# 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 | 7/14/09 |

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

Horticultural Approach to Maintaining Citrus Trees with HLB

**TITLE and CONTACT INFORMATION**

*Proposal Title* Cultural Practices to prolong productive Life of HLB Infected Trees and Evaluation of Systemic acquired Resistance Inducers Combined with Psylllid Control to Manage Greening NAS179

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| *Phone* 239-658-3400 | *Project Duration (years)* 3 *Year of Project* 1 |
| *Organization* UF/IFAS | *Total Direct Funds (current year)* 214,881.00 |

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

Primary: Cultural Practices to prolong productive Life of HLB Infected Trees

The objective of duplicating the positive results obtained by citrus grower Maury Boyd with his nutrient/SAR foliar spray program appears to be well on the way to achievement. The foliar spray mixture was broken into component groups of micronutrients (Mg, Zn, Mn, Mo) SARs (Salicylic acid, Serenade Max WP), Phosphorus acid, Hydrogen peroxide, and other (macronutrients, citrus spray oil). Three trial sites, randomized & replicated, of 6 to 7-yr-old Valencia orange on Swingle rootstock were established; 1) two acres 100% infected at IFAS Immokalee, 2) six acres 50-60% infected commercial grove, and 30 acres 15-20% infected commercial grove. The trials were started at the beginning of 2008 with all combinations of the component groups being applied to the 3 flushes in 2008 and spring flush 2009.

In 2008 trees were all symptomatic of HLB and confirmed positive with PCR. Trees had dieback and poor growth. Results at the end of 2008 showed treated trees varied in their response, most decreased in tree rating and the full treatment maintained trees in many plots as compared to controls and untreated trees. Winter 2008 and spring 2009 saw mild freeze damage followed by extreme drought stress. Tree yield was to low to harvest at sites 1 and 2. A dramatic recovery was apparent in many of the treatment group with the 2009 spring flush. Trees grew vigorous shoots with normal to long internodes and full size leaves. Many trees flowered and set a heavy crop load for young trees. Most treatments improved but the best results are being seen with the complete mixture.

Monitoring Boyd's grove has recorded a fourth year of fruit set and vigorous growth. Canopy density, shoot length, and leaf size is normal. HLB symptoms remain evident on foliage and new vigorous shoots initiate from infected stems. Yields the past three years have maintained or increased. Fruit drop was observed on HLB infected trees at fruit maturity. Juice quality is high and equal to uninfected trees. Root samples have shown no root deterioration or sloughing.

Primary cost estimates of HLB Foliar Spray program are that net production costs increase by less than $200 per acre. The threshold for removing HLB infected trees could by less than 2% per year if nutritional and SAR treatments preserve production of infected trees for at least 10 years.

Subcontract: Evaluation of Systemic Acquired Resistance Inducers Combined with Psyllid Control to Manage Greening in Infected groves

The trial began on march 19, 2008 and occupies 12 acres of 'Valencia' orange on 'Swingle' citrumelo, divided into 16 plots in an RCB design with 4 replicates and 4 treatments: ± a micronutrient SAR cocktail and ± insecticide applications as needed to control psyllids. We have been able to maintain low populations in the sprayed plots 0.7 ± 0.2 adults per 10 tap samples compared with 9.9 ± 1.4 adults per 10 tap in neighboring non-treated plots. Trees receiving the cocktail are visibly in better condition but differences in production after 1 year were not significant although trends were favorable: (1.30±0.13 for treated plots vs 0.98±0.1 boxes for untreated). The treatments are not yet having a measurable effect on the incidence of greening. Instead, a geostatistical analysis of the distribution of infected plants indicates edge effects.