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	7/29/10

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

SAR is under evaluation for HLB control in young citrus trees in Florida and Brazil

TITLE and CONTACT INFORMATION

Proposal Title Does systemic acquired resistance (SAR) control HLB disease development?

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Phone 863-956-1151	*Project Duration (years)* 2 *Year of Project* 1
Organization UF, Citrus Research and Education Center	*Total Direct Funds (current year)* $66,861

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

The objective is to test the effect of soil applied neonicotinoid insecticides used for systemic psyllid control as inducers of SAR to determine, if possible, the direct effect of SAR on HLB disease progress in newly planted citrus trees subjected to psyllid mediated infection or budwood-inoculated infection. Hamlin trees were planted in May 2009 at the USDA-ARS, Picos Farm in Ft. Pierce FL and treated as follows: 1) untreated check, 2) foliar insecticide to control psyllids, 3) soil applied imidacloprid/thiamethoxam to induce SAR, 4) soil applied imidacloprid/thiamethoxam plus the foliar insecticide to induce SAR and control psyllids, 5) HLB bud graft-inoculated untreated check, 6) HLB bud graft-inoculated with soil applied imidacloprid/thiamethoxam to induce SAR. In 2009, the effect of SAR induction on HLB infection progress was inconclusive perhaps because the soil applied imidacloprid/thiamethoxam control of the psyllid may have caused an uncontrolled interaction with psyllid transmission. In 2010, the trial utilized soil-applied SAR inducing Actigard instead of imidacloprid/thiamethoxam in treatments 3,4 and 6. In December 2009 (6 months post-HLB inoculum challenge), 34 of 300 trees in the experiment were PCR positive (11%). In July 2010, 49 trees or 16% are PCR positive. Most of the PCR positive trees are located on the west side of the trial area which is proximal to pruned, heavily HLB infected citrus, and few infected trees on the east side bordered by citrus seed (trifoliate hybrids) and pine flatwoods. The highest number of PCR positive trees (12) occur in the untreated checks with or without graft inoculation, treatments 1 and 5, and in the graft-inoculated treated trees with soil applied SAR inducers, treatment 6; 7 positives are detected in the soil applied SAR inducer, treatment 3, 4 positives occur in the foliar insecticide,treatment 2, and 2 positives in the foliar insecticide plus soil applied SAR inducers, treatment 4. There are many new visually positive trees that cannot be confirmed as positive by PCR analysis due to the seasonally low bacterial titer in HLB affected trees throughout the state in mid summer. If the visually positive trees is are assumed to eventually be PCR positive, the effect of SAR induction on HLB infection progress remains inconclusive. Two HLB-SAR experiments of similar design are set up in Parana, Brazil. One is HLB graft-inoculated and the other is proximal to an unmanaged farm with HLB. Each of these trials utilizes soil applied Actigard for the SAR treatments. The HLB status of the Brazil trials will be assessed in September 2010 by the collaborators.