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*	Psyllid	5/3/10

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

Stem-tap sampling is preferred over sticky traps for making ACP density estimates

TITLE and CONTACT INFORMATION

Proposal Title Asian citrus psyllid - Sampling, Biological Control, and Seasonal Profile of HLB in Adult Psyllids

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Phone 772-462-5897	*Project Duration (years)* 1 *Year of Project* 1
Organization USDA-ARS	*Total Direct Funds (current year)* $81,000

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

This is the final report of a three-component project on the Asian citrus psyllid.

Sampling - Stem-tap sampling is preferred over sticky traps for making ACP density estimates and is considerably less expensive. Sampling to estimate ACP densities should be conducted throughout a block because there can be significant variation across a block of trees in numbers of ACP. For commercially-acceptable precision levels at means of 1 or more adult psyllids per sample, 28 stem-tap samples are required in a block of trees up to ten acres in size (grove edges are not sampled under this protocol). Larger numbers of samples were required at lower densities. Although no control threshold for ACP has been identified, this level would likely lower than than 1 ACP per sample, perhaps 0.2 to 0.3 ACP per sample - thus growers wanting to make insecticide decisions for ACP control should take larger sample sizes. Noted is that young trees do not lend themselves well to stem-tap sampling. Sticky traps are preferred for ACP detection, not density estimation. Three publications on sampling have been published (available on request) and one has been submitted. Future research efforts on ACP sampling should include a method of estimating densities for an entire block of trees including edges. A formal method is needed for sweep sampling. The relationship between mean number of ACP per tap sample and absolute ACP densities in trees needs to be clarified.

Biological Control - Although this is the final report, research will continue under ARS funding. (a) Releases of three new biotypes of Tamarixia from Asia are being continued in southwest and east-central Florida. It is too early to gauge establishment. Research was initiated in east-central Florida on infestations of ACP and biological control of ACP by Tamarixia in urban plantings of jasmine. Releases of the new biotypes in these urban areas have not yet been made, but the old biotype of Tamarixia has been observed at some of these locations. Increasing biological control of ACP in urban settings could contribute to ACP area-wide management . (b) There is no evidence that releases in Florida of a new biotype of the parasitoid Diaphorencyrtus resulted in establishment. Some project funds supported a Ph.D. student, who is completing the degree and is in the process of preparing several manuscripts for publication.

Seasonal HLB profile in adult ACP – Although this is the final report, research will continue under ARS funding. From Feb 2008 through Mar 2010, a mean of 32% (SEM 3.1) ACP tested HLB positive. Percentages of ACP testing positive has varied widely among sample dates, with a mean minimum of 7.4% (SEM 3.7) during late Feb 2009 and a mean maximum of 70% (SEM 3.2) during late May 2009. An average CT value of 30.7 (SEM 0.2) was recorded among all infected ACP over the entire study period, or an average CT value of 26.1 (SEM 0.2) for ACP with CTs less than 32. For ACP with CT values below 32, mean CT values have ranged from 23.5 (SEM 0.6) in Aug 2009 to 29.4 (SEM 0.2) in late Feb 2009. An average of 77.1% (SEM 8.8) of the trees from which ACP are collected have tested HLB positive (mean CT 23.9, SEM 0.3). No trends in seasonality of HLB in ACP have yet been identified over the course of this two-year study. An average of 35.3% (SEM 4.1) ACP tested HLB positive and an average of 15.8% (SEM 4.2) infected ACP transmitted the disease, with means per sample date as low as 0% and as high as 38%. It is too early to determine if there are any seasonal trends in transmission rates.