CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶PROJECT QUARTER END January 2024 ● *Quarterly Report* ○ *Final*

Proposal Title

Development of Next-Generation SuperSour rootstocks with tolerance to HLB

Today's Date 01/31/2024

Sponsoring Organization (drop-down) Citrus Research and Development Foundation

Category (drop down) Plant Improvement

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

Objective 1. Collect field performance data from replicated rootstock field trials and release new rootstock cultivars as justified by superior performance in multiyear field trials.

Collect field performance data. Thirty USDA replicated rootstock trials are active. For the current quarter, tree survival, cropping and juice data was collected from one mandarin rootstock trial and six Hamlin rootstock trials. Juice analysis of frozen samples was completed for trials from the 2022-23 season, and begun on trials from the 2023-24 season.

During this quarter, seed was collected from more than 200 candidate SuperSour rootstocks. This will be used for morphology and SSR assessment of trueness-to-type from seed. Additional work on trueness-to-type assessment and salinity tolerance of new rootstocks was continued.

Release of new rootstocks. New rootstocks will be officially released by USDA for commercial use when justified by superior performance in multi-year replicated field trials. The most promising USDA rootstock selections are provided to the FDACS-DPI program for shoot tip grafting and disease testing in advance of potential release. The two newest USDA rootstocks, US SuperSour 4 and US SuperSour 5 released in September 2023, were propagated for planting in upcoming demonstration plantings. Two other promising new USDA rootstocks were provided to DPI for STG and testing this quarter, in preparation for possible release in future years.

Objective 2. Create hybrid rootstocks that combine germplasm from parental material with good rootstock traits and HLB tolerance, propagate the most promising of these hybrids, and establish replicated field trials with commercial scions.

Create hybrids. About 230 hybrid seedlings from 2023 high priority crosses will be grown in the spring for preliminary evaluation and further testing.

Propagate hybrids. Trees for two new stage 2 rootstock trials with 35 advanced selection SuperSour rootstocks with Valencia scion continue growing in the nursery, with a plan for field planting in spring-summer 2024.

Establish replicated field trials. No new trials were field planted this quarter, but two are planned for planting in the next quarter.

Tree care in trials. Periodic care was applied in the 32 field trials to maintain tree health and productivity, and manage weeds. Two young rootstock trials are being grown with IPCs. One rootstock trial is being used for a comparison of tree performance of different rootstocks with and without OTC injection.

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

For the coming quarter, work will focus on collection of 2023-24 season yield and fruit quality data from trials with Valencia scion, continuing propagation of trees for future trials, and care of existing trees in trials. Two new Valencia rootstock trials

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Organization USDA

Sponsor Project Number 21-008

Project Duration (years) 3 *Year of Project* 2

% Completion of Objectives (FDACS requirement) 58.00%

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.