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

**FOLIAR APPLICATIONS OF INSECTICIDES FOR CONTROL OF ASIAN CITRUS PSYLLID IN ORANGES DURING BLOOM, 2009**

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

Asian citrus psyllid (ACP) is a key pest of citrus in Florida, due primarily to its interaction with Huonglongbing or citrus greening disease. ACP vectors the bacterium, *Candidatus Liberibacter asiaticus* responsible for greening or “Huanglongbing” disease of citrus. The experimental block at the Southwest Florida Research and Education Center (SWFREC), Immokalee, Florida consisted of 14-yr-old sweet orange *Citrus sinensis* (L) Osbeck ‘Valencia’ trees planted on double-row raised beds at a density of 132 trees/acre. Trees were irrigated by micro-sprinklers and subjected to conventional cultural practices. Ten treatments and an untreated check were randomly distributed across 4 replicates in 21 rows that included a buffer row after every treated row. Each replicate contained 11 five-tree plots. Treatments were applied on 10 March 2009 using a Durand Wayland 3P-10C-32 air blast speed sprayer operating at 1500 RPM with 5 stainless steel T-Jet # 5 nozzles per side delivering 132 gpa. The post treatment evaluations were made on 13, 20, and 27 Mar, 3, 10, and 27 Apr, and 7 and 13 May. Ten to twelve shoots were tagged in each plot on 9 Mar. Ten randomly selected shoots per plot were collected and examined under a stereomicroscope in the laboratory to count psyllid nymphs. Adult psyllid density was estimated from three central trees in each five-tree plot by counting the insects falling on a clipboard covered with an 8 ½ × 11 inch laminated white sheet placed under randomly chosen branches which were then tapped 3 times with the PVC pipe to make a count for one tap sample. Four tap samples were conducted per tree. Data were subjected to ANOVA to evaluate treatment effects on ACP and means were separated using LSD contingent on a significant treatment effect (P = 0.05).

Shoots are required for psyllid oviposition and nymphal development and were available only on 20 and 27 Mar. All treatments significantly reduced nymphal density compared to untreated check except Requiem alone, Micromite 80 WGS + Orocit, and Portal 0.4EC + 435 Oil on 27 Mar. On that date, Delegate WG and Movento 240SC both applied with 435 Oil were most effective treatments but not significantly different from 435 Oil alone. All treatments significantly reduced adult population compared to the control on 13 Mar but none were on 13 May. On 27 Mar, only Delegate + Oil, Movento + Induce and Portal and Oil were better than the control. On 10 April it was only Portal and Oil, joined on 7 May by Movento and Induce, these two products providing control for a month and a half. However, no treatment at any time was significantly more effective than oil alone except for Movento + Induce against nymphs on 27 Mar.
<table>
<thead>
<tr>
<th>Treatment/formulation</th>
<th>Rate amt product/ formulation</th>
<th>Nymphs/shoot 20-Mar</th>
<th>Nymphs/shoot 27-Mar</th>
<th>Adults/4 tap samples/tree 13-Mar</th>
<th>Adults/4 tap samples/tree 20-Mar</th>
<th>Adults/4 tap samples/tree 27-Mar</th>
<th>Adults/4 tap samples/tree 3-Apr</th>
<th>Adults/4 tap samples/tree 10-Apr</th>
<th>Adults/4 tap samples/tree 27-Apr</th>
<th>Adults/4 tap samples/tree 7-May</th>
<th>Adults/4 tap samples/tree 13-May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated check</td>
<td></td>
<td>2.88a 3.93bc</td>
<td>1.67a 2.92b</td>
<td>3.33abc 5.00ab</td>
<td>7.12abc 6.58a</td>
<td>4.50abc 2.08bc</td>
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<tr>
<td>435 Oil</td>
<td>2%</td>
<td>0.25d 1.38de</td>
<td>0.33bc 0.92cd</td>
<td>1.75abcd 1.59d</td>
<td>5.59bcd 4.67ab</td>
<td>2.17cd 1.42bc</td>
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<tr>
<td>Delegate WG + 435 Oil</td>
<td>4 oz + 2%</td>
<td>0.00d 0.60de</td>
<td>0.08c 0.33cd</td>
<td>0.25d 2.08cd 3.50cd</td>
<td>2.33bc 2.75bcd</td>
<td>1.91bc</td>
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<tr>
<td>Requiem 25 EC</td>
<td>4 qt</td>
<td>1.35bc 5.48ab</td>
<td>0.58bc 5.83a</td>
<td>3.67ab 4.17bc</td>
<td>7.25abc 7.08a</td>
<td>6.58a 4.25a</td>
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<tr>
<td>Requiem 25 EC</td>
<td>2 qt</td>
<td>1.55b 7.30a</td>
<td>0.42bc 2.17bc</td>
<td>4.25a 7.25a</td>
<td>11.00a 5.0ab</td>
<td>3.42bd 2.75ab</td>
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<tr>
<td>Requiem + 435 Oil</td>
<td>2 qt + 2%</td>
<td>0.33cd 1.28de</td>
<td>0.08c 1.50bcd</td>
<td>1.33bcd 2.00cd</td>
<td>4.67cd 2.42bc</td>
<td>2.25bd 0.83c</td>
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<td>Micromite 80 WGS + 435 Oil</td>
<td>6.25 oz + 2%</td>
<td>0.10d 0.93de</td>
<td>0.92b 1.50bcd</td>
<td>0.83cd 2.75bcd</td>
<td>4.33cd 2.67bc</td>
<td>3.83bc 1.67bc</td>
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<tr>
<td>Micromite 80 WGS + Orocit</td>
<td>6.25 oz + 64oz</td>
<td>0.88bcd 3.05bcd</td>
<td>0.83b 3.25b</td>
<td>3.33abc 5.08ab</td>
<td>9.92ab 5.50a</td>
<td>4.75ab 2.75ab</td>
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<tr>
<td>Movento 240SC + 435 Oil</td>
<td>10 oz + 2%</td>
<td>0.03d 0.25e</td>
<td>0.58bc 0.50cd</td>
<td>0.83cd 1.67d</td>
<td>3.00cd 1.17c</td>
<td>1.33d 1.25bc</td>
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<tr>
<td>Portal 0.4EC + Induce</td>
<td>10 oz + 0.25%</td>
<td>0.50bcd 0.73de</td>
<td>0.33bc 0.75cd</td>
<td>0.75d 1.75cd</td>
<td>3.42cd 2.42bc</td>
<td>2.08cd 1.33bc</td>
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<td>Portal 0.4EC + 435 Oil</td>
<td>4 pts + 2%</td>
<td>0.80bcd 1.80cde</td>
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<td>0.58d 1.33d</td>
<td>2.25d 2.25d</td>
<td>1.33d 1.92bc</td>
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</table>

Means in a column followed by the same letter are not significantly different (p < 0.05, LSD).