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	1/15/10

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

Good Plants-Bad Plants

TITLE and CONTACT INFORMATION

Proposal Title Alternative Hosts of HLB to Assist in Disease Management

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Phone 863-956-1151	*Project Duration (years)* 3 *Year of Project* 1
Organization University of Florida - CREC	*Total Direct Funds (current year)* $205,000

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

This work will determine if certain alternative plant species are better hosts for the suspected HLB bacterial pathogens (Ca. Liberibacter asiaticus (Ca. Las), Ca. Liberibacter americanus (Ca. Lam) and Ca. Liberibacter africanus (Ca. Laf)) and can serve as a reservoir hosts for infection to citrus. During this quarter work was again was performed at all four investigator locations.

At the University of Florida, CREC Lake Alfred, quantitative real time PCR (qPCR) was done on Severinia buxifolia (orange boxwood) and showed that it was a good host for the Las bacterium. HLB healthy Asian citrus psyllids were allowed to feed on HLB infected S. buxifolia and 20-30% of them were found PCR positive. Initial PCR tests of sweet orange plants that psyllid transmissions were previously done from the infected Severinia produced some positive plants. Additional PCR testing will be done after further incubation. This research was done by Hao Hu a graduate student studying with Dr. Brlansky. Real time PCR results on rough lemon (C. jambhiri) showed infection of both symptomatic as well as asymptomatic shoots and leaves with similar PCR values for all shoots. Rough lemon continues to grow even when infected with Ca. Las. Rootstocks from field experiments are being tested to determine infection. Various sweet orange cultivars were inoculated with Florida Ca. Las and one cultivar tested PCR negative in multiple tests.

At the Texas A&M Citrus Center, Weslaco psyllid feeding tests continued on the rutaceous plants that are established there. More replications of psyllid feeding experiments were done with Esenbeckia berlandieri (jopoy), Amyris madrensis (torchwood), Choisya ternata and C. arizonica. All are feeding hosts for the psyllid. As previously reported egg laying was found on torchwood but the psyllids did not complete development. Egg laying and nymphal development to adults were found on C. ternata. This work is part graduate student Jose Sandoval's research with Dr. da Graca.

At the USDA, ARS, Beltsville quarantine greenhouse. Graft inoculations were done to Murraya paniculata with exotic Ca. Ca. Lam and Ca. Laf isolates and will be tested soon. No symptoms are apparent. Work with dodder as an alternative host was completed studying the plant infection process and for its use to transmit all Liberibacters to plants that are not graft compatible with citrus. A manuscript was submitted for publication in Phytopathology by Drs. Hartung and Brlansky. In this publication dodder became infected and phloem necrosis occurred similar to that in citrus. In addition we found that the Liberibacter exists in two morphological forms in the dodder similar to that seen in citrus and periwinkle. In addition we found the intermediate between the two forms which proves that both forms are the same bacterium.

At the USDA, ARS, FDWSRU, Ft. Detrick, MD a manuscript entitled "The relevance of Murraya paniculata and related species as potential hosts and inoculum reservoirs of 'Candidatus Liberibacter asiaticus', causal agent of Huanglongbing (HLB)" was completed and accepted for publication. Authors from the grant include Drs. Damsteegt, Brlansky and Schneider. The details of this work were reported in earlier reports. Psyllid transmissions from HLB (Ca. Laf and Ca. Las (Thailand strain)) infected sweet orange to Severinia buxifolia are underway.