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	7/8/09

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

Diagnostic service for Huanglongbing provided to 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)* 1 *Year of Project* 1
Organization SWFREC	*Total Direct Funds (current year)* 180,000

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

This report covers the entire period that Huanglongbing Diagnostic Laboratory has been in service because one of the objectives for the funding was to continue to provide seamless service without interruption to growers. 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), since February 2008. Since the opening of the lab, there has been continued development of techniques, protocols and efficiency.

The lab has been in operation for fifteen months, and has processed more than 13,000 samples from growers, approximately 4,000 research samples, and 700 screen house samples from the Budwood screenhouse facilities located on the SWFREC property. Since the HLB organism is no longer of the select agent list and reporting requirements have changed, we now supply reports at the request of the USDA and the State of Florida. We exceeded our anticipated yearly load of 10,000 samples. Samples are logged into the computerized database, processed by extracting a specific weight of tissue sample, homogenized, the DNA extracted, PCR amplified, and results are sent to the submitter.

The lab has received samples from growers throughout Florida, with the highest number of samples received from Collier, Highlands, and Hendry Counties. There is a slight seasonality to the sample submission volume with respect to harvesting and new growth (flushing) events. To date February, January and March of 2009 has been the months that growers have submitted the most samples.

From the currently accumulated data, the HLB lab has a 69% positive sample submission rate, and a 31 % negative submission. Temporally the highest amount of negative sample submissions were in February 2009 at approximately 80%, and the highest amount of positive sample submissions were in March 2009 at approximately 35% (Figure 3). These disease detection rates are not directly indicative of the actual overall field disease levels for HLB since scouting and field sampling are usually selective.

Techniques, Protocols and Research

We are continuing to update the efficiency of the laboratory by experimenting with a quick efficient extraction kit. We have implemented this kit into everyday operation of the lab and have provided us with exceptionally fast and efficient turnaround time for growers as well as research samples. Also 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. The HLB Laboratory has one full-time manager and three part-time employees. The current turn around time for processing samples during the off-season is less than two weeks and, at the time of highest sample submission, the turn around time was longer.

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 are also attempting to culture the organism Candidatus Liberibacter either in co-culture or isolate it in pure culture which will then be used to standardize and quantify the detection reaction.