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	1/12/10

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

Disease incidence keeps increasing even with local vector control and local symptomatic tree removal

TITLE and CONTACT INFORMATION

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

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Organization Fundecitrus	*Total Direct Funds (current year)* $49,000.00

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

Data still have been collected from this field experiment.
The longer time of exposition of symptomatic trees in plots with longer frequencies of local inoculum reduction treatments did not result in significant differences on HLB progress rate and HLB incidence 42 months after planting.
The tested program of ACP has been efficient to reduce the number of adult psyllids captured on yellow stick traps in 78.6% and to reduce the number of eggs and nymphs observed on new shoots in 94.6%. The disease progress rate (estimated by Gompertz model) in plots with ACP control program was significantly reduced in 21% compared to the disease progress rate in plots without ACP control, reducing the incidence of HLB-symptomatic trees in 53.2% during these 42 months. No significant difference was observed on the delay of the beginning of epidemics.
From October/09 to December/09 the disease incidence increased from 20.3 to 28.9% in plots with ACP control program and from 44.9 to 61.8% in plots without vector control.
Like observed in past years, the seasonality of HLB symptoms was repeated this year. The incidence of symptomatic trees in each assessment started to increase after February (end of summer) reaching high values in April to June (autumn), and started to decrease after July, reaching low values in September (beginning of spring). However, in 2009 there was a second increase of symptomatic trees detection from October to December probably associated to abnormal amount of rain during the winter.
All psyllids captured on yellow stick traps since the winter/07 were tested for the presence of Candidatus Liberibacter spp. by conventional PCR. Higher frequencies of PCR-positive ACP have been observed during spring and summer.
Until the first harvest in September/09, US$ 7.37 per plant was spent on psyllid vector control program. The cumulative costs for scouting symptomatic trees were respectively US$ 1.56 and 0.12 per tree for 14 and 182 days of inoculum reduction frequencies. US$ 0.79 was the average cost to remove and eliminate each symptomatic tree. Considering the average cost of HLB management, the cost of eliminated trees and the income by first fruit harvest (US$ 4.12per box paid to citrus growers in Sao Paulo in 2009), no treatment was economically sustainable so far. Additional data for economic analysis have been collected.
Annual maps of HLB-symptomatic trees were prepared for spatial analysis using stochastic models (MCMC) to verify the effects of each treatment on primary and secondary spread of HLB. This analysis will be done at USDA lab in Fort Pierce by Gottwald's team.
The assessments on this experiment will continue at least for one more year to allow more detailed temporal and spatial analysis and get better conclusions. According to the estimated disease progress rates, the HLB incidence will be 62.8 and 83.4% respectively for plot with and without vector control at the end of 2010.
These results will be presented in the next Florida Citrus Show (January 27th).