(E88)

TOMATO: *Lycopersicon esculentum* Mill., 'Florida 91'

CONTROL OF SILVERLEAF WHITEFLY AND INCIDENCE OF TOMATO YELLOW LEAFCURL VIRUS (TYLCV) ON STAKED TOMATO DRENCHED WITH NEONICOTINOID INSECTICIDE, 2003

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Silverleaf whitefly: *Bemisia argentifolii* Bellows & Perring

Populations of whiteflies and incidence of whitefly-borne TYLCV continue to increase in southwest Florida, and with it the dependence on neonicotinoid insecticides to provide the control upon which profitability is so dependent. It is therefore of interest to confirm the activity of these all-important systemic insecticides by periodic testing. Seedlings grown in 128 cell trays were obtained from commercial a greenhouse. Standard protocol is to treat seedlings with 8.25 oz Admire per 10,000 plants applied 7–10 days before shipment but the plants appeared old, many flowering or even fruiting. Seedlings were transplanted 11 Mar at 18-inch spacing on 3 drip irrigated beds, 240 ft long on 6-ft centers. The outer two beds were divided into 8 plots, each 30 ft long and assigned to treatments in a RCB design with four replications. The middle row was left untreated to serve as a source of whiteflies. Admire 2F was applied at 16 and 24 oz per acre and Platinum 2 SC at 8 oz per acre in 100 ml of solution per plant as soil drenches on 12 Mar. Normal cultural practices were followed to control other pest and diseases. Ten weekly evaluations of whitefly adults were made beginning 18 Mar by beating one side of four plants at four locations per plot with a 9 × 13-inch pie pan painted black and coated with a 9:1 mixture of vegetable oil and liquid detergent. Immature stages were monitored for the same 10 period using a single leaf removed from the 6th node of four centrally located plants in each plot. All whitefly stages were counted that appeared in a 2-cm^2 ring placed two times on the terminal leaflet from each leaf collected. Plants were evaluated 18 Apr for the presence of severe TYLC symptoms. Fruit was harvested from the same 22 plants per plot on 14 and 21 May where the number and weights of insect, disease and marketable fruit were recorded.

Transplantation coincided with a large flight of whiteflies into the field infesting plants with a mean of 30 adults per pan sample by the end of the first week (Table 1). The number of adults then decreased and did not again reach the same level for another five weeks. Levels of control were at times significant but never commercially acceptable. On 18 Mar there were significantly fewer adults on plants treated with both rates of Admire compared to Platinum, and on 21 Apr there was significantly fewer adults on plants treated with Admire at 24 oz/acre compared to the Platinum-treated plants. No significant differences among treatments in numbers of adults were observed on the other 8 sample dates. No significant differences were observed in numbers of nymphs on 1 and 14 Apr and 19 May, nor between the two rates of Admire on any date. Plants treated with either rate had significantly fewer nymphs than untreated plants on 25 Mar, 7 Apr and 5 May but only the 24 oz rate was different on 21 Apr. No significant control of nymphs was observed with 8 oz of Platinum after the second week. Two thirds of all untreated plants and about half of treated plants showed TYLCV symptoms 5 weeks after transplanting, and all plants were expressing severe symptoms at harvest (Table 2). Only plants treated with the low rate of Admire produced significantly more fruit than untreated plants. We attributed the failure of either of the neonicatinoid products to work well in this trial to the age and quality of the seedlings which were left unprotected against the early onslaught of viruliferous whiteflies by lack of residual activity from the putative greenhouse application of Admire. We base this conclusion on the fact that satisfactory control was obtained in a parallel trial on melon also reported here. Thus, circumstances and poor horticultural practice combined to compromise the effectiveness of these treatments.

Table 1.

Treatment/ formulation	Rate amt product/acre	Weekly mean for adults per pan beat and nymphs per 2-cm^2 leaf area																			
		18 Mar		25 Mar		1 Apr		7 Apr		14 Apr		21 Apr		28 Apr		5 May		12 May		19 May	
		adult	nymph	adult	nymph	adult	nymph	adult	nymph	adult	nymph	adult	nymph	adult	nymph	adult	nymph	adult	nymph	adult	nymph
Admire 2F	16 oz	23.8b	0.2ab	8.0a	1.2b	5.3b	3.0a	11.9a	1.3b	19.4a	0.8a	47.1ab	1.6bc	93.6a	1.9ab	79.1a	3.7bc	86.9a	12.0ab	118.3a	8.4a
Admire 2F	24 oz	30.8ab	0.1ab	5.8a	1.8b	4.4b	3.4a	9.9a	1.3b	22.4a	1.1a	42.9b	1.3c	106.3a	1.3b	83.4a	3.1c	89.5a	8.9b	127.9a	6.6a
Platinum 2SC	8 oz	35.9a	0.0b	8.2a	1.8b	12.1a	4.0a	14.9a	2.5a	29.4a	1.3a	55.3a	2.9a	118.4a	2.8a	89.7a	5.3ab	116.0a	18.2a	120.6a	9.8a
Untreated check		28.9ab	0.3a	9.5a	2.8a	8.9a	3.5a	15.7a	2.7a	26.9a	1.7a	48.4ab	2.5ab	110.6a	2.5ab	89.7a	6.3a	95.0a	12.4ab	102.5a	7.0a

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

Table 2.

Treatment/ formulation	Rate amt product/acre	Percent plants with TYLC[b]	Marketable fruit[a]	
			no.	lbs
Admire 2F	16 oz	49b	97.8a	32.2a
Admire 2F	24 oz	56b	75.3ab	23.4b
Platinum SC	8 oz	56b	75.8ab	23.6b
Untreated check		67a	53.0b	16.8b

Means in a column followed by the same letter are not significantly different (LSD, $P > 0.05$).
[a]Total of 2 harvests 14 and 21 May from 22 plants per plot.
[b]Five week evaluation.