CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD March 2014

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Development of cryotherapy as an improved method of eliminating graft transmissible pathogens in Citrus

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
4/15/14	California Citrus Research Board	Unclassified

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

The primary goal of this project is to develop cryotherapy as a practical, reliable method of eliminating graft transmissible pathogens from Citrus and citrus relatives without inducing juvenility. Permits have been obtained to ship pathogen infected citrus material from Riverside, CA and from the Exotic Disease Quarantine Laboratory, Beltsville, MD to Ft. Collins, CO, and materials from Ft. Collins, CO can be sent under permit to Riverside for lab testing. In the first 18 months of the project, we have developed a cryotherapy protocol which works well with any type of citrus or near citrus relative. Two technicians from Riverside and one technician from Beltsville have been trained in Dr. Volk's lab on the technique. Initially we concentrated on therapy from citrus viroids and Citrus tatterleaf virus, and were able to eliminate these pathogens, the most difficult to remove by traditional shoot tip grafting (STG) using the cryotherapy protocol. Presently we are testing the protocol for elimination of huanglongbing, Citrus mosaic virus, and citrus variegated chlorosis (in Beltsville), citrus stubborn, Citrus psorosis virus, Citrus leaf blotch virus, Dweet mottle virus, citrus concave gum disease, and Citrus vein enation virus. Efficiency of therapy with cryotherapy is being compared with results obtained by shoot tip grafting with most pathogens. For Citrus tatterleaf virus, we have recovered 32 plants which are clean from 32 recovered plants; viroids 11 clean from 14 recovered plants; Citrus leaf blotch virus 6 clean of 6 recovered plants; Citrus psorosis virus 25 clean of 25 recovered; and Citrus Stubborn 10 clean of 10 recovered. Because we wait at least 12 weeks to conduct lab testing of recovered plants, we have a constant backlog of plants to be tested. In Riverside, we are testing recovered plants after they have been grafted from the test tube to a rootstock, thus representing plants that would be continued through the indexing required for a variety release. The research is continuing.

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Organization USDA ARS

Project Number 563

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

Total Funds (current year) $66,750.00

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

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.