CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶ INSTRUCTIONS

(●) *Quarterly Report* ( ) *Annual Report* ( ) *Final*

Required: What is the "headline" for this report (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Guava interplants to protect citrus from HLB under evaluation

Proposal Title

Efficacy of interplanting citrus with guava as a control strategy for huanglongbing.

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
1/27/12	Citrus Research and Development Foundation	Epidemiology and Cultural Control

REPORT UPDATE (500 words; summarize your accomplishments)

This project is designed to examine the potential disease control of citrus huanglongbing (HLB) by interplanting citrus with guava. In Vietnam and Indonesia, guava has been shown to be a deterrent to HLB, by repleeling psyllid vectors and slow the disease, thus extending the economic life of plantings aby several years. White guava trees were brought back to Florida from Vietnam under permit, grown to maturity, seed collected used to propagate guava for outplanting, requiring ~1 year. Both nursery and field citrus trees were assayed for HLB every 60 days, and have been assayed multiple times. Psyllid populations are monitored continuously every 2 weeks to document repulsion of the vector.

Results:

Guava vs no guava nurseries:

Two nursery sites, a guava protected citrus nursery versus an unprotected nursery, have were established with disease free, PCR-negative citrus trees (2 sweet orange and 1 grapefruit cultivars) in June 2009 and were located in the protected and unprotected plots. To date HLB is progressing more slowly in nursery plots interplanted with guava than in non-interplanted plots. The freezes discussed below did not adversely affect these nursery plots.

Citrus/guava interplantings:

2 commercial plantings with multiple replications were established but due to freezes and property sales these plantings were not viable and were discontinued. A third trial planting was established at the USHRL Picos Farm in Fort Pierce. The Picos plot was interplanted with citrus in August 2009. Severe frosts during 2008/2009 and again during 2009/2010 winters affected the USHRL plots and caused a delay in the experiment. A final hard freeze during the 2010/2011 season killed most of the guava trees. Data analysis indicated no differences were observed among treatments, i.e., guava interplanted vs. non-interplanted plots prior to the final demise of the plots.

Our interpretation is that Florida is actually a subtropical environment, prone to intermittent freezes and cool or cold temperatures. Whereas, Vietnam and Indonesia, where the guava effect seems to work, are truly tropical without such broad temperature swings. After freezes it takes a considerable time to either replant guava or for the freeze damage guava to recover. Even during cool weather guava trees are very sensitive and do not continue to flourish and grow. It is the new flush of guava which appears to be the best at producing ACP repellent volatiles. Cool or freezing temperatures inhibits volatile production and thus the citrus crop is left unprotected from ACP. While guava not be a viable deterrent as an intercrop, it still may be possible to identify individual volatiles from guava that might be useful under field applications as chemical applications.

Moving forward: We are copntinuing the guava-nursery experiments. For field tests, we now switching direction to investigate other more temperate Myrtaceous plant species that are more cold tolerant and might be useful as intercrops. Research continues using a Y-tube olfactometer to continue to investigate guava volatiles as repellents of the psyllid as well as to investigate the feasibility of other Myrtaceous plants. If alternative Myrtaceous plants can be idnetified to be repellent to ACP, we will establish test plots to examine their field effectiveness.

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Organization USDA, ARS

Contract Number

Project Duration (years) 4 *Year of Project* 2

Total Funds (current year) $240,193.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.