CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD December 2013

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Host genetic control of interference in Asian citrus psyllid life cycles

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
4/21/14	Citrus Research and Development Foundation	Conventional Citrus Breeding

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

Certain citrus cultivars, such as Cleopatra mandarin, seem to be incapable of supporting the full developmental life cycles of psyllids. Preliminary experiments with hybrids in a Cleopatra-derived family, using caged psyllid nymphs on pesticide-free, field grown trees, indicated possible genetic transmission to some of the progeny. A total of 91 trees in three families produced by crossing Cleopatra mandarin with three male parents were selected from field plantings for the project and for future evaluations. We have propagated replicates from each individual for assessments of psyllid reproduction and feeding behavior in controlled greenhouse and laboratory conditions, and transferred these to the co-PI Dr. Rogers for greenhouse and lab studies, that will be conducted once the trees have reached sufficient size. Additional trees have been propagated from substantial numbers of the hybrids to provide increased numbers of replicates for the ACP reproduction and feeding behavior studies, and these are being grown until they reach adequate size for use in experiments. A first round of caged tree limb experiments using a subset of the total trees available was completed last year. The trees were selectively pruned to provide abundant young flush. Specific numbers of nymphs were placed onto each of two branches per tree with flush, and cages were carefully placed over the branches. Data on survival, numbers of adults, egg deposition, etc. were collected. Several of the hybrids were unable to support adult psyllid development on both branches. These results were compared to results from previous preliminary experiments conducted in the field, and essentially demonstrated the consistency of the response of ACP to specific individual hybrids. A second round of field testing may be delayed until spring, to ensure good flush growth. In addition, new candidate plants have been identified from other studies of HLB impact on diverse citrus germplasm, which have shown either no impact or dramatically delayed infection, and new hybrid families have been produced from some of these for possible future studies. These include certain mandarins as well as other complex citrus hybrids.

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Organization UF-CREC

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