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	10/15/09

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

TITLE and CONTACT INFORMATION

Proposal Title Effects of nutrition and host plant on biology and behavior of the Asian citrus psyllid and implications for managing psyllid populations

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Organization UF/IFAS/CREC	*Total Direct Funds (current year)* 89,586

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

Effects of host plant nutritional status on Diaphorina citri Kuwayama fitness: In recent experiments we focused on the two most important essentials, Nitrogen and Potassium in several combinations. 'Valencia' orange plants were potted individually in containers using sand. Five different fertilization levels were applied consisting of high and low nitrogen and potassium levels in all their combinations. We also included a nutrition deficient treatment. Psyllid fitness was checked in each of these treatments. Results shown that the adult weight of the psyllids fed on deficient plants was significantly lower than in all the other treatments. Additionally, the average number of eggs per female laid by psyllids reared on deficient plants was significantly lower than in all the other treatments.

The effect of boron on psyllid fitness was tested. Sour orange seedlings were sprayed with 275ppm boron (0.25% Borax). Two days after treatment, 10 psyllids were caged in each seedling for a week afterwhich time mortality was assessed. IN these experiments, there was a significant effect of boron on psyllid survival with higher rates of psyllid mortality occurring in the boron treated plants.

Effect of host plant species on psyllid fitness: Of the various citrus species tested thus far for effects on psyllid fitness, we have shown that Cleopatra mandarin is not a suitable host for the Asian citrus psyllid. Specifically, the survivorship of psyllid immature stages on Cleopatra mandarin did not exceed 5%, whereas survivorship on sour orange was 62.21%. Furthermore, significantly fewer eggs found to be laid on Cleopatra mandarin than sour orange.

The potential for induced host preference of the psyllids was evaluated. Psyllids reared on host plants of two different genera (Murraya and Citrus) were transferred to different Citrus species and check for survivorship. Specifically, psyllids form colonies reared on Murraya koenigii (curry leaf tree) and Citrus aurantium (sour orange) were caged in Sour Orange "Valencia" Sweet Orange, "Flame" Grape Fruit "Sunburst" tangerine and Volkameriana lemon. Results shown that no significant difference occurred in the survivorship of psyllids that were previously reared on the two hosts.

Effect of the Plant Growth Regulators (PGR's) on psyllids fitness: citrus seedlings were sprayed with 6 different PGR's (Embark, Sumagic, Atrimmec, Profile, Cycocel). Psyllid fecundity and survivorship on those plants was studied. The initial results shown that in all PGRs tested, except Cycocel, psyllids laid fewer eggs per female compared to the untreated plants. Regarding the survivorship, significant differences occurred only between Cycocel and Embark, which was higher than in Profile.