CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

SELECT PERIOD June 2016

(●) *Quarterly Report* ( ) *Final*

Proposal Title

An integrated approach for establishment of new citrus plantings faced with the HLB threat

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
07/12/2016	Citrus Research and Development Foundation	HLB epidemiology and mitigation of HLB by cultural pra

REPORT UPDATE (500 words-It is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)

This overall 3 year project was focused on determining the optimum combination of chemotherapy, thermo-therapy, and nutrient therapy that can be registered for use in field citrus and control HLB. In this quarter (April 2016 to June 2016), three foliar sprays of the antimicrobial chemicals (Pen, Pcy, Carv and EBI-602) were applied at a two week interval for all treated trees from March to May, 2016. For gravity bag infusion, two refill applications of Pen, SD and SDX were conducted at two week interval in April, 2016.

According to the Field Trial Tree Evaluation Methods developed by CRDF, we investigated tree canopy, tree health, fruit drop and fruit quality and Las bacterial titers by real-time PCR. Fruit quality tests were done on the field trail of combination of chemotherapy, thermo-therapy and nutrient therapy. A total of 50 fruit were harvested from the 3 trees in each trial replicate. Tests were run on 20 fruit from each sample for size, peel color, puncture resistance, fruit weight, juice weight, brix and acid. The tree canopy decline index (DI) was compared between the treated and control plants. Eight mature leaves with petioles from each of the treated and control trees were sampled around the canopy for PCR test.

The preliminary results indicated that:1) the integrated practices (antimicrobial treatment coupled with heat treatment and nutrition fertilization) could decrease the fruit drop, increase the fruit and juice weight, and decrease the ratio of brix to acid; 2) compared to the control plants, all antimicrobials reduced the Las bacterial titers, especially PEN. 3) Both SD and Pen reduced the DSI through two years application; 4) two new adjuvants (Bio and MF200) improved the effectiveness of Pen by foliar spray; 5) Ten antimicrobials were prepared in two different concentrations of the nano formulations (0.1 % and 1.0 %) in the greenhouse test. The Ct values kept over 36.o in the PEN-treatment.

In next quarter, we will keep on our application and prepare the final reports. One papers has been published in <Crop Protection> and another papers has been accepted to publish in <Plant Disease>.

PI First Name Charles A.

PI Last Name Powell

Email capowell@ufl.edu

Phone 772-577-7368

Organization IRREC-IFAS, University of Florida

Project Number 910

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

Total Funds (current year) 369,714