

**(D11)****ORANGE:** *Citrus Citrus sinensis* (L. Osbeck.) 'Valencia'**PERSISTANCE OF LIQUID AND GRANULAR SLOW RELEASE FORMULATIONS OF SOIL APPLIED INSECTICIDES FOR ASIAN CITRUS PSYLLID CONTROL, 2007****Philip A. Stansly**

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**Barry Kostyk****Myron Huffman.**Asian citrus psyllid (ACP): *Diaphorina citri* Kuwayama

Soil application of the systemic insecticide imidacloprid to citrus in Florida is limited by label restrictions to 1 lb (AI)/acre/yr, which is insufficient to provide year-round protection for this pest even on small trees. Therefore, we investigated the feasibility using aldicarb for this purpose or extending the period of control using a slow release formulation of imidacloprid. The trial was conducted at the University of Florida Southwest Research and Education Center in Immokalee, Florida, on 5-yr-old 'Valencia' orange trees planted in a 15 × 22 ft spacing in double-row beds separated by a swale and running north-south. A CRB design was used with each plot consisting of 4 trees. Trees were trimmed approximately every two wk throughout the trial to encourage new growth (flushes) and provide a suitable substrate for oviposition and habitat for ACP nymphs. Weeds, debris and leaf litter were removed from beneath each tree prior to application. NUQ 05054 was applied by scattering 1.25 oz (10 lb/acre) in a four ft circle around the base of each tree on 19 Jun 2007. The 1.0 and 2.0 oz per tree Temik applications were made on 10 Jul by placing a weighed amount of product within two, 3 ft furrows approximately 2 ft from the base of the two opposing sides of tree. Furrows were covered with soil after application. Admire Pro was applied on 12 Jul at a rate of 14 oz per acre (0.11 oz/tree) in 16 oz of solution as a drench to bare soil at a radius of 24 inches around the trunk of the tree with an EZ-Dose sprayer with a pressure of 45 psi and a flow rate of 3.7 gpm. Evaluations were conducted on 18 Jul, 2, 16, 29 Aug, 13, 27 Sep, 11, 24 Oct, 8 Nov and 12 Dec when suitable new terminal growth (flush) was available. Ten shoots on each of three trees per plot were examined for the presence/absence of ACP eggs and nymphs. One shoot of each of the three trees was removed on each of the dates listed as well as 24 Jan 2008 and the number and stage of the ACP nymphs were assessed in the laboratory using a stereoscopic microscope. The adults were monitored on each of three trees per plot using a "tap sample": gently striking the foliage three times with the hand and counting the adults that fell onto an 8 × 11 inch white surface held underneath. The treatment effect was further evaluated by placing an organdy cage on 11 Oct on two branches per tree in each plot after counting all ACP nymphs on each branch. Branches were clipped on 01 Nov and placed in a freezer for 24 h after which adults were removed and counted.

Both formulations of imidacloprid significantly reduced the percentage of shoots infested compared to the untreated check from 2 Aug until 8 Nov except for 27 Sep. (Table 1). A significantly lower infestation rate was seen with NUQ05054 on 8 Nov compared to Admire Pro. Similarly, fewer nymphs were counted on individual shoots from trees treated with imidacloprid over the whole period (Table 2). Emergence of adult ACP in sleeve cages was significantly less on branches from trees treated with imidacloprid than the low rate of Temik although not the high rate or the untreated check (Table 2). The number of adults observed with the tap sample was significantly reduced by both formulations of imidacloprid from 2 Aug until 12 Dec (Table 3). In contrast, reduction of percentage infestation on trees treated with either of the two rates of Temik was only observed on 2 Aug and no difference was seen in numbers of ACP from infested branches. However Temik was more effective against adults, causing significant reduction at the 2 oz/tree rate though 8 Nov, and at the 1 oz/tree rate through 24 Oct. with a lapse on 11 Oct. Thus, imidacloprid provided better control of nymphs than aldicarb, with a tendency at the end of the trial for greater persistence of the slow release product.

Table 1

Treatment	Rate/tree	Percentage of shoots infested with ACP									
		18 Jul	2 Aug	16 Aug	29 Aug	13 Sep	27 Sep	11 Oct	24 Oct	8 Nov	12 Dec
Untreated check	N/A	100.00a	88.13a	93.33a	97.62a	95.00a	100.00a	92.50a	90.00a	97.50a	98.21a
Temik 15G	1.0 oz	100.00a	39.83b	81.82a	75.91ab	57.14ab	100.00a	84.54ab	83.18a	96.67a	N/A
Temik 15G	2.0 oz	100.00a	55.54b	83.94a	88.96a	67.17ab	90.63a	79.17ab	78.33a	84.47b	N/A
Admire Pro	0.11 oz	85.00a	35.83b	47.68b	60.28bc	45.42b	33.33a	60.79bc	60.83b	77.50b	77.71a
NUQ05054	1.25 oz	100.00a	45.56b	44.17b	48.49c	35.83b	61.90a	45.94c	46.67b	65.00c	65.74a

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

Table 2

Treatment/ formulation	Rate product/tree	No nymphs/infested flush	No of adults collected*
Untreated check	N/A	24.05a	46.67 ± 13.67ab
Temik 15G	1.0 oz	22.02a	95.58 ± 45.05a
Temik 15G	2.0 oz	16.18ab	59.17 ± 19.94ab
Admire Pro	0.11 oz	13.01b	9.08 ± 3.91b
NUQ05054	1.25 oz	7.88b	6.75 ± 4.02b

\*caged 11 Oct 07; collected 1 Nov 07

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

Table 3

Treatment	Rate/tree	Adult ACP per tap sample									
		18-Jul	2-Aug	16-Aug	29-Aug	13-Sep	27-Sep	11-Oct	24-Oct	8-Nov	12-Dec
Untreated check	N/A	1.00a	4.42a	4.50a	2.08a	2.41a	2.67a	1.67a	1.17a	1.25a	5.75a
Temik 15G	1.0 oz	1.50a	0.67b	0.58bc	0.92b	1.08b	0.67b	1.00ab	0.25b	0.59ab	N/A
Temik 15G	2.0 oz	2.25a	0.92b	1.50b	0.92b	0.59b	0.67b	0.42bc	0.00b	0.33b	N/A
Admire Pro	0.11 oz	2.75a	0.92b	0.25c	0.17bc	0.50b	0.42b	0.25bc	0.00b	0.33b	0.75b
NUQ05054	1.25 oz	1.75a	1.67b	0.50bc	0.00c	0.59b	0.17b	0.08c	0.00b	0.17b	1.17b

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