CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL PROGRESS REPORT FORM: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

▶PROJECT QUARTER END May 2023 ◉ *Quarterly Report* ○ *Final*

Proposal Title

Understanding the HLB tolerance and reduced fruit drop in Parson Brown and evaluation of other early season sweet oranges

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
05/15/2023	Citrus Research and Development Foundation	Plant Improvement

ABSTRACT (Executive Summary-public report-do not disclose proprietary information or intellectual property)

1. Please state project objectives and what work was done this quarter to address them:

Objective 1: Study the changes in the reactive oxygen species (ROS) and investigate the correlation between ROS accumulation, sucrose levels and callose deposition in early season sweet oranges

Budded trees from Hamlin, Parson Brown and Roble sweet oranges have been produced and infected with CaLas through stick grafting. Control samples before infection have been collected and the next set will be collected once trees are HLB+. These trees will also be used for Objective 3 analysis.

Objective 2: Quantify fruit drop and canopy yield efficiency in 'Parson Brown' as compared to 'Hamlin'. Understand the underlying mechanism of better fruit retention and yield efficiency in 'Parson Brown' as compared to 'Hamlin'.

This experiment will be initiated from Mid June.

Objective 3: Determine the mechanism underpinning the tolerance of 'Parson Brown' to HLB by leaf volatiles and non-volatile metabolite analysis using GC-MS.
Trees have been produced for both objective 1 and 3 and analysis is underway.

Objective 4: Evaluate other early season sweet oranges
Leaf samples have been collected from a Roble sweet orange grove in Zephyrhills. Additionally, samples from several survivor trees from a grove in Lake County have been collected. We have analysed the HLB status of these trees and the biochemical profile of the leaf samples.

2. Please state what work is anticipated for next quarter:

Fruit drop studies will be intiated on field trees. Also, molecular and biochemical analysis of the HLB infected trees will be initiated.

3. Please state budget status (underspend or overspend, and why):

We are on track with the budget. A postdoc has been hired to work on several of the parameters in this project from the second quarter.

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Organization UF-CREC

Sponsor Project Number 22-019

Project Duration (years) 2 *Year of Project* 1

% Completion of Objectives (FDACS requirement) 20.00%

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.