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	6/1/10

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

Research initiated on searching for germplasm with resistance to Asian citrus psyllid

TITLE and CONTACT INFORMATION

Proposal Title Speedy evaluation of citrus germplasm for psyllid resistance

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Phone 772-462-5897	*Project Duration (years)* 3 *Year of Project* 1
Organization USDA-ARS	*Total Direct Funds (current year)* $207,501

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

The objective of this project is to screen citrus germplasm for resistance to the Asian citrus psyllid (ACP). Although citrus huanglongbing (HLB) is a century-old disease and the control of ACP is the key factor for HLB management, there is little information regarding citrus host resistance to ACP. Our preliminary results indicate there is ACP resistance in citrus germplasm. Historically, most (if not all) citrus resistance to HLB has been evaluated using graft inoculations, which sometimes resulted in plants becoming infected that appeared to have resistance in the field. What is needed is research to find varieties with resistance to the psyllid. Greenhouse and field evaluations of the USDA germplasm collection will be conducted. There already exists in China individual citrus plants that are thought to be HLB-resistant,but likely some of these are ACP resistant. The identification of a psyllid-resistant variety (or individual mutant) could revolutionize HLB management strategies. If we can identify ACP resistant germplasm, we can identify resistance genes for use in traditional and molecular breeding . Our intentions are to screen hundreds of sources of USDA and Chinese germplasm for resistance to ACP and to field test these to see if resistance to the psyllid negates HLB or greatly facilitates control. We expect to identify psyllid resistant citrus genotypes (or individual mutants from field-resistant collections) and/or citrus relatives within the Rutaceae that have psyllid resistance. We expect to determine traits that confer resistance and to identify traits that might be transferred to citrus varieties currently grown in order to make them resistant to the psyllid and thus less prone to contracting HLB. The ultimate return from this project would be an effective management strategy to control ACP and HLB that is less costly and friendlier to the environment and non-target organisms than the repetitive use of broad spectrum insecticides.

A post doc was found and hired to conduct this research. A trip was made to China to firm up research plans with the Dr. Liu Bo and the Fujian Academy of Agricultural Sciences. Seeds representing the entire citrus/citrus relative collection at USDA-ARS-NCGR were obtained and have been planted. A field planting of many citrus genotypes and relatives was screen for psyllid infestations during July and August. Some of these genotypes were obviously highly susceptible to infestations by the psyllid while others appeared to be avoided.