CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶ INSTRUCTIONS

(●) *Quarterly Report* ( ) *Annual Report* ( ) *Final*

Required: What is the "headline" for this report (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Evaluation and promotion of sampling techniques for ACP

Proposal Title

Sampling Plans to Guide Decision Making for Control of Asian Citrus Psyllid (ACP)

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
7/10/11	Citrus Research and Development Foundation	Vector Monitoring, Behavior, Cultivation

REPORT UPDATE (500 words; summarize your accomplishments)

This project is focused on 1) refinement of sampling methods, 2) testing the influence of adult density and shoot infestation on precision of estimated means and distribution of population within blocks, and 3) evaluation of methods for assessing psyllid density, shoot density, and infestation rates and their integration into a user friendly system accessible to consultants and managers. We have made significant progress on all three objectives

1) Comparisons of stem tap sampling, sticky traps and sweep nets in commercial citrus were published in a peer reviewed EDIS document. Data indicated that although all methods detect adult psyllids, the stem tap method is most rapid, works under either dry or wet conditions, and has proven to be reliable and consistent. A little more than 100 tap samples would be necessary to detect with confidence 15 psyllids with 75% precision, a reasonable threshold during the growing season when trees are producing new growth. We recommend 100 samples per block divided into 10 stops, five along the perimeter where psyllids tend to congregate, and five inside the block. This scheme could lead to a decision to spray only the block perimeter if necessary. Ten tap samples should be taken at each stop, one per tree. Then 10 young shoots, each containing "feather flush" should be examined with a hand lens to determine if they are infested with psyllids. The search is terminated if 10 young shoots cannot be found after examining 20 trees. We are now comparing stem tap sampling with vacuum sampling in commercial citrus. The vacuum sampler is made from a leaf blower and collects many psyllids even at low populations. A single strike captured an average of about twice what a single tap sample would catch and the two samples were significantly correlated.

2) A three year study comparing the stem tap sampling and sticky traps under different levels of psyllid infestation in commercial citrus was completed. These and other data collected on comparisons of stem tap and sweep net sampling are being analyzed using regression and bootstrapping procedures. We are using precision levels of 0.25 and 0.01 SEM: mean in order to determine the number of samples required using these methods for routine monitoring and analytical modeling respectively.

3) Methods to monitor psyllids using tap sampling method and flush examination along with data sheets to record data have been posted at our website: swfrec.ifas.ufl.edu/entlab. A pest scouting workshop and citrus field day in collaboration with Hendry county extension were conducted during this quarter and appropriate sampling methods promoted to 125 participants. So far, more than 4000 tap sampling kits have been distributed to clientele through workshops conducted at SWFREC and IFAS extension. This method has been widely adopted by the citrus industry. More than 75% growers in SW Florida value tap sampling in their decision to manage psyllids along with flush examination. The success of the tap sample, is also illustrated by its adoption by APHIS and DPI CHRP to monitor 6,000 blocks of citrus in Florida every 3 weeks. Tap sampling method was also used to evaluate several experimental and recommended insecticides at SWFREC and large scale studies in commercial citrus designed to control psyllids using insecticides, horticultural oils and nutritionals.

Arevalo, A. H, J. A. Qureshi and P. A. Stansly. 2011. Sampling Asian citrus psyllid (ACP) in Florida citrus groves. EDIS, http://edis.ifas.ufl.edu/in867.

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Project Duration (years) 3 *Year of Project* 2

Total Funds (current year) $62,393.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.