Florida Citrus Advanced Technology Program

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

Instructions Complete the fields based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to **http://research.fcprac.com**, and log in with your user name and password using Researcher Login in the lower left. Find this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

2009-2010 REPORT	CATEGORY (drop-down)	TODAY'S DATE (m/d/yr)
● *Quarterly Report* ○ *Annual Report* ○ *Final*	Management	10/14/09

WHAT IS THE "HEADLINE" FOR THIS REPORT (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Psyllids controlled by repeated LV application of 435 Oil by ground and selected insecticides by air.

TITLE and CONTACT INFORMATION

Proposal Title Ultra low-volume and Aerial Application of Insecticides and Horticultural Mineral to Control Asian Citrus Psyllid in Commercial Orchards.

Principal Investigator Stansly, P. A	*PI Last Name* Stansly
Email pstansly@ufl.edu	*FDACS Contract Number* 210
Phone (239) 658 3400	*Project Duration (years)* 3 *Year of Project* 1
Organization SWFREC - IFAS - University of Florida	*Total Direct Funds (current year)* $108,132

REPORT UPDATE (650 words; provide details about your headline)

Repeated low volume (LV) applications of horticultural mineral oil (HMO) were initiated this year on 14 April although funding for this project was released on 27 April. The replicated experiment is being conducted in the same 65 acre block as last year, although we have increased the rate from 1 to 2 gal/ac pure FL-435 oil and are comparing two truck-mounted LV applicators: a modified London Fogger model 18-20 provided by Chemical Containers and the Proptec rotary atomizer P400D. Applications continued through fall flush at 2-4 week intervals depending on pest pressure. Significant differences in the number of Asian citrus psyllid (ACP) adults between the Proptec P400D (0.06±0.06 ACP adults/tap) and the control (0.23 ±0.08 ACP adults/tap) were observed on 15 June. A similar trend has continued to be observed, although there were no statistically significant treatment effects due to low psyllid populations. Leaf extractions have been made as a first step in the process of quantifying mineral oil deposition on leaf surfaces of citrus following LV ground applications. Results from these studies support those obtained last year indicating the effectiveness of frequent LV applications of HMO, but we still need higher populations to feel confident with this tactic.

We also conducted a separate study on a highly infested, 38-acre block of 'pineapple' orange in Glades County to compare the London Fogger ™ applying 2 gal/ac to bed tops only (typical application) with an airblast sprayer treating tops and swales at 116 gal/ac. Delegate WG (spinetoram) @ 4 oz/ac. and Dimethoate 4EC (24 oz/ac.) were both applied with 2 gal/ac. oil on 15 June. Insecticides sprayed with the airblast showed significantly fewer adults compared to the control from week 1 to week 4. LV sprays showed significantly lower populations than the control only for weeks 3 and 4. This experiment demonstrated that LV application to bed tops with these two insecticides did not provide adequate control. Growers should evaluate such applications carefully.

In a third experiment, we evaluated the effectiveness of aerial versus ground application of two selective insecticides: Delegate WG (spinetoram) @ 4 oz/ac, and Movento (spirotetramat) @ 10oz./ac., and a broad-spectrum insecticide Imidan 70W phosmet (Imidan) @ 1Lb/ac, all with 2gal/ac of 435 mineral oil. The trial was conducted on thirty 24-acre blocks of mature orange trees. Imidan by ground (0.1±0.1 ACP/tap) was the only treatment that significantly reduced ACP populations compared to the untreated control (2.6±0.5 ACP/tap) 2 weeks after application. At week 4, ground applications resulted in lower ACP numbers when compared with aerial applications. We also saw fewer psyllids on trees treated with Movento (by air: 0.7±0.1 ACP/tap, by ground: 1.1±0.3 ACP/tap), and Imidan by ground (0.2±0.2 ACP/tap) compared with the control (2.1 ±0.5 ACP/tap). The effect of these treatments on rust mites was evaluated on 6 August by counting the number in 2 lens fields (14x) per fruit, 4 fruits per tree, 10 trees per plot . Ground applications of Delegate (0.13±0.03 mites/fruit), Movento (0.12±0.02 mites/fruit), and Imidan by ground (0.28±0.08 mites/fruit) and by air (0.16±0.07 mites/fruit) had significant lower populations when compared with the untreated control (0.42±0.13 mites/fruit) and oil only (0.40±0.08 mites/fruit). Results from these trials have been presented at the Florida State Horticultural Society 2009 annual meeting and will be published in their proceedings, and also be presented at the Entomological Society of America December 2009.

In an area wide spray during the 2008/09 dormant season, 80,000 acres were treated by air and more by ground. A field survey coordinated by SWFREC-Entomology and DPI-CHRP found that 5 months after the application groves treated by air (0.1±0.02 ACP/tap) and by ground (0.3±0.1 ACP/tap) had significantly fewer ACP than the untreated which had 2.8 ACP/tap, a 2400% increase. We are working with Golf Citrus Growers Association to organize two area wide sprays this season.