CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL PROGRESS REPORT FORM: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

▶PROJECT QUARTER END December 2024 ◉ *Quarterly Report* ○ *Final*

Proposal Title

Getting to the root of the problem: Managing Diaprepes root weevil on trees with HLB

Today's Date: 01/15/2025

Sponsoring Organization (drop-down): Citrus Research and Development Foundation

Category (drop down): Other

ABSTRACT (Executive Summary-public report-do not disclose proprietary information or intellectual property)

1. Please state project objectives and what work was done this quarter to address them:

Objective 1a: Evaluate currently available registered insecticides in Florida citrus against DRW

LC_{50} dosages were determined for five insecticides against *Diaprepes* larvae and the evaluations for four other insecticides are still in progress. Based on these results, Platinum, Danitol, and Exirel have the highest toxicity against Diaprepes larvae of the insecticides we have tested thus far.

In complementary soil column assays against Diaprepes larvae, we obtained corroborating data indicating that Exirel, Danitol, and Platinum are all highly effective against Diaprepes larvae. In addition, we have found that Sivanto Prime, Admire Pro, and Delegate WG are highly effective against Diaprepes larvae at label rates of these products.

In contact bioassays with adult Diaprepes beetles, we have found that Danitol 2.4EC and *Lorsban 4E are highly effective against adults. However, we have also found that Exirel and Platinum are much less effective against adult beetles than they were against the larval stages. Also, we found that Sivanto Prime is ineffective against adults, despite its effectiveness against the larval stage

Conclusions and recommendations.

Adult Diaprepes are not susceptible to insecticide sprays. Only Lorsban* (chlorpyrifos; organophosphate) is very effective against Diaprepes adults. Many insecticides commonly applied for Asian citrus psyllid will kill Diaprepes larvae in the soil column if the insecticide treatment targets soil. Growers with known Diaprepes problems should monitor for emergence of adults in May-June. There is a 20 day window to kill them with *Lorsban when adults can't lay eggs after the emergence begins. Soil applications of Platinum or Exirel should target young larvae in July-August window.

***Note:** Lorsban 4E is not currently labeled for use in citrus, however other comparable chlorpyrifos products still have citrus labels.

Objective 1b: Pathogenicity of Bacillus thuringiensis subsp. tenebrionis (Btt) against *Diaprepes abbreviatus*

Lab results suggested that combining entomopathogenic nematodes (EPN) with Btt pesticidal proteins application increases protection of citrus roots compared with using either technique alone. EPNs have been an effective technique for managing Diaprepes; however, variation in efficacy is historically known. Combining EPNs with Bt may be one avenue for improving both consistency and efficacy of tree protection from Diaprepes.

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Organization: UF IFAS CREC

Sponsor Project Number: 20_013

Project Duration (years): 3 *Year of Project* 2

% Completion of Objectives (FDACS requirement): 75.00%