

Citrus Industry Update

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Published by the University of Florida, Institute of Food and Agricultural Sciences, with the mission of keeping the Florida Citrus Industry informed of current research concerning canker and greening.

Dormant Season Sprays: Successful Strategy to Reduce Psyllids into the Growing Season

— *Jawwad Qureshi and Phil Stansly*

In 2007, two 15-acre plots within two 60+ acre blocks of mature orange trees were sprayed with Lorsban 4 E at the rate of 5 pints per acre by ground on Jan 15. We observed that psyllid populations were suppressed for 6 months in the treated blocks compared to the untreated blocks. The 2008 experiment compared three one-application and one two-application treatments replicated four times in the same blocks. Applications were made by ground at the per acre rate of 1 (low) and 2 (high) pints of Vydate 2 L, 5 pints of Lorsban 4 E, and 1 pint of Danitol 2.4 EC; all made on Jan 16-17. The two-application treatment included ground applications of Danitol 2.4 EC on Jan 16-17 and Lorsban 4 E on Feb 15. All treatments except the low rate of Vydate reduced psyllid populations for 5 months. Effects were more pronounced on the adults than flush infestation or nymphal density. The application of Vydate 2 L and Danitol 2.4 EC and of Danitol 2.4 EC followed by Lorsban 4 E provided more suppression of psyllids than Lorsban 4 E by itself. There was no difference in the effectiveness of single application of Danitol 2.4 EC and the one that was followed by Lorsban 4 E, probably due to the short time interval between the two applications. However, both of these treatments performed better than the low rate of Vydate 2 L. There were no discernable treatment effects on ladybeetles that were common in both treated and untreated trees. These findings suggest that one or two applications of broad spectrum insecticides before spring flush significantly reduced psyllid populations for 5-6 months in the growing season. Therefore, the winter dormant season appears to be a safe and effective time to control psyllids with insecticides. Most predators are absent during

that period or in the case of many parasitoids protected inside their hosts. Adult psyllids are fewest and most vulnerable. Additional sprays in the growing season should be based on scouting and made prior to anticipated flushes.

Insecticidal Control of Asian Citrus Psyllid and Citrus Leafminer: May 2008

— *Jawwad Qureshi, Barry Kostyk, and Phil Stansly*

At Southwest Florida Research and Education Center (SWFREC), Immokalee, Florida, 13-yr-old 'Valencia' orange trees were pruned manually to induce new flush and encourage psyllid infestation. Danitol 2.4 EC (21.3 oz/ac), Agri-Mek 0.15 EC + 435 Oil (20 oz + 2%/ac), Warrior 1 SC (5.75 oz/ac), Actara 25 WG (5.5 oz/ac), Actara 25 WG + Induce (5.5 oz + 0.1%/ac), Micromite 80 WGS + 435 Oil (6.25 oz + 2%/ac), and Micromite 80 WGS + 435 Oil (3.125 oz + 2%/ac) were applied on May 22, 2008 using a Durand Wayland 3P-10C-32 airblast speed sprayer with an array of six #5 T-Jet stainless steel cone nozzles per side operating at a pressure of 200 psi delivering 150 gpa at a tractor speed of 1.5 mph. The second application of the low rate of Micromite was made on June 12, 2008. The density of psyllid adults was estimated by using a "tap" sample made by striking with the hand a randomly chosen branch three times and counting individuals falling on a clipboard covered with an 8.5" x 11" white paper sheet. All treated trees had significantly fewer adults compared to untreated trees for 6 weeks. The percentage of flush infested with psyllid eggs was significantly reduced by all treatments for only 1 week. However, the percentage of flush infested with psyllid nymphs was significantly reduced by all treatments for 3 weeks. All treatments resulted in fewer mature nymphs

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seen on the treated trees compared to untreated trees for 4 weeks. Micromite treatments were less effective compared to all the other treatments during the third week. Thus, all treatments reduced adults and had some effect on nymphs for 6 weeks. The one-time application of the high rate of Micromite 80 WGS with 435 Oil provided better control than the low rate with 435 Oil applied twice during the same period. No significant improvement in performance of Actara 25 WG was observed in combination with Induce.

All treatments except Actara 25 WG alone and Warrior 1 SC reduced leafminer populations for 2 weeks. Agri-Mek 0.15 EC + 435 Oil and Danitol 2.4 EC were the most effective treatments. Actara 25 WG + Induce resulted in better control than Actara 25 WG applied alone.

Commercial-Scale Aerial and Ground Applications to Control Adults of Asian Citrus Psyllid in Oranges

— *H. Alejandro Arevalo, Phil Stansly (UF-IFAS-Immokalee) and*

Henry Yonce (KAC Agricultural Research, Inc.)

The effectiveness of 10 insecticide treatments applied by fixed wing aircraft and five by conventional airblast ground equipment + an untreated control was evaluated for 5 weeks after application in two adjacent blocks of Valencia oranges located in Collier Co., Florida. Aerial applications were made to single 10-bed, 12-acre plots at 10 gal/ac and ground treatments to single 3.8-acre plots at 125 gal/ac. Adult psyllid populations were monitored on 10 trees selected at random toward the middle of two central beds in each plot for a total of 20 trees per treatment. Branches of trees in two locations were tapped three times, and the number of adult psyllids falling on a letter-size 8.5" x 11" white sheet of paper was recorded. Treatments evaluated by air and ground included: Delegate (4 oz/ac, Delegate + Oil (4 oz + 3gal/ac), Imidan + Oil (1.0 oz + 3 gal/ac), Imidan + Oil (1.5 oz + 3 gal/ac), and Provado + Joint Ventura (16 oz + 8 oz/ac). Additional aerial applications included Danitol (16 oz/ac), Danitol + Joint Ventura

(16 oz + 8 oz/ac), Mustang (4.3 oz/ac), Mustang + Micromite (4.3 oz + 6.25 oz/ac), and Mustang + Joint Ventura (4.3 oz + 8 oz/ac).

Initial populations were high, averaging 3.5 per two-tap sample. Although the design precluded statistical analysis, some clearly defined trends were evident. Counts for the untreated control averaged almost eight for the entire study period. The best aerial treatments were those including Danitol and Imidan, reducing populations to below one per sample for the entire study period. Applied by ground, Imidan and Delegate + Oil essentially eliminated adult psyllids. Delegate alone and Provado + Joint Ventura also performed well by ground but did poorly by air. This trial demonstrated that while aerial application can give comparable results to ground application with at least some broad spectrum insecticides, certain selective insecticides provide much better results when applied by conventional ground equipment.

Management of Asian Citrus Psyllid with Frequent Ultra-Low Volume Applications (Fogging) of Oil and Azadirachtin During the Growing Season

— *H. Alejandro Arevalo and Phil Stansly*

Most products with insecticidal properties have label restrictions which do not allow them to be used as ultra-low volume (ULV) applications in citrus. Horticultural mineral oil (HMO) and azadirachtin (Aza-Direct®), a botanical insecticide derived from the neem tree, are both OMRI (Organic Material Review Institute) approved and do not have ULV restrictions. We are evaluating three treatments replicated three times in a 62-acre block of Valencia oranges located in Collier Co., Florida: 1) HMO at 1 gal/ac, 2) HMO + Aza-Direct (1 gal + 12 fl oz/ac), and 3) an untreated control. Ultra-low volume applications using a London Fogger belonging to the Beck brothers are made at night once every 2 weeks beginning July 1. Samples are taken the day before application, and collected in the middle section of the central bed in each one of the treatment plots. In each plot, 20 trees are sampled using two tap samples per tree to determine adult Asian citrus psyllid (ACP) populations. To determine

the percentage of infested flush, a maximum of 10 flush per plant are observed, the flush with eggs or nymphs present are recorded, and an estimation of the flush concentration is calculated by counting the number of flush found in a 30 x 30 cm PVC square placed over the area where the tap samples are conducted. The initial psyllid population was extremely low after two aerial applications of broad spectrum insecticides. Although we have yet to observe a resurgence of adult Asian citrus psyllids in the first 2 months after the first fogging application, we have seen significantly less infested flush on treated trees compared to untreated trees, with no differences between HMO and HMO + Aza-direct treatments. We plan to continue this trial into the fall to see if differences accentuate. The hope is that these treatments will maintain psyllid populations at low levels during the growing season.

Casuarina Given a Second Chance for Use as a Windbreak

— Bill Castle

Persistent efforts to allow the propagation of *Casuarina cunninghamiana* for use as a windbreak in citrus have paid off. Legislation, promoted by growers, was passed this summer that allows for restricted vegetative propagation of male *C. cunninghamiana*. There are three species of the non-native Australian pine (*Casuarina* spp.) in Florida. Their spread in some areas of the state had resulted in each species being classified by the Florida Department of Environmental Protection as invasive and subject to removal.

The new law allows only vegetative propagation of Florida sources of male *C. cunninghamiana* plants for use as windbreaks in citrus groves in Martin, St. Lucie, and Indian River counties only. The Florida Department of Agriculture and Consumer Services, Division of Plant Industry, is the rule-making and regulatory authority.

If you intend to commercially propagate this plant, it is highly recommend that you review previous studies on rooting cuttings to best understand the various treatments attempted by others. Also, our efforts at the CREC to root

cuttings have met with limited success. A summary of propagation attempts and results at the CREC as well as links to relevant literature are available by clicking on the “*Casuarina* Propagation” link at <http://www.crec.ifas.ufl.edu/extension/windbreaks/index.htm>.

For questions and further details, please contact Dr. Bill Castle: 863-956-1151, bcastle@ufl.edu

New Publications and Tools Available for Greening Scouting

— Tim Spann

A new EDIS publication is available titled, “Scouting for Citrus Greening.” This document describes current recommendations for scouting frequency and the advantages and disadvantages of various scouting methods. Also included is a detailed review of greening symptoms and recommendations for utilizing the field-friendly iodine-based starch test detailed in a separate EDIS document. The scouting document can be downloaded at <http://edis.ifas.ufl.edu/CH200>, and the iodine test is at <http://edis.ifas.ufl.edu/HS375>.

A new tool in the final development stages is an online training program for scouts. This interactive training will allow new scouts to learn the history, spread, and identification of citrus greening through a self-paced online tutorial and is available in both English and Spanish. Growers can evaluate their scouts’ ability through a series of greening identification quizzes and short answer questions, the results of which are emailed directly to the supervisor. Growers can also use the training program as a refresher course for their scouts as needed and in between in-person trainings by IFAS personnel. The final technical glitches are currently being ironed out, and this new tool will be available for use through the CREC website in a couple of weeks.

For questions and further details, please contact Dr. Tim Spann: 863-956-1151, spann@ufl.edu

EVENT UPDATE

Citrus Expo 2008 (Seminars Only)

September 4, 2008

UF/IFAS Citrus Research and Education Center,
Lake Alfred, Florida 33850

For more information, visit www.citrusexpo.net

Packinghouse Day

September 11, 2008

UF/IFAS Citrus Research and Education Center
700 Experiment Station Road, Lake Alfred,
Florida 33850

For more information, visit the postharvest
website or contact Mark Ritenour, 772-468-
3922 ext. 167 or via email, ritenour@ufl.edu

Postharvest Workshop

September 16, 2008

UF/IFAS Indian River Research and Education
Center, 2199 South Rock Road, Fort Pierce,
Florida 34945

For more information, visit the postharvest
website or contact Mark Ritenour, 772-468-
3922 ext. 167 or via email, ritenour@ufl.edu

FNATS: The Landscape Show

September 25-27, 2008

Orlando, Florida

For more information, visit

<http://www.fnqla.org/fnats/general.asp>

Florida Ag Expo

November 5, 2008

UF/IFAS Gulf Coast Research and Education
Center, Balm, Florida 33503

For more information and registration, visit
<http://www.floridagrower.net/flgevents/index.html>

International Research Conference on HLB: Reaching Beyond Boundaries

December 1-5, 2008

Orlando, Florida

For more information and registration, visit
http://www.doacs.state.fl.us/pi/hlb_conference/

Florida Mini-Greening Summit

Presented by the Florida Cooperative Extension
Service Citrus Extension Agents

10 a.m. - 12 p.m. (Agenda)

- September 30, 2008 - Lake County Extension,
Tavares. To register, contact the Lake County
Extension Service 352-343-4101
- October 2, 2008 - Highlands County
Extension, Sebring. To register, contact the
Highlands County Extension Service 863-402-
6540
- October 7, 2008 - Southwest Florida
Research and Education Center, Immokalee.
To register, contact the Hendry County
Extension Office 863-674-4092
- October 8, 2008 - Turner Exhibition Hall,
Arcadia. To register, contact the DeSoto
County Extension Service 863-993-4846
- October 9, 2008 - Polk County Extension
Stuart Center, Bartow. To register, contact
the Polk County Extension Service 863-519-
8677 ext. 111
- October 14, 2008 - Indian River Research and
Education Center, Ft. Pierce. To register,
contact the St. Lucie County Extension Office
772-462-1660

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