CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

SELECT PERIOD September 2013

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Development of a novel system for dissemination of pathogenic fungus to the Asian citrus psyllid in abandoned citrus groves

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
9/26/13	Citrus Research and Development Foundation	Vector Management

REPORT UPDATE (500 words-It is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)

Abandoned citrus groves in US citrus-producing regions are potential sources for both Asian citrus psyllid (ACP), and Candidatus Liberibacter asiaticus (CLas), the bacterium that causes Huanglongbing (HLB). In Florida and Texas where grower-driven area-wide management programs are underway in commercial groves, no psyllid control is being implemented in abandoned citrus. Since ACP adults are highly mobile, they can disperse from abandoned to productive citrus groves. If not controlled, these psyllids will stymie the effectiveness of area-wide management programs aimed at containing the spread of HLB in commercial citrus. Insecticide-based strategies are not feasible for ACP in abandoned citrus, but biological control of ACP could come from a combination of native or introduced arthropods and pathogens. ACP is susceptible to a native entomopathogenic fungus, Isaria fumosorosea (Ifr). Two Ifr strains highly pathogenic against ACP and available as spore formulations in the US are the commercial strain PFR97 WDG® (Certis Inc.,USA) and a south Texas isolate (Ifr 3581). We will develop a novel autodissemination system for inoculating ACP with Ifr and use these infected psyllids to instigate epizootics and rapidly reduce ACP populations in abandoned groves. Our ultimate goal is to provide optimized strategies for integration of Ifr autodissemination into current management practices. Suppression of ACP in abandoned citrus by Ifr autodissemination will significantly lower the risk of immigrating adults spreading HLB to commercial groves.

Our proposed project objectives for the first and second quarters of Year 1 (April 2013 to September 2013) were to evaluate: (1) Impact of Ifr dispensers on ACP populations in abandoned and managed trees, and (2) Effect of time and exposure on Ifr dispensers. For Objective 1, we will mark adult psyllids in abandoned grove plots in South Texas and compare the numbers of marked psyllids that move from abandoned into managed grove plots in the absence of Ifr dispensers (control) and when Ifr 3581 dispensers are hung in trees on the edge rows of the abandoned groves. ACP movement, infestation, densities, and Ifr infection will be monitored weekly on edge row trees of the abandoned and managed plots. For Objective 2, we will expose dispensers to outside weathering on citrus trees from groves also used for Objective 1 and evaluate the efficacy of Ifr formulation recovered at different time intervals.

To accomplish Objective 1 and 2, we have located five suitable pairs of managed groves and abandoned groves in the citrus producing regions of Hidalgo County and Cameron County in the Rio Grande Valley. These pairs of managed and abandoned groves consist of orange or grapefruit trees and the abandoned groves have not been managed for at least 2 years. The efficacy of our management tactic will largely depend on the ability of our Ifr dispensers to attract adult psyllids to the dispensers' spore-coated surfaces. The use of effective attractants for our dispensers is essential for the completion of Objectives 1 and 2. During the spring and summer of 2013, we conducted field trials to evaluate the relative efficacy of six different blends of synthetic aromatic compounds mimicking the flush volatile profiles of orange jasmine and Valley lemon for luring adult psyllids onto yellow sticky traps. Based on the results of these trials, we have selected two proprietary blends for dispensers that will be evaluated in field trials.

PI First Name Mamoudou

PI Last Name Sétamou

Email mamoudou.setamou@tamuk.edu

Phone (956) 447-3370

Organization Texas A&M-Kingsville Citrus Center

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Form PR-12 Quarterly Reports **SUBMIT REPORT**

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.