CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD May 2021

Quarterly Report Final

Proposal Title

Which commercial adjuvants achieve systemic delivery of antimicrobials?

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
09/10/2021	Citrus Research and Development Foundation	CLas Bacteria

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

We have completed this project, having added to it an additional experiment to confirm results and assessment of '*Ca.* L. asiaticus' bacterial titers in all studies.

In summary we find:

- Both originally proposed studies were completed, as well as an additional confirmatory study with both oxytetracycline and streptomycin.
- No foliar application treatment achieved a significant systemic delivery or oxytetracycline or streptomycin, nor did any reduce '*Ca.* L. asiaticus' titer.
- Injection of oxytetracycline exceeded the minimum effective concentration (MEC) and was greater than all adjuvants, and reduced '*Ca.* L. asiaticus' titer.
- Injection of streptomycin at the equivalent per-tree rate to labeled foliar application rates did not exceed MEC, nor did it affect '*Ca.* L. asiaticus' titer.
- Results indicate that:
  - Adjuvants to not enhance delivery of oxytetracycline or streptomycin sufficiently to impact '*Ca.* L. asiaticus' titer at labeled rates.
  - Once delivered inside the plant, insufficient streptomycin moves systemically to impact '*Ca.* L. asiaticus' titer at the equivalent per tree dose to the labeled per-acre equivalent.

Publication

Killiny, N., Hijaz, F., Gonzalez-Blanco, P., Jones, S. E., Pierre, M. O., & Vincent, C. I. (2020). Effect of Adjuvants on Oxytetracycline Uptake upon Foliar Application in Citrus. Antibiotics, 9(10), 677.

One additional manuscript presenting the findings of studies 2 and 3 is in preparation. A full report is submitted in a separate pdf.

PI First Name Christopher

PI Last Name Vincent

Email civince@ufl.edu

Phone 863-956-8757

Organization UF-CREC

Sponsor Project Number 19-023

Project Duration (years 1 *Year of Project* 1

% Completion of Objectives 110.00%

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.