CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD September 2014

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Identification and mapping of the genes controlling resistance to Huanglongbing (HLB)

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
11/1/14	Citrus Research and Development Foundation	Citrus Genomics

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

This July 2014, leaf samples were collected from 887 of the original 912 plants that covered the entire field population again to quantify the CLas levels by real-time PCR. At this sampling time, 6 F1 progenies remain basically PCR-negative for CLas (i.e., most replicates remain with undetectable levels of CLas), of which 3 are completely HLB free among all replicates. The average Ct value of the whole population declined further to 29.9. Combining all results of PCR monitoring over time, 4 F1 hybrids generally have been for the most part CLas-free, except for occasional low-level and inconsistent detections of CLas by PCR in a small number of the replicates. Two F1 hybrids have always tested negative for CLas, among all the individual replicates across all sample dates. In addition, we collected samples from the selected monitoring population again, and we took an additional step to have greater confidence in our results; we quantified CLas using double reference genes for both the plant and the bacterium. The results verified the accuracy of using a single reference gene for the whole population (correlation R2=0.91). Further, this step also verified the 2 constantly and completely CLas-negative F1 hybrid progenies in all replicates of each. Finally, HLB symptoms, canker symptoms, and stem diameters were assessed again for the pre-selected monitoring population. The average rating across the entire population for HLB was 1.6 and for canker was 2.1. We have begun artificial inoculation experiments in the protected greenhouse structure, by testing a recently developed inoculation method recommended to us by a colleague, using sap extracts from PCR+ plants rather than grafting the infected budsticks. We have started experiments to determine the effectiveness of this approach in our hands using 3 year-old Valencia orange trees. Finally, we have produced a sequence-based marker genetic linkage map for this population, to support subsequent QTL mapping efforts.

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Organization UF-CREC

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Form PR-12 Quarterly Reports **SUBMIT REPORT**

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.