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	9/29/09

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

First field trials of parasitoid attractants; Methyl salicilate shows promise as a recruitment chemical for natural enemies

TITLE and CONTACT INFORMATION

Proposal Title Development of attractants for Tamarixia radiata, a parasitoid of Asian citrus psyllid (ACP), for improved biological control of ACP

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Organization University of Florida/IFAS	*Total Direct Funds (current year)* 43098

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

The goal of these investigations has been to develop an effective attractant for Tamarixia radiata, the main parasitic wasp attacking Asian citrus psyllid (ACP) in Florida. Development of an effective attractant for this insect will allow for accurate monitoring of this beneficial insect and it will allow us to recruit and establish high populations of this beneficial insect to improve biological control of ACP. We partnered with an industry collaborator (Alpha Scents, West Linn, OR) to develop an appropriate dispenser for releasing γ-Butyrolactone. We have developed a polyethylene-tube dispenser for releasing this chemical. In previous studies, we found that γ-Butyrolactone serves as an attractant for Tamarixia radiata wasps in laboratory experiments. We have conducted initial field trapping tests, which have been inconsistent. In the early summer, traps baited with γ-Butyrolactone appeared to catch more Tamarixia radiata than unbaited traps, but this trend did not hold up in the late summer months. Current research is aimed at determining whether more consistent captures of Tamarixia radiata can be achieved by optimizing the dosage of the attractant. Also, we are investigating whether these inconsistent captures are due to the seasonal phenology of the wasps in terms of population densities, natural behavior, and commercial citrus management practices.

We have also investigated a second chemical, Methyl Salicylate (MeSA) and associated dispenser from a second collaborator (AgBio, Corporation). This chemical is known to recruit beneficial insects and improve biological control. We have conducted our initial field testing of MeSA to determine whether we can improve biological control of ACP. There is abundant research showing that Methyl Salicilate (MeSA) is an effective chemical for simultaneously repelling pests and attracting natural enemies. Deployment of MeSA from controlled release devices has been shown to keep pests including aphids, thrips, and mites below economically damaging levels. In addition, this chemical has been shown to attract predatory mites, predatory bugs, coccinellids, lacewings, parasitic wasps and flies, and predatory flies. This chemical is readily synthesized at low cost. The company AgBio, the US sales rep of Chem-Tica, (who produces and distributes MeSA dispensers to researchers) was contacted and we received MeSA dispensers from them. In our initial investigation, we confirmed that deployment of MeSA reduces ACP populations and increases populations of psyllid natural enemies in small scale, non-commercial plots. Currently, we are identifying and cataloging the types of natural enemies that were recruited by deployment of MeSA as many more types of natural enemies were recruited by this chemical in addition to Tamarixia radiata. Our future goal is to optimize MeSA dispensers for larger scale use and to determine if similar results can be achieved in commercially managed groves. We plan on continuing work with AgBio to determine if MeSA dispensers will improve biological control of the psyllid. If large scale field trials prove effective, then this company will be in position to commercialize the product for use in Florida citrus.