CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD December 2015

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Large-scale mating disruption of citrus leafminer for validation and product launch

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
2/1/16	Citrus Research and Development Foundation	Vector Management

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

The large-scale validation of citrus leafminer (CLM) disruption with the ISCA DCEPT CLM technology came to an end for the 2015 season and we are analyzing and processing data currently. We are currently in the process of facilitating data analysis to determine how much better the technology worked on a larger scale as compared with previous seasons.

We have continued to collaborate and support Dr. Stephen Lapointe's laboratory for this research. This has required counting traps, measuring damage levels by CLM, and also performing advanced statistical analyses to determine efficacy of the products that we were are testing. One of the factors we have continued to investigate was dormant season applications of pheromones for management of CLM.

After winter treatment, dispensers provided >85% disruption of male moth catch in traps for 37 weeks, and after spring treatment >92% for 26 weeks, but there was only a 12% reduction in leaf infestation in spring. Two applications were not better than only a single application in spring. Disruption of moth catch was weaker in treated plots where traps were placed high (3.1 m) rather than low (1.6 m) in the tree canopy.

Dispensers provided effective and persistent disruption of male catch in pheromone-baited monitoring traps but were minimally effective in reducing leaf infestation by ACP. Winter application of pheromone did not reduce leaf mining in spring compared with spring application alone. Tops of trees may have provided a refuge for mating.

Mining of leaves in treated plots may have derived from inadequate disruption of mating in the upper canopy of trees or influx of mated females from neighboring areas, or because of dissipation of pheromone near edges of treated areas. Border row application of pheromone requires further investigation, as well as, other application methods of the pheromone. The possibility of fly-in mated females requires significantly more investigation as well, as we have begun this research. Inadequate disruption in tops of trees may be fixed by placing pheromone dispensers at the very top of tree canopies as is for other lepidopteran species. We have also begun investigating this hypothesis. Dissipation of pheromone due to edge effects may be decreased by increasing size of the treated area even beyond our current efforts or by increasing density of dispensers near borders of treated areas. Insecticide applications near borders might also improve control of this species within pheromone-treated areas. Our results corroborate previous investigations and suggest that management of CLM with mating disruption on a small scale may be ineffectual, despite the fact that this was the largest trial ever realized for CLM. It appears that the size should be of ever larger scale. Our results point to the likely need for even larger-scale area wide treatments for effective mating disruption of ACP than we had previously expected. However, we were able to effectively reduce CLM damage with these treatments.

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

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