3 plants/plot					
		1 May	5 May	14 May	21 May	27 May	All dates
Knack 0.86EC	0.044	0.83ab	1.17	5.42ab	5.25bc	8.92b	4.32bc
Knack 0.86EC	0.066	0.58ab	1.33	5.58ab	8.00ab	15.00a	6.10ab
S-1812 4.00EC	0.075	0.92ab	1.33	4.33b	7.50b	12.83ab	5.38abc
S-1812 4.00EC	0.100	1.33a	1.50	3.75b	7.00bc	8.50b	4.42bc
Acetamiprid 70 WP	0.075	0.42b	1.50	4.08b	4.50c	8.50b	3.80cd
Provado 1.6F	0.047	0.25b	1.00	4.25b	1.50d	3.58c	2.12d
Untreated check		0.75ab	1.67	7.08a	10.42a	15.00a	6.98a

Means in a column followed by the same letter are not significantly different (LSD, P < 0.05).

Treatment/formulation	Rate lb (AI)/acre	No. immature whiteflies/10 cm ² /4 triolates/plot (1 May to 27 May, 1998)				
		Eggs	Nymphs (small)	Nymphs (large)	Pupa	Total immatures
Knack 0.86EC	0.044	0.31a	0.42bc	0.11c	0.02ab	0.86bc
Knack 0.86EC	0.066	0.17ab	0.30c	0.18abc	0.04ab	0.68c
S-1812 4.00EC	0.075	0.15ab	0.97a	0.31abc	0.03ab	1.46ab
S-1812 4.00EC	0.100	0.09b	0.76ab	0.38a	0.07a	1.30abc
Acetamiprid 70 WP	0.075	0.16ab	0.65abc	0.17abc	0.04ab	1.01bc
Provado 1.6F	0.047	0.10b	0.52bc	0.15bc	0.01b	0.78c
Untreated check		0.20ab	1.02a	0.37ab	0.08a	1.67a

Means in a column followed by the same letter are not significantly different (LSD, P < 0.05).

Treatment/ formulation	Rate lb (AI)/acre	Fruit/12 plants/plot (18 May and 26 May, 1998)										Total insect damage	
		X-Large		Large		Medium		Small		Total Marketable			
		No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)
Knack 0.86EC	0.044	5.75ab	2.20b	4.25ab	1.10ab	7.50	1.58a	2.25	0.30	19.75ab	5.18ab	8.75	2.35
Knack 0.86EC	0.066	4.50b	1.70b	2.50ab	0.58ab	5.50	1.05ab	2.50	0.30	15.00ab	3.63b	7.50	1.33
S-1812 4.00EC	0.075	6.50ab	2.73ab	2.50ab	0.68ab	4.25	0.48b	1.75	0.20	15.00ab	4.08b	3.75	0.75
S-1812 4.00EC	0.100	12.25a	5.25a	5.75a	1.38a	6.75	1.53a	1.00	0.13	25.75a	8.28a	5.50	1.70
Acetamiprid 70 WP	0.075	6.63ab	2.73ab	1.00b	0.18b	3.13	0.55ab	2.13	0.26	12.88b	3.71b	7.75	1.71
Provado 1.6F	0.047	6.25ab	2.30b	5.75a	1.25a	5.25	1.20ab	2.00	0.23	19.25ab	4.98ab	8.75	2.03
Untreated check		10.25ab	4.08ab	5.25a	1.35a	4.75	0.95ab	2.00	0.18	22.25ab	6.55ab	7.25	1.53

Means in a column followed by the same letter are not significantly different (LSD, P < 0.05).