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	7/15/10

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

Some adjuvants could increase droplet size range of low volume sprays

TITLE and CONTACT INFORMATION

Proposal Title Evaluation and development of effective ultra low volume spray technologies for management of the Asian citrus psyllid

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Organization University of Florida, IFAS, CREC	*Total Direct Funds (current year)* 77,572

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

Laboratory-based investigations

In the laboratory, we have been evaluating the effect of droplet size on psyllid mortality using a controlled droplet applicator (CDA) and a droplet counting device (DC-III). Our first objective is to determine the optimum droplet size for psyllid control. Our second objective is to identify appropriate spray adjuvants that achieve the optimal droplet size when mixed with formulated insecticides. The DC-III was successfully used to screen candidate spray adjuvants for their effect on droplet size production from the CDA. Of the adjuvants that were evaluated, two of these significantly increased droplet size. This increase in droplet size is part of the ongoing effort to ensure low volume applications meet EPA label requirements, i.e. droplets of 90-µm or greater. These products were then used in the truck mounted low volume applicator to assess their effect on the droplet size produced in the field when applied with a commercially available insecticide labeled for ACP control in citrus by low volume. We found that organosilicone adjuvants were optimal for making droplet size uniform and conforming to label guidelines when mixed with the pesticide Danitol. The CDA has also been used to apply insecticide treatments to ACP on potted citrus plants. To date two out of the five selected chemicals have been applied in a standard toxicity test. The other three chemicals have been screened for suitability in the CDA and further applications are scheduled for mid August. Our preliminary results indicate that effectiveness of these pesticides increases as droplet size is decreased; however, an optimum is reached at approximately 100 micron sized droplets. We anticipate having this portion of the laboratory investigations completed in September.

Field-based investigations

Several field investigations of low volume sprays are underway. We are conducting efficacy tests of 12 conventional pesticide treatments and their effect of populations of ACP, citrus leafminer (CLM), and their biological control agents. In these investigations, we are comparing efficacy between conventional airblast and low volume sprayers. A separate trial is underway investigating three insect growth regulators is the field. This work mirrors the doses that have proved effective against ACP in laboratory toxicity assays.