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CANTALOUPE: *Cucumis melo* L. 'Anthena'

Silverleaf whitefly: *Bemisia argentifolii* Bellows & Perring

P. A. Stansly, J. M. Conner

University of Florida/IFAS

Southwest Florida Res. and Ed. Center

2686 State Road 29 North

Immokalee, Florida 34142-9515

Phone: (239) 658-3427

Fax: (239) 658-3470

Email: pas@mail.ifas.ufl.edu

CONTROL OF SILVERLEAF WHITEFLY ON CANTALOUPE WITH NICTINOID INSECTICIDES, 2003: Silverleaf whitefly populations continue to increase on vegetable crops in south and south central Florida despite widespread use of systemic neonicitinoid insecticides. Given the threat of selection by the pest for resistance to this important insecticide group, it is necessary to continually monitor whitefly response in different crops. Vigorous, commercially obtained greenhouse-grown seedlings treated in the green house 7-10 days before shipment with 8 oz of Admire per 100 gallon of drench were planted 4 Mar. Plants were spaced at 18 inches on 2

sets of 3 beds and fertigated through Netafim™ drip tape with 12-inch emitter spacing during the growing season. The center bed in each set of 3 beds was left untreated to serve as a source of whiteflies. The 4 treated beds were divided into plots 48 ft long to which 2 treatments and untreated check were assigned in a completely randomized block design with 4 replications. Treatments were applied as a soil drench in 100 ml of solution on 10 Mar. Standard fungicide sprays were made to control disease but no additional insecticides were applied to control pickleworm, *Diaphania nitidalis* (Stoll), or other pests. Ten weekly evaluations of whitefly adults were made beginning 18 Mar with an 18 X 13 inch swipe across the top of the vines with a 9 x 13 inch pie pan painted black and coated with a 9:1 mixture of vegetable oil and liquid detergent. A count was made for each swipe and 4 swipes were made per plot. Immature stages were monitored for the same 10-week period using mature leaves removed from the stem of the main vine. All whitefly stages were counted that appeared in a 2-cm^2 ring placed 2 times on each side of the leaf. Four leaves per plot were evaluated. Harvests were made 24 Apr and 6 May from the same 25 row feet per plot.

Transplanting coincided with a large flight of whiteflies into the field resulting a precount on 10 Mar of 15.9 adults per leaf from 36 randomly selected of 25.5 cm^2 mean area. Significantly fewer whiteflies of all stages were observed on treated plants compared to untreated plants over all dates, with no differences among treatments. However, fewer adults were seen the last 3 weeks, 5,12 and 19 May, on plants treated Admire compared to Platinum. The relationship of eggs was the same for all dates as the adults and the weekly data is not shown. Admire-treated plants had fewer small nymphs than the control each week whereas this was true for plants treated with Platinum just the first 7 weeks. Only on 19 May did Admire-treated plants have significantly fewer small nymphs than plants treated with Platinum. Both treatments exhibited fewer large

nymphs plus pupae than the control on all dates except the last week 19 May, 65 days after application of the drench. There was no difference between the two insecticide treatments except for the 6th week when fewest large nymphs + pupae were seen on plants treated with Platinum. The nymphal data was combined in the weekly table for brevity with 55 % of the nymphs observed in the small category. There was no effect of treatments on yield and marketable yield due to pickleworm damage. Thus, both products controlled whiteflies for as long as 65 days, with slightly more persistence seen with 0.25 lb (AI)/acre Admire than with 0.125 lb(AI)/acre 8 oz of Platinum, presumably due the higher rate of the former. These results are similar to those we have observed repeatedly over the last 12 years and do not suggest any great loss of sensitivity to neonicatinoids by the local whitefly population.

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Weekly mean for adults per pan beat and nymphs per 2 cm^2 leaf area

Treatment/ formulation	Rate amt form/acre	18 Mar		25 Mar		31 Mar		7 Apr		14 Apr	
		Adult	Nymph[a]	Adult	Nymph	Adult	Nymph	Adult	Nymph	Adult	Nymph
Admire 2F	16 oz	26.6b	23.3b	50.9b	2.5b	12.3b	3.3b	8.4b	11.5b	3.4b	6.9b
Platinum 2SC	8 oz	31.7b	18.1b	35.4b	2.2b	5.8b	5.7b	5.8b	5.5b	3.3b	6.6b
Untreated check		44.0a	38.4a	123.1a	61.6a	34.2a	74.9a	74.6a	58.4a	52.5a	56.8a

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

[a] Total of small plus large

Weekly mean for adults per pan beat and nymphs per 2 cm^2 leaf area (cont)

Treatment/ formulation	Rate amt form/acre	21 Apr		28 Apr		5 May		12 May		19 May	
		Adult	Nymph [a]	Adult	Nymph	Adult	Nymph	Adult	Nymph	Adult	Nymph
Admire 2F	16 oz	39.8b	12.0b	101.9b	7.9b	30.5c	23.0b	56.1c	23.9b	62.1b	13.8a
Platinum 2SC	8 oz	56.1b	6.1b	101.3b	6.5b	56.1b	25.5b	100.6b	31.5b	97.3a	11.6a
Untreated check		200.3a	49.3a	211.3a	58.1a	158.1a	57.1a	145.2a	47.7a	24.8c	16.7a

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

[a] Total of small plus large

		Weekly mean from 10 evaluations				
Treatment/ formulation	Rate amt form/acre	Adult	Egg	Small nymph	Large nymph	Total nymph
Admire 2F	16 oz	40.8b	6.4b	7.5b	4.0b	11.5b
Platinum 2SC	8 oz	51.3b	6.2b	8.0b	4.8b	12.8b
Untreated check		106.8a	11.8a	26.3a	25.6a	51.9a

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