CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶**PROJECT QUARTER END** September 2020 ● *Quarterly Report* ○ *Final*

Proposal Title

Developing near and long-term management strategies for Lebbeck mealybug (Nipaecoccus viridis) in Florida citrus

Today's Date: 09/13/2020

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:
Obj1 1: Near term management
(1a) Field Monitoring with mobile stages: All methods field tested to date have failed for monitoring tools, our team has redesigned the methodology using lab colonies and will be testing in mid to late September.
Field Monitoring with pheromone attraction: Protocol is designed and will be deployed when field populations appear to become more active; (1b) Screening of effective materials and adjuvants: Entomopathenogenic Fungi (EPF) screening completed for late nymphal instars, look like an ideal candidate for use in IPCs. Screening of commercially available inseciticides labelled for use in FL citrus completed, has been presented and in preparation for publication; (1c) Evaluate promising materials in open grove setting: grower validation of some materials that worked well in lab assays (not formal trials); (1d) Evaluate ant management as part of graove management plants: documentation of ant species that are present and impacts on predator establishment (ongoing work, unpublished); (1e) Evaluate management options for IPCs: 3 field sites located for testing EPFs, sites prepared and will be treated once weather improves (need a drier day to complete applications and sampling). (2a) Assessment of predators: Collection of potential predators continued through summer, primers have been deisgned and validation is almost complete; (2b) Determine how to implement mealybug management concurrent with other pest management (anticipated start summer 2021); (2c) Determine what chemistries inhibit feeding: Feeding behaviors in the process of quantification, will continue into fall; (2d) Develop tools to minimize spread: ongoing evaluation of sterilization methods, trying to find what works and is reasonable for growers to implement

2. Please state what work is anticipated for next quarter:
(1a) We anticipate taking monitoring tools for mobile stages to the field in mid to late September and field validating mating pheromone monioring method if we see male cocoons in field populations this fall, if not that will occur in Spring 2021. (1b) Expand life stages tested in conventional insecticide tests, develop assays for determining wax penetration/degradation by adjuvants; (1c) Tests planned in research planting in Lake Placid this fall; (1d) no work planned for fall, will work on in Spring 2021; (1e) Field sites located and prepared, waiting for a few dry days to treat; (2a) Field collection of potential predators will continue through fall 2020, Validation of primers on known predators (lab fed) will be completed by early October. We anticipate running mealybug primers on subsets of likely predators from field collections starting late October; (2c) We anticipate completing the description of lebbeck mealybug feeding and begin studying influence of insecticides on these behaviors in Fall 2020; (2d) We plan to optimize suggested methods for sterilization of large and small field equipment to minimize spread.

3. Please state budget status (underspend or overspend, and why):
Our budget is slightly underspent, mostly on labor as the postdoc to be hired does not start until late September. Additionally, COVID-19 limited some of the work we wanted to complete this summer, so some field tests could not be performed. We expect to be able to complete much of this work over next 6 months as it appears the mealybug is active, at least in the lab colonies, throughout the winter.

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Organization UF IFAS CREC

Sponsor Project Number 20-002C

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

% Completion of Objectives (FDACS requirement) 20.00%