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(D10)

ORANGE: *Citrus sinensis* (L.) Osbeck, 'Hamlin'

SOIL APPLIED INSECTICIDAL CONTROL OF CITRUS LEAFMINER AND ASIAN CITRUS PSYLLID, 2011

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Asian citrus psyllid (ACP): *Diaphorina citri* Kuwayama
Citrus leafminer (CLM): *Phyllocnistis citrella* Stainton

ACP and CLM remain the two of the most economically important pests of Florida citrus. ACP directly impacts the growth of the tree by damaging new shoots and spreads the citrus greening disease. CLM causes significant damage to young leaves, reducing leaf cuticle defense against the bacterium *Xanthomonas citri* responsible for the citrus canker disease. This trial was conducted at the University of Florida Southwest Research and Education Center in Immokalee, Florida, on 3 year old 'Hamlin' trees planted at 145 trees per acre in double-row beds running north-south and separated by a swale. Three adjacent rows were used for a completely randomized block design with 5 treatments replicated 4 times. Each plot consisted of 4 trees that were pruned approximately two weeks before the start of the trial to encourage new growth (flushes) and provide suitable habitat for leafminer larvae. Weeds and leaf litter were removed from beneath each tree prior to soil applications. Soil drench applications were made 6 Jul 2011 by spraying 8 oz of solution onto bare soil within 12 inches of all sides of the trunk of the tree using an EZ-Dose® sprayer with a pressure of 45 PSI and a flow rate of 3.7 gpm.

Trees were evaluated weekly throughout the trial but not all trees contained suitable flush on all sample days. Between 1 and 2 flushes per tree, depending on availability, were removed and brought to the laboratory where psyllid eggs and nymphs plus leafminer larvae per three mid shoot leaves were counted under a stereomicroscope. Density of ACP adults was assessed weekly from the 4 trees in each plot. A randomly chosen branch was struck 3 times with a piece of PVC pipe, dislodging insects onto a white plastic clipboard to be counted as one tap sample. A sample taken prior to application on 5 Jul yielded 2.05±3.24 (Mean±SE) ACP adults per tap.

The standard, 14 oz/ac Admire Pro, significantly reduced the number of ACP adults when compared to the untreated check on all but the first sample date through 19 Sep (75 DAT). The highest (28 oz/ac) rate of BYI 02960 provided control through 13 Sep (69 DAT) and the 21 oz/ac rate through 30 Aug (55 DAT). The 14 oz rate of BYI02960 did not significantly reduce the number of adults found on any sample date (Table 1). A similar trend with ACP nymphs was observed except that the low rate of BYI 02960 did cause some reduction on 19 Jul and 15 Aug (Table 2). Only Admire Pro provided a consistent and significant reduction in CLM larvae observed when compared to the untreated control from 26 Jul to 13 Sep (Table 3).

Table 1:

Treatment/ formulation	Rate (oz/acre)	Adults per tap										
		12-Jul	19-Jul	26-Jul	2-Aug	9-Aug	15-Aug	23-Aug	30-Aug	6-Sep	13-Sep	19-Sep
Untreated		7.56ab	7.19a	6.81ab	5.31a	5.62a	7.13a	5.75a	8.00a	6.13a	6.63a	5.19a
Admire Pro 4.6 SC	14.0	5.00b	0.19b	0.13c	0.00c	0.00c	0.00c	0.00c	0.13c	0.18c	0.56c	0.50b
BYI 02960 200 SL	14.0	10.56a	9.38a	7.19a	5.31a	7.06a	9.44a	6.38a	7.50a	5.31ab	6.63a	5.44a
BYI 02960 200 SL	21.0	10.94a	8.88a	4.63b	4.06ab	2.38b	3.69b	1.56bc	2.25bc	3.69ab	4.19ab	4.13a
BYI 02960 200 SL	28.0	5.63b	7.56a	2.06c	2.88b	2.06bc	3.43b	2.50b	3.06b	3.13b	2.31bc	3.75a

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

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Table 2:

Treatment/ Formulation	Rate (oz/acre)	Nymphs per flush						
		12-Jul	19-Jul	26-Jul	2-Aug	15-Aug	30-Aug	13-Sep
Untreated		28.78ab	51.83a	49.64a	48.25a	114.81a	63.75ab	43.72a
Admire Pro 4.6 SC	14.0	12.53b	0.63b	0.00d	0.00c	0.00c	10.06c	3.12b
BYI 02960 200 SL	14.0	41.50a	19.29b	33.87ab	42.88a	65.50b	85.63a	28.87a
BYI 02960 200 SL	21.0	24.94ab	8.78b	11.36cd	19.00b	9.87c	39.56bc	32.53a
BYI 02960 200 SL	28.0	44.48a	24.19b	21.56bc	15.60b	23.0c	26.35c	39.80a

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

Table 3:

Treatment/ formulation	Rate (oz/acre)	leafminer larvae per 3 leaves					
		12-Jul	26-Jul	2-Aug	15-Aug	30-Aug	13-Sep
Untreated		0.35a	4.91a	3.92a	4.38a	3.39a	1.29a
Admire Pro 4.6 SC	14.0	0.15ab	2.07b	0.00d	0.00c	0.15c	0.29b
BYI 02960 200 SL	14.0	0.05b	1.93b	2.73b	3.28ab	2.19b	0.67ab
BYI 02960 200 SL	21.0	0.15ab	4.21a	1.00cd	2.47b	2.31b	1.07a
BYI 02960 200 SL	28.0	0.00b	4.78a	1.58bc	4.39a	1.55b	0.90ab

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