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	7/15/09

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

Initial monitoring of psyllid populations reveals reduced susceptibility of psyllids to insecticides in 3 Florida counties.

TITLE and CONTACT INFORMATION

Proposal Title Resistance and cross-resistance development potential in Asian citrus psyllid to insecticides and its impact on psyllid management

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Organization UF/IFAS/CREC	*Total Direct Funds (current year)* 140,315

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

Using a topical bioassay method, the baseline susceptibility data (LD50) have been generated for all of the insecticides commonly used (chlorpyrifos, dimethoate, malathion, aldicarb, carbaryl, abamectin, bifenthrin, cypermethrin, fenpropathrin, lambda-cyhalothrin, acetamiprid, imidacloprid, and thiamethoxam) for psyllid control in Florida citrus. For laboratory strain, bioassays were conducted using psyllids from a greenhouse colony established in 2005, which has not been exposed to insecticides. Bioassays were also conducted on three psyllid populations collected from one grove each in three counties (Polk, Lake and St. Lucie) for determining the baseline susceptibility levels and to compare them with laboratory population. The three psyllid populations from three Counties showed decreased susceptibility to all the tested compounds except lambda-cyhalothrin and acetamiprid compared with laboratory population. The decrease in susceptibility to different insecticides was ranged from 1.2 to 14.2-fold (Lake County); 1.2 to 13.5-fold (St. Lucie County); and 1.0 to 12.0-fold (Polk County). For Lake County psyllid population, the highest decrease in susceptibility was with imidacloprid (14.2-fold) followed by thiamethoxam (11.8-fold). For St. Lucie County psyllid population, the highest decrease in susceptibility was with chlorpyrifos (13.5-fold) followed by imidacloprid (8.9-fold). For Polk County psyllid population, the highest decrease in susceptibility was with chlorpyrifos (12.0-fold) followed by imidacloprid (6.5-fold). Psyllid populations from three Counties are still highly susceptible to lambda-cyhalothrin and acetamiprid compared with laboratory population tested. Further work to screen psyllid populations collected from 6-7 locations (covering the entire state of Florida) are under way for determining the baseline toxicity and monitoring resistance levels. In another study, a field colony has been established in a greenhouse and is being subjected to imidacloprid selection pressure in every generation for developing a resistant colony for imidacloprid. This colony will be used for further studies on determining the resistance and cross-resistance development potential in psyllids and mechanisms of resistance. The information from these help monitor the onset and progress of resistance in psyllids to different insecticides which in turn will enable us to take remedial measures and to develop integrated resistance management programs.