

HLB Diagnostic Laboratory Progress Report October 2009

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 established 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, but received samples well before the official opening date. Since the opening of the lab, there has been continued development of techniques, protocols and efficiency.

Samples

The lab has been in operation for fifteen months, and has received to date more than 13,200 grower samples, approximately 5260 research samples, and 700 screen house samples from the Budwood facility located on the SWFREC property. 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

We have implemented a new DNA isolation kit into routine operation of the lab and it 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 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 are also attempting to culture the organism *Candidatus Liberibacter asiaticus* either in co-culture or isolate it in pure culture. When successful, the pure culture will be used to calibrate the sensitivity of our lab protocols to determine the minimum number of cells of *Liberibacter* needed for detection.

