CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD June 2016

○ *Quarterly Report* ● *Final*

Proposal Title

Mathematical Model to Evaluate Psyllid Shield Concept

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
7/7/16	Citrus Research and Development Foundation	Infection Consequences

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

Research has documented how HLB damages the root system before symptoms appear in the canopy. We have revised our model to include symptom development. The model now tracks the inoculum from when it enters the tree by means of Diaphorina citri. The inoculum then travels through the phloem towards the roots when the flushing period is over. Some of the bacteria make it to the roots causing damage to the root system. We have run simulations comparing this new model with previous models that we developed.

We have run simulations using the new model to determine the question of how many RNAi constructs can be simultaneously tsted in a 10 acre block. We tentatively conclude that eight constructs can be simultaneously tested.

Our model does not include how CLas distributes in a tree. However, recent unpublished work indicates that it may not be important to understand this. According to the experiment, once pathogen has entered the tree, the disease progresses in a way that cannot be stopped by any current countermeasures. The only protection is to prevent infection. The model that we have developed is key to preventing the infection from spreading to a tree. In Brazil, effective management has been put in place that prevents spread of HLB to an extent that the participating groves are profitable.

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

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