CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶ INSTRUCTIONS

(●) *Quarterly Report* ( ) *Annual Report* ( ) *Final*

Required: What is the "headline" for this report (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Regional HLB management can reduce local control costs

Proposal Title

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

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
10/15/10	Citrus Research and Development Foundation	Epidemiology and Cultural Control

REPORT UPDATE (500 words; summarize your accomplishments)

We continued the assessments of two experiments under high and low external inoculum pressure (E1 and E2, respectively).

At the end of September 2010, HLB incidence in plots without vector control was 76.8% and 6.2% in E1 and E2, respectively. In plots with vector control program, the disease incidence was 53.1% for E1 (insecticide sprays every 14 days) and 4.6% and 6.3% for E2 (every 14 days and 28 days, respectively). This results indicates that with regional management of HLB, with less intensive vector control program (insecticide sprays every 28 days, or even no insecticide sprays) it is possible to be more efficient than a high intensive vector control program (insecticide sprays every 14 days) applied locally within a region without regional management.

It has been observed that cumulative ACP adult population caught per yellow stick trap in plots without vector control program in E1 was high and quite stable year after year (5.0 in 2007, 30.5 in 2008, 10.8 in 2009 and 13.9 in 2010), while the cumulative population in plots without vector control program in E2 has decreased year after year (11.3 in 2007, 2.4 in 2008, 2.2 in 2009 and 0.1 in 2010). It is an indication that the local population of ACP do not stay in the plots without vector control during all the year (probably after some period or year season all adults move to other place), and the yearly population with be dependent of the influx of ACP from outside citrus blocks or alternative hosts. With the implementation of regional HLB management around E2, the influx of migrant ACP population has decreased yearly causing the reduction of the initial ACP population on plots without vector control.

No significant differences on HLB progress rate and HLB incidence among different frequencies of local inoculum reduction in each experiment was observed yet. However in a regional scale, the 3-4 inspection/eradication of symptomatic HLB trees around E2, were enough to reduce the average incidence of HLB in E2 compared with E1 surrounded by citrus without any eradication of HLB infected trees.

PCR-positive ACPs have been observed both in plots with and without vector control program for E1 and no psyllid sample was positive for Candidatus Liberibacter spp. in Exp.2. This result could explain why even with similar population of adults ACP in plots with vector control, the incidence of HLB-symptomatic trees were much lower in vector controlled plots of E2.

Spatial analysis of annual maps of HLB-symptomatic trees were done at USDA lab in Fort Pierce by Gottwald's team by stochastic models (MCMC) to verify the effects of each treatment on primary and secondary spread of HLB. Now we are interpreting the outcome results.

The assessments on both experiments will continue to allow more detailed temporal and spatial analysis, as well economical analysis, and get final conclusions.

These and others preliminary results were recently presented in two workshops in Mexico (2nd International Workshop on Huanglongbing and Asian Citrus Psyllid - July/10, and the 2nd International Citrus Research Workshop, July/10), and two meetings in Brazil (the Annual Meeting of Brazilian Society of Phytopathology, Aug/10, and in the Brazilian Workshop of Plant Disease Epidemiology, Oct/10). The results of this project are also being presented to growers to help the establishment of growers' groups for regional management of HLB in São Paulo, Brazil.

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Organization Fundecitrus

Contract Number 8

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Total Funds (current year) $48,800.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.