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)

HLB in citrus and psyllid from trees treated with nutritionals

Proposal Title

Spatial and Temporal Incidence of Ca. Liberibacter in Citrus and Psyllids Detected Using Real Time PCR

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
10/14/11	Citrus Research and Development Foundation	Epidemiology and Cultural Control

REPORT UPDATE (500 words; summarize your accomplishments)

Spatial and Temporal Incidence of Ca. Liberibacter in Citrus and Psyllids Detected Using Real Time PCR, October 2011.
Objective 1. Assess seasonal patterns of pathogen incidence in citrus trees and psyllid vector populations in an infected experimental block.
Since March 2008, the pathology and entomology have been working at a site located within a commercial grove that initiated nutritional and/or insecticidal sprays on 7-year-old Valencia on Swingle trees. Initially, disease incidence of HLB in trees in the various plots average around 25%. One year later, disease incidence was greater than 80%, and in the nutritional treatment 100%, in the plots. Determining the titer of HLB in symptomatic leaf samples and in collected psyllids was possible by training and resources provided by collaborator, M. Keremane. Citrus leaf samples and psyllids, stored from initiation of the trial and sampled at approximately 6 month intervals, are being processed. Data reveal that while some fluctuations in the titer of bacteria in occur at sampling dates, preliminary conclusions are limited. The data is skewed toward a detectable population of HLB by the selection of symptomatic tissue, therefore it may not be that differences in populations will be detected in symptomatic tissue. Other studies are using other sampling techniques to try to get around this bias.
Objective 2. Evaluate the influence of cultural factors that affect incidence and titer of Liberibacter in citrus trees and psyllid populations including tree age, variety, rootstock, block size, surroundings and management practices such as vector control and tree removal.
In another location where HLB incidence and tree health is being monitored on grapefruit and Hamlins receiving various treatments, including initially, tree removal, S. Halbert has been conducting trapping of psyllids. Psyllids from the traps are being analyzed for HLB titer by K. Hendricks, SWFREC. Four suction traps were operated at the SW Florida Research & Extension Center from July 2009 to present. These included an 8 meter tall trap and three 2 meter traps. Of the latter, one was in managed citrus, one was in unsprayed citrus, and the other was in an open field. Samples were collected approximately weekly. The psyllids were removed and identified in Gainesville. Beginning in 2011, all Diaphorina citri Kuwayama were tested singly for presence or absence of the HLB pathogen. All three short traps collected D. citri. Both traps located in citrus collected at least occasional D. citri throughout the year, but the trap in the unsprayed citrus collected the most. The trap in the open field showed peak activity in March, coinciding with the spring flush. These collections could indicate that longer distance flights away from the crop occur at that time of the year. Overall, there were five samples positive for Las and three questionable samples in 2011. There were positive samples collected from all three short traps. There was no difference in the numbers of positives by trap. This can be attributed to the fact that citrus greening disease is widespread and common in the Immokalee area.
Preliminary data indicates that neither nutritional nor insecticidal sprays impacted the disease progress of HLB because either the treatments were initiated during the long lag time between inoculation/symptom expression or another reason. Yield data from various plots has been collected as a indicator of overall impact of HLB, at one site of these studies.

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Contract Number 0007662

Project Duration (years) 3 *Year of Project* 3

Total Funds (current year) $90,120.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.