(D10)

ORANGE: *Citrus sinensis* (L.) Osbeck ‘Valencia’

**PERSISTANCE OF STANDARD AND SLOW RELEASE SOIL APPLICATION OF IMIDACLOPRID FOR CITRUS PSYLLID CONTROL, 2007**

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Asian citrus psyllid (ACP): *Diaphorina citri* Kuwayama

Application of imidacloprid to citrus in Florida is limited by label restrictions to 1 lb (AI)/acre. While generally considered insufficient for ACP control on large trees, we investigated the feasibility of using a slow release formulation for this purpose. The trial was conducted at the University of Florida Southwest Research and Education Center in Immokalee, Florida, on 13-yr-old ‘Valencia’ orange trees planted at 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 weeks throughout the trial to encourage new growth (flushes) and provide a suitable habitat for ACP nymphs. Weeds, debris and leaf litter were removed from beneath each tree prior to application. The Nufarm slow release product NUQ 05054 was applied by scattering 1.25 oz (10 lb/acre) in a four foot circle around the base of each tree on 11 Sep 2007. Admire Pro was applied on 2 Oct at a rate of 14 oz per acre in 16 ounces of solution as a drench to bare soil in 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 made on 22, 29 Oct, 5, 13, 26 Nov, 10 Dec, 14 Jan, 5, 18 Feb, 10, 25 Mar, and 21 Apr when suitable new terminal growth (flush) was available. Ten shoots on each of three trees per plot were observed for the presence/absence of ACP eggs and nymphs. Shoots were rated depending on the stage of ACP nymphs most prevalent on each flush as: 0 = no infestation, 1 eggs and 1st instars, 2 = second and third instars, 3 = 4th and 5th instars. One shoot of each of the three trees was removed and the number and stage of the ACP nymphs was assessed in the laboratory using a stereoscopic microscope. Adults were monitored on each of three trees per plot using a “tap sample” obtained by gently striking the foliage three times with the hand and counting adults that fell onto an 8 × 11 inch white surface held about 1 ft underneath. Nymphs were counted on two infested shoots on two branches per tree in each plot before being caged on 25 Apr with organdy sleeves. Cages and contained branches were removed on 15 May, placed in a freezer for 24 h and the number of adults that emerged was recorded. Data was subjected to ANOVA with mean separation by LSD ($P = 0.05$).

Adult populations were low averaging 0.22 ± 0.36 per tap sample over the course of the study with no significant treatment effects. A lower proportion of infested shoots was seen on treated trees compared to untreated trees on all sample dates other than 22 Oct and 14 Jan. Differences between the two imidacloprid treatments were not seen except on 18 Feb and 21 Apr., when a significantly lower proportion of shoots were found infested on trees receiving NUQ 05054 compared to Admire Pro. A similar result was seen with percentage shoots infested with late instars although there were more sample dates with no significant differences. The trial was terminated on 15 May when no treatment effect was noted in number of adults that emerged inside the sleeve cages which averaged 70.5 ± 25.6 percent of the original nymphs. Both formulations of imidacloprid provided significant suppression of ACP nymphs for almost 7 months, with a trend of greater persistence with the slow release NUQ 05054.
Table 1

<table>
<thead>
<tr>
<th>Treatment/formulation</th>
<th>22 Oct 07</th>
<th>29 Oct 07</th>
<th>5 Nov 07</th>
<th>13 Nov 07</th>
<th>10 Dec 07</th>
<th>14 Jan 08</th>
<th>5 Feb 08</th>
<th>18 Feb 08</th>
<th>10 Mar 08</th>
<th>25 Mar 08</th>
<th>21 Apr 08</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated check</td>
<td>53.33a</td>
<td>90.83a</td>
<td>96.67a</td>
<td>99.17a</td>
<td>50.00a</td>
<td>65.83a</td>
<td>61.96a</td>
<td>30.00a</td>
<td>49.17a</td>
<td>70.83a</td>
<td>63.50a</td>
<td>92.50a</td>
</tr>
<tr>
<td>Admire Pro</td>
<td>45.83a</td>
<td>71.67b</td>
<td>76.67b</td>
<td>84.80b</td>
<td>16.67b</td>
<td>17.50b</td>
<td>40.00a</td>
<td>10.83b</td>
<td>30.00b</td>
<td>35.00b</td>
<td>29.03b</td>
<td>70.83b</td>
</tr>
<tr>
<td>NUQ 05054</td>
<td>37.50a</td>
<td>71.67b</td>
<td>74.17b</td>
<td>74.17b</td>
<td>30.00b</td>
<td>23.33b</td>
<td>50.15a</td>
<td>8.33b</td>
<td>16.67c</td>
<td>30.83b</td>
<td>15.36b</td>
<td>45.83c</td>
</tr>
</tbody>
</table>

**Percentage of flushes with ACP**

| Untreated check       | 0.00a     | 30.00a    | 78.33a   | 83.33a    | 41.67a    | 15.83a    | 28.37a   | 10.00a    | 23.33a    | 25.83a    | 13.83a    | 72.50a    | 35.55a    |
| Admire Pro            | 0.00a     | 14.17b    | 41.68b   | 54.37b    | 10.00a    | 0.83b     | 10.00a   | 1.67b     | 9.17a     | 9.17b     | 3.06a     | 34.17b    | 15.67b    |
| NUQ 05054             | 0.00a     | 8.33b     | 35.83b   | 36.87b    | 15.00b    | 1.67b     | 13.79a   | 1.67b     | 7.50a     | 7.50b     | 1.67a     | 13.33c    | 11.90b    |

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