



Florida Citrus Advanced Technology Program

QUARTERLY REPORT for FCATP08: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

Instructions Complete the fields as requested based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to <http://citrus.hivip.org>, scroll down to Grants and log in with your user name and password. Scroll down to this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

2008-2009 REPORT

Sept. 30, 2008 January 15, 2009 April 15, 2009 July 15, 2009 Annual

PROJECT CATEGORY (check one)

Plant Improvement Pathology Entomology Management/Physiology Other

TITLE and CONTACT INFORMATION

Project Title Improved Control of Psyllid with Silwet L-77 and Reduced Rates of Insecticides

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FDACS Contract Number 013521

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Project Duration (years) 2 *Year of Project* 1

Organization University of Florida

Total Direct Funds (current year) \$52,000

REPORT UPDATE (650 words)

The acute toxicity of the adjuvants Silwet L-77 and Kinetic, alone and in combination with petroleum oil and copper hydroxide, to the Asian citrus psyllid *Diaphorina citri* Kuwayama was evaluated in greenhouse bioassays. In addition, the acute and residual toxicity of Silwet L-77 and Kinetic, alone and in combination with petroleum oil, copper hydroxide, imidacloprid, and abamectin, to the parasitoid *Tamarixia radiata* (Waterston) were evaluated under laboratory conditions. In the greenhouse trials, Silwet L-77 (0.05%) was more insecticidal than Kinetic (0.05%) and increased the toxicity of petroleum oil and copper hydroxide to *D. citri*. Petroleum oil at reduced rates (0.5 and 1%) in combination with Silwet L-77 or Kinetic was less effective in reducing *D. citri* populations than petroleum oil at 2% in combination with these adjuvants. Petroleum oil at 2% plus Silwet L-77 was the most toxic combination to *D. citri* eggs, young (first- and second- instar) and mature (third- to fifth-instar) nymphs, and adults (81, 83, 74, and 55% mortality, respectively). Copper hydroxide was only effective against young nymphs when combined with Silwet L-77 (64.9% mortality).

Under laboratory conditions, survival of *T. radiata* was reduced by the residual effects of imidacloprid (>95% mortality) and by the acute toxicity of abamectin (>91% mortality). Silwet L-77 and Kinetic alone, and petroleum oil and copper hydroxide alone or in combination with these adjuvants, had low residual and acute toxicity to the parasitoid and appear to be compatible with the biological control of *D. citri* by *T. radiata*. The results of this study suggest that Silwet L-77 may be used in a citrus IPM program in combination with petroleum oil or copper hydroxide to increase psyllid control while spraying to suppress other insect pests or plant diseases. Field trials should be conducted to evaluate the effectiveness of these products against *D. citri* and their impact on *T. radiata* populations.

Due to the difficulties in finding field plots that would allow us to conduct these experimental treatments and have controls, field trials were not conducted, as planned. As a result, unused funding will be returned to FDACS. Funding for the second year will not be requested.