CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD August 2020

Quarterly Report Final

Proposal Title

Understanding the underlying biology of citrus black spot for improved disease management

Today's Date 09/15/2020

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

Category (drop down) Other

ABSTRACT (750-word Executive Summary-public report-do not disclose proprietary information or intellectual property)

June 2020

Objective 1: Evaluate the optimal spray timing for Florida and investigate if tree skirting or alternative products improves fungicidal control of citrus black spot.

Objective 3: A MAT-1-1 isolate may enter Florida and allow for the production of ascospores. The industry needs to know if this happens, as it will affect management practices. Additionally, the existing asexual population may be more diverse than currently measured. If multiple clonal linages exist, then there may be different sensitivities to fungicides or other phenotypic traits. We also need to determine whether *P. paracitricarpa* or *P. paracapitalensis* are present in Florida for regulatory concerns due to misidentification. We plan to survey for the MAT-1-1 mating type, unique clonal lineages, and two closely related *Phyllosticta* spp.

We collected data from the large spray timing and skirting trial as of March 13. We evaluated 50 fruit each for disease severity on approximately 125 trees in 32 rows. The data entered for analysis but only very preliminarly analysis has begun. The treatments were in a randomized split-plot design with skirting as the main plot and fungicide timings (early, standard, late) along with an untreated control were the minor plots. However, all the treatments appear to have had significantly better disease management than the untreated control. The minor plots were re-randomized within the main plots and we were able to get the trial re-flagged just in time for the early spray (delayed by 2 weeks but no rain occurred from the first of April until after the early application). Applications have been made on time in the spray trial

We were unable to set up the second planned fungicide trial this year because of the COVID-19 shut down. It occured just as the pre-treatment data collection should have done but we plan to conduct the trial next year if a no cost extension is granted.

The trial in which different fungicides were tested for their efficacy to protect Valencia orange fruit from CBS infection was evaluated in August 2020. All the fungicides tested were effective in protecting fruit as they achieved more than 97% CBS free fruit, except for Luna Sensation (applied 6x on its own), which achieved 67.5% clean fruit. More than 99% CBS free fruit were yielded by applying Enable (Indar) 6 times on its own and also applying Amistar Top in alternation with copper hydroxide. The highest percentage (100%) of CBS free fruit was achieved with standard program consisting of copper oxychloride followed by the application of two sprays of azoxystrobin + copper oxychloride + mineral oil and lastly copper oxychloride. Trees that were sprayed with copper hydroxide in alternation with Cabrio (Headline) yielded 97.3% CBS fruit. The trial site

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Organization CREC-UF

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Project Duration (years 3 *Year of Project* 2

% Completion of Objectives 65.00%

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.