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*	HLB Pathology	1/13/10

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

Diagnostic service for detection and managing Huanglongbing by citrus growers throughout Florida.

TITLE and CONTACT INFORMATION

Proposal Title Diagnostic service for growers for detection of Huanglongbing to aid in management decisions

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Phone 239-658-3400	*Project Duration (years)* 3 *Year of Project* 1
Organization SWFREC	*Total Direct Funds (current year)* 180,000

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

This first section of the report covers the entire period that Huanglongbing Diagnostic Laboratory has been in service since February 2008 because one of the objectives for the funding was to continue to provide continuous, seamless service for as long as the growers deemed it necessary. This has been achieved as detailed in the report below.
The HLB Diagnostic Laboratory located at the University of Florida Institute of Food and Agricultural Science Southwest Florida Research and Education Center (UF-IFAS-SWFREC), was establish with funds appropriated by the Florida legislature to serve grower and researcher HLB diagnostic needs in citrus. The lab has been in operation since February 2008. In addition to providing diagnostic services to the growers, the lab continued to develop and apply techniques, protocols and efficiency.

Samples
The lab has been in operation for nearly 2 years, and has received to date more than 16,000 grower samples, approximately 5,700 research samples, and 2,100 screen house samples from the Budwood facility located on the SWFREC property. Approximately 2600 of the sample total were submitted between October through December 2009. Additionally, of the 5,700 total samples have been processed for research, of which nearly 700 were within that same time frame.
These totals represent a several-fold increase in number of sample submissions when compared to the year's previous two quarters, reflecting seasonal fluctuation in sample volume.

The lab has received samples from growers throughout Florida, with the highest number of samples received from growers in Collier, Highlands, and Hendry Counties. There is a slight seasonality to the sample submission volume with respect to harvesting and new growth (flushing) events.

Techniques, Protocols and Research
The new DNA isolation kit implemented last quarter into routine operation of the lab has provided us with exceptionally fast and efficient turnaround time for growers as well as research samples. This new kit employs magnetic bead technology to effectively and efficiently isolate whole genomic DNA from plant tissue including DNA of the HLB pathogen. We are using liquid nitrogen to grind all samples as this provides the most effective maceration. We continue to use the magnetic particle based system, which has proved both reliable and fast. We have developed and are in the beginning stages of implementing a protocol for the detection of HLB in Asian Citrus Psyllid (ACP) with the primary goal of serving research projects within the Entomology and Plant Pathology departments with compensation through their programs.
To improve sensitivity to detect HLB, we are investigating other probe/primer combinations in different areas of Candidatus Liberibacter asiaticus gene and have the ability to detect other greening organisms such as Candidatus Liberibacter africanus and Candidatus Liberibacter americanus. We have attempt to culture the organism Candidatus Liberibacter asiaticus either in co-culture or isolate it in pure culture using reports cited in literature and will use the pure culture to calibrate the sensitivity of our lab protocols to determine the minimum number of cells of Liberibacter needed for detection.