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	7/15/09

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

The adopted vector control program showed significant reduction on HLB incidence but did not avoid the primary infection

TITLE and CONTACT INFORMATION

Proposal Title Reduction of bacterial inoculum and vector control as strategies to manage citrus huanglongbing (greening)

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Phone (+55) 16 3301-7025	*Project Duration (years)* 3 *Year of Project* 1
Organization Fundecitrus	*Total Direct Funds (current year)* $49,000.00

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

The purposes of this project have been: (i) to study the effect of different frequencies of removal of symptomatic trees on HLB progress; ii) to study the effect of vector control on HLB progress; iii) to establish the most efficient and economic combination of frequency of inoculum reduction and vector control to manage HLB; iv) to verify the possibility of growing an economically feasible planting using such strategies in an region with high external pressure of inoculum; and v) statistically compare our results with those elucidated by Gottwald et al. form similar research in their proposal (HLB Epidemiology and Disease Control).

In May/06, a new grove of Valencia sweet orange grafted on Rangpur lime was planted in a HLB epidemic region of Sao Paulo State, Brazil, and 8 treatments including 4 different frequencies of symptomatic tree removal and 2 vector control programs (with and without vector control) divided in 24 plots were applied. The first HLB-symptomatic tree was found 13 months after planting in May/07, but for most of plots the first symptomatic trees appeared after November/07. In December/08 the average HLB incidences in plots with and without vector control plots were 1.6 and 3.2%, respectively. In the last 6 months, the disease incidence increased very fast, achieving 15.4 and 34.1% in plots with and without vector control, respectively. Until now, there was no significant relationship between the frequency of local inoculum reduction and all assessed variables. The short period of application of eradication treatments associated to the long incubation period of the disease could contribute for that. The local vector control program was able to significantly reduce adult psyllid population and also to avoid psyllid breeding in treated trees. In a preliminary temporal analysis, despite no significant difference observed on the delay of the beginning of epidemics and on disease progress rates, psyllid control significantly reduced the cumulative number of HLB-symptomatic trees. However, the tested vector control program did not completely avoid HLB contamination from external source of inoculum (15.4% of HLB-symptomatic trees 37 months after planting) and raises the question if the efficiency of local vector control is enough to guarantee the profitability of citrus groves where HLB is endemic (data for economic analysis have been collected). Preliminary spatial analysis showed that at the beginning of HLB epidemic in each plot (HLB incidence = 1%), the spatial pattern of symptomatic trees were at random originated from long distance movement of infected psyllid from external source of inoculum. In a higher disease incidence (5%), for plots without vector control, aggregation patterns were detected in 8 of 12 plots, indicating that secondary infections at short distances also occurred. For plots with vector control program, non-aggregation of HLB-symptomatic trees was significant detected in 9 of 12 plots, indicating that vector control has an effect in reducing the local transmission that operated over short distances within the plots even in plots where HLB-symptomatic trees are exposed to adult psyllid for some months. The preliminary results point to a need for regional control strategy and that for small plantings that can not control neighbors will be really hard to profitability manage the disease. The assessments on this experiment will continue to allow more detailed temporal, spatial and economical analysis for better conclusions.