

(D18)

ORANGE: *Citrus sinensis* (L.) 'Valencia' and *Citrus reticulata* 'W. Murcott Afourer'

CONTROL OF CITRUS LEAFMINER IN ORANGES, 2003

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Citrus leafminer (CLM): *Phyllocnistis citrella* Stainton

The trial was conducted at the Southwest Florida Research and Extension Center in Collier County, FL using two replications of sweet orange and two replications of mandarin using 3-yr-old trees planted at 12 × 24 ft spacing. Seven treatments were assigned in a RCB design to four tree plots in single rows separated by six buffer rows. Spray was applied following a precount on 17 Oct 2003 when the majority of the new flush was 4-6 inches in length and had 6-8 leaves, which were 30-50% expanded. A sample of flush was tagged in random plots to follow the same age of leaves through the sampling period. Treatments were applied to both sides of the trees on 20 Oct using a Durand Wayland 3P100-32 air blast speed sprayer. All treatments except Satisfy (plant growth regulator) were applied using an array of seven no. 5 T-Jet stainless steel cone nozzles per side, at a pressure of 180 psi delivering 100 gpa. The Satisfy was applied using the same configuration but the nozzle size was changed to # 3 T-Jet stainless steel cone for a delivery of 50 gpa at 350 psi. All treatments except Satisfy were tank-mixed at 3% v/v with Glacial Spray Fluid, a horticultural mineral oil. The first application of Satisfy was applied with no additional adjuvants. A second application of Satisfy was made on 27 Oct at the same rate and tank mixed with a foliar nutrient compound Foli-Zyme GA at 0.5% v/v. Evaluations were made by collecting six flush samples from each plot at 7, 14 and 21 days post treatment and counting the no. of leaves per flush and the no. of live CLM miners, CLM pupa, and parasitized CLM pupa. Parasitized CLM pupae were recognized by the presence in the pupal cell of a larval or pupal ectoparasitoid, or emerged pupal or prepupal *Ageniaspis citricola* Logvinovskaya (Hymenoptera: Encyrtidae) an endoparasitoid. Each piece of flush collected was compared to the flush marked during precount to evaluate flush each week that was the same age as that present during the initial treatment application. Data were subjected to ANOVA and means were separated using LSD ($P \leq 0.05$).

Of the total 20 pieces of flush evaluated during the precount, 95% of leaves had CLM larva present (9.5 ± 1.4 larvae/flush). All treatments reduced the number of live CLM larvae and pupae at 7 days after treatment (DAT), with fewest larvae seen on leaves from trees sprayed with E2Y45, Assail and Agri-Mek. At 14 DAT, larval counts significantly lower than the control were only seen for the high rate of E2Y45 and Agri-Mek, although there were fewer pupae in all treatments than the control. At 21 DAT, all treatments except Satisfy had fewer pupae, with fewest seen with the high rate of E2Y45 and Agri-Mek, reflecting the results for most undamaged leaves. All treatments provided significant protection by the criterion of number of undamaged leaves at 21 DAT. Parasitism of CLM pupa was 72.6% of 2737 pupae observed, with no differences among treatments.

Treatment/ formulation	Rate lb (AI)/acre	Mean no. leaves/flush ^b	Mean no. live citrus leafminer/flush						% undamaged leaves ^d
			7 DAT		14 DAT		21 DAT		
			Larvae ^c	Pupae ^c	Larvae ^c	Pupae ^c	Larvae ^c	Pupae ^c	
E2Y45 35WG ^a	0.005	14.3	0.1d	0.6c	12.3a	0.2c	4.7a	7.3dc	47b
E2Y45 35WG ^a	0.018	13.7	0.1d	0.3c	4.4b	0.0c	1.3c	0.7e	84a
Assail 70WP ^a	0.075	15.5	0.1d	0.1c	11.9a	0.3c	3.2ab	5.5d	56b
Satisfy	6 fl oz	15.0	7.2b	0.5c	13.2a	2.4b	4.0ab	12.5ab	19c
Agri-Mek 0.15EC ^a	0.006	16.9	0.1d	0.1c	4.4b	0.1c	2.4bc	1.6e	76a
Glacier Spray Fluid ^a	3% v/v	15.9	4.7c	2.1b	13.8a	3.4b	3.2ab	10.5bc	15c
Untreated check ^b	--	14.5	13.6a	3.0a	11.1a	7.3a	2.6bc	15.4a	2d

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

^aHorticultural mineral oil (Glacier Spray Fluid) was tank mixed at 3% v/v with these treatments.

^bMean no. leaves per flush from three sample dates.

^cNumber per 10 leaves.

^dPercentage of leaves per flush with no CLM damage at DAT 21.