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)

Psyllids can acquire Las from trees within 6 weeks of exposure

Proposal Title

Examine the response of different genotypes of citrus to citrus greening (Huanglongbing) under different conditions

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
1/11/12	Citrus Research and Development Foundation	Infection Responses

REPORT UPDATE (500 words; summarize your accomplishments)

We are continuing to examine the interactions between the psyllid, the plant, and the greening bacterium. We are examining the disease epidemic under confined conditions. We have developed a containment plant growth room to examine natural infection of citrus trees by psyllid inoculation. We have made several significant observations: First, we have found that the time period between when plants first become exposed to infected psyllids and the time that new psyllids can acquire Las is much shorter that we expected. In our population of psyllids in the containment room, the proportion of infected psyllids born on newly inserted healthy plants starts increasing after about 30 days suggesting that the receptor plants begin becoming donors at about that time. We are examining this process in more detail now. It is clear that psyllids reproduce on new flush, but feed on older leaves. We are examining whether and how well the psyllid can transmit the disease in the absence of flush.

We also have developed methods to greatly speed up results of field tests for transgenic or other citrus trees or trees being protected by the CTV vector plus antibacterial or anti-psyllid genes. In order to interpret results of a field test, most control trees need to become diseased. Under natural field pressure in areas in which USDA APHIS will allow field tests, this level of infection could take 2-3 years. By allowing the trees to become adequately inoculated by infected psyllids in a containment facility, we can create the level of inoculation that would naturally occur in the field within 2-3 years in 2-5 months in the containment room, after which the trees are moved to the field test site. Trees are not being examined in the field that first were maintained under heavy inoculation pressure by infected psyllids for several months. Other peptide protected plants are being prepared for field testing.

Another objective is to provide knowledge and resources to support and foster research in other laboratories. A substantial number of funded projects in other labs are based on our research and reagents. We supply infected psyllids to Mike Davis's lab for culturing of Las and plants containing potential anti-psyllid genes for Kirsten Pelz-Stelinski's lab and for Bob Shatters et al. lab in Fort Pierce.

We routinely screen citrus genotypes or transgenic citrus for other labs for tolerance or resistance to greening or psyllids.

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Organization UF IFAS CREC

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Total Funds (current year) $226,391.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.