CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD September 2015

Quarterly Report Final

Proposal Title

Understanding and reducing early root loss in HLB affected trees

Today's Date 9/23/15

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

Category (drop down) Infection Consequences

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

Seasonal root sampling continues in two field sites for root density and root growth. We have completed a second year of root growth data from Hamlin/Swingle and are continuing to collect a second year of root growth data on Valencia/Swingle. Results continue to emphasize the need to use treatments that improve root longevity as the main method of managing HLB root loss. Additional root growth appears to occur at the expense of older roots and is unlikely to provide sustained improvement in root density. Root growth, lifespan, and death measurements are being made from root tubes installed in treated and untreated plots of a thermotherapy trial to combine efforts and provide both basic disease information and treatment effects on the root system. Visual observation shows that the method is working well, but data analysis has been delayed due to an unexpected software glitch that the company is currently working on fixing.

Only one rootstock tested to date has shown a significant difference in response to HLB. It remains the only rootstock with significantly better root density (increased) when infected by HLB. Root loss has not been observed yet in this rootstock. We are planning to collect fruit drop data this year on the rootstocks that have been measured to see if the improved root density of this rootstock correlates with better fruit retention.

We continue to monitor the most promising rootstocks identified in the field trial to HLB using rhizotrons in the greenhouse. A second set of rootstocks is ready for testing in rhizotrons as soon as greenhouse space is available from the breakdown of the first set. Changes in image acquisition and soil type have been tested to improve the data analysis steps in these followup experiments. The first experiment is ready for takedown, but is awaiting some final root collections for phytohormone and microscopic analysis. A second set of root samples was collected for phytohormone analysis. Based on initial tests we have collected multiple growth stages and ages of roots to get a larger picture of the effects of HLB on phytohormones. Results from the initial run suggested that contrary to our hypothesis it was not the primary phytohormones that were altered by Las infection. One expected phytohormone was not detected in any sample and we are working to resolve this lack of detection. More microscopy samples have been collected and we are awaiting processing before we perform the final breakdown.

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Organization UF-CREC

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Form PR-12 Quarterly Reports SUBMIT REPORT

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