# Florida Citrus Advanced Technology Program

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

**Instructions** Complete the fields based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to **http://research.fcprac.com**, and log in with your user name and password using Researcher Login in the lower left. Find this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

| 2009-2010 REPORT | CATEGORY (drop-down) | TODAY'S DATE (m/d/yr) |
|---|---|---|
| ● *Quarterly Report* ○ *Annual Report* ○ *Final* | Management | 7/13/09 |

**WHAT IS THE "HEADLINE" FOR THIS REPORT (e.g. a one-sentence "newspaper headline" describing what you accomplished)**

Testing and optimization of sampling methods for the Asian citrus psyllid

**TITLE and CONTACT INFORMATION**

*Proposal Title* Sampling Plans to Guide Decision Making for Control of Asian Citrus Psyllid


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| *Phone* (239) 658 3400 | *Project Duration (years)* 1 *Year of Project* 1 |
| *Organization* SWFREC - IFAS - University of Florida | *Total Direct Funds (current year)* $66, 791 |


**REPORT UPDATE (650 words; provide details about your headline)**

Funds for this project were not released until 9 June although work commenced at the beginning of April 2009. We are evaluating tap sampling against sticky traps, and sweep net methods for the first objective. A 12-acre commercial block of Valencia oranges was divided into 16 plots, eight treated with insecticides and 8 left untreated. Three sampling methods were assessed: the "tap" sample, the "Yellow Corn Rootworm Trap" (YCRW), and the "ACP Trap". For the tap sample a randomly chosen limb was struck 3 times and fallen psyllids counted from a laminated white sheet of paper held 1 ft below the foliage. Each plot contained six sampling stations located at random, each consisting of a tree with two types of traps hung in the canopy. Traps were collected after 2 weeks, at which time two tap samples were taken from the same tree. The YCRW trap captured significantly more adults per trap per tree during the two-week period (9.3 ± 1.2 vs. 1.8 ± 0.27 in untreated and treated plot respectively) than did the "ACP trap" (4.78 ± 0.59 per trap in untreated plots, and 1.1 ± 0.02 in the treated plots). ACP adults counted with the tap sample averaged 0.86 ± 0.11 per tree in untreated plots and 0.17 + 0.09 in the treated plots. A bootstrap procedure, which resampled from the database with replacement was used to obtain robust estimates of the standard error of the mean (SEM) and confidence intervals for the mean. Under high density, the SEM: mean ratio was estimated at 8.3% for the tap sample and 8.0%, 8.3% for the YCRW and ACP traps respectively for a sample of 100. Under low density SEM:mean ratios were 34, 10 and 14% for the tap sample, YCRW and ACP Traps respectively. Sticky traps cost approximately $1.00 each, and their deployment, collection and reading takes 14 times longer than the tap sample: an average of 7 minutes per trap (hanging, collecting and reading) compared with 30 seconds per tap sample (average of sampling and recording data from 10 non-continuous trees). On the other hand, they caught about 10 times more psyllids, although this was over a 2 week period whereas data from the tap sample data is available immediately. Tap sampling was also compared with sweep net sampling in eight 2-8 acre blocks of untreated and treated citrus in June at Southwest Florida Research and Extension Center. Two tap or sweep net samples were conducted on the bed and swale sides of each of four trees per eight locations per block. In the untreated block, psyllids averaged 0.6 ± 0.1 and 0.8 ± 0.2 per two taps or sweeps per tree, respectively. Average time required to conduct two taps or two sweeps was 7 seconds. Psyllid density in the treated blocks was much lower compared to the untreated block and averaged 0.2 ± 0.03 and 0.1 ± 0.02 adults per two taps or sweeps, respectively, and the mean time required to conduct either sample was 6 seconds. Both tap and sweep net seem to be equally effective for psyllid counts and time at both high and low densities, although average density was less than one adult per two taps or sweeps. However, the sweep net is more work, could be difficult to count at high density, and could spread citrus canker. Technology transfer (third objective):

Stansly, P. A., J. A. Qureshi, and Arevalo, H. A. 2009. Why, when and how to monitor and manage Asian citrus psyllid. Citrus Industry. 90 (3): 24-26.

Arevalo, H. A., P. A. Stansly, A. B. Fraulo, J. A. Qureshi and L. J. Buss. 2009. Sampling for Asian citrus Psyllid. Field Sheet. SWFREC- University of Florida, http://swfrec.ifas.ufl.edu/entlab/pdf/extension/ACP_sampling_english.pdf.

Stansly, P. A., H. A. Arevalo, and J. A. Qureshi. 2009. Scouting citrus for pests and beneficials. . Extension presentation (M. Zekri Organizer). March 19. SWFREC/ Multi-County extension.

Stansly, P. A., H. A. Arevalo, and J. A. Qureshi. 2009. Monitoreando Plagas e insectos beneficos en citricos. Extension presentation (M. Zekri Organizer). April 28. SWFREC/ Multi-County extension.