CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD June 2013

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Mature tissue transformation for surviving with citrus greening

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
7/16/13	Citrus Research and Development Foundation	Transgenic/Metagenomic Mediation of Resistance

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

The Mature Tissue Transformation Laboratory (MTTL) continued to increase its preparedness for the first incoming orders. Number of rootstock plants available for budding was increased significantly and supply is now at the level necessary for normal operation.

In the last three months, seven co-incubation experiments were performed. In three experiments, 2212 explants of Valencia were used. Two co-incubations were done with 497 Hamlin explants. One experiment was done with 240 explants from Pineapple orange plants and one with 701 explant of Ray Ruby. The experiment with Ray Ruby was the first experiment done using the grapefruit explants.

The data were analyzed from three experiment performed in the previous reporting period and from four experiments performed in this reporting period. For both binary vectors used pCAMBIA2301 and pTLAB21, transformation rate is about 3%.

Because of the problems with the budding success rate, the decision was made to change provider of grafting services again.

Within the last 12 months, major efforts were directed towards keeping the facility operational, employees retained, and number of rootstock plants increased to levels needed for performing 9-10 experiments per quarter. Those goals have been achieved. By doing multiple repetitions of transformation experiments with bacterial strains carrying two different binary vectors, proper estimation of transformation success rate was obtained. That rate is at satisfactory level for citrus mature tissue transformation. However, there is a possibly lingering problem that needs to be addressed. Many of the plants produced to be the source of explants in co-incubation experiments have thorns that are one of the major features of juvenility. As a result, at least a half of transgenic plants already produced in the MTTL also have thorns. Within next few months, the oldest transgenic plants in our inventory will reach the age where they should theoretically flower. If they do not flower, protocol used for production of transgenic plants will have to be re-evaluated. Also, we must make sure that the sources of our germ-free certified material for production of "mother" plants are really mature trees.

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

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.