Florida Citrus Advanced Technology Program

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

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2009-2010 REPORT	CATEGORY (drop-down)	TODAY'S DATE (m/d/yr)
◉ *Quarterly Report* ○ *Annual Report* ○ *Final*	Management	8/9/10

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

Impact of psyllid control on citrus leafminer and beneficial insects

TITLE and CONTACT INFORMATION

Proposal Title Impact of insecticidal control of Asian citrus psyllid (ACP) on leafminers, mites, scales, thrips and their natural enemies in Florida

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Phone (239) 658 3400	*Project Duration (years)* 3 *Year of Project* 1
Organization SWFREC - IFAS - University of Florida	*Total Direct Funds (current year)* $89,314.00

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

Two experiments were initiated at the Southwest Florida Research and Education Center (SWFREC)T to assess impacts of insecticidal control of ACP on non target pests and beneficial insects. The experimental block consisted of 15-yr-old sweet orange 'Valencia' trees planted on double-row raised beds at a density of 132 trees/acre. For first experiment, trees were hedged so new shoots attractive to ACP and citrus leafminer (CLM) and beneficial insects were plentiful. Nine treatments (435 Oil, Movento 240 SC + 435 Oil, NAI-2302 + 435 Oil, Agriflex (MK 936) + 435 Oil, Micromite 80 WGS + 435 Oil, low and high rates of Belt 4SC + Induce, M-Pede + Addit, Portal 0.4EC) all intended to control ACP and an untreated control were randomly distributed across 4 replicates in a RCB design. Treatments were applied on 14 May using a Durand Wayland 3P-10C-32 air blast speed sprayer operating at 1500 RPM with 2 stainless steel T-Jet # 5 nozzles per side delivering 65 gpa and evaluated at 3, 10 and 17 days after treatment (DAT). Ten randomly selected shoots per plot were collected and examined under a stereomicroscope in the laboratory to count ACP nymphs. Three fully expanded leaves on each shoot were examined to count CLM larvae and mines. Density of ACP adults and beneficial insects 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 struck 3 times with the PVC pipe to make a count for one "tap" sample. Four tap samples were conducted per tree. All treatments provided significant reduction in psyllid populations compared to control for up to 17 days. Significant reduction in number of CLM larvae compared to the control was observed in all treatments through 10 DAT except 435 Oil alone at 3 DAT, Portal at 10 DAT and M-Pede + Addit at both observations. CLM larvae or mines were not significantly less than the control in any treatment except for Movento + 435 Oil, Micromite + 435 Oil, Portal and M-Pede + Addit, an effect not observed against ACP. Such increase in CLM population could be due to reduced number of CLM natural enemies in those treatments. No spiders were observed in the Micromite treatment and most were observed in the 435 oil alone treatment. Numbers in the treated and untreated trees did not differ statistically except 435 oil alone and control. Only 9 adults or larvae of Olla v-nigrum and Harmonia axyridis ladybeetles were observed in samples, 4 in the control, 3 in low rate of Belt and one each in 435 oil alone and M-Pede + Addit. In the 2nd experiment treatments of 435 Oil alone, Delegate 25 WG + 435 Oil, Provado 1.6 F + Induce, Movento 240 SC + 435 Oil and three rates of an experimental product from Bayer CropScience with or with 435 Oil or NIS were applied on 12 July and evaluated at 3, 10, 17 and 24 DAT. Application and evaluation procedures were same as above except application volume of 150 gpa. Compared to control all treatments provided significant reduction in ACP populations through 24 DAT. CLM larvae were reduced by all treatments at 3 and 10 DAT but only Movento, Delegate, and low and medium rates of experimental product with 435 Oil were effective at 17 DAT. CLM mines did not differ between treated and untreated trees at 3 DAT, but were less at 10 DAT in treatments of 435 Oil alone, Delegate + 435 Oil, and experimental product + 435 Oil or NIS. At 17 DAT all treatments except Provado and experimental product alone had fewer mines than control. CLM larvae or mines did not increase in any treatment compared to control. Spiders were the only beneficial arthropods observed during sampling and treatment effect was not significant. Overall, treatment effects against CLM were less marked and more short lived than against ACP. Increase in CLM populations in some treatments indicate possible negative impacts on their natural enemies. This year survey of grove managers by SWFREC and IFAS extension was distributed. So far, increase in citrus leafminer, mites, and scales under current ACP management was reported by 50%, 30% and 20%, respectively.