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)

Stable transgenic grapefruit lines

Proposal Title

Genetic Resistance to Citrus Canker conferred by the Pepper Bs3 Gene

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
1/14/11	Citrus Research and Development Foundation	Transgenic/Metagenomic Mediation of Resistance

REPORT UPDATE (500 words; summarize your accomplishments)

Over the past quarter, we have continued to develop all aspects of our project. In particular we have progressed in the following areas:

1. Building and testing additional TAL effector and promoter constructs.
We have synthetically assembled a number of TAL effector genes matching X. citri TAL effectors and showed that they transcriptionally activate our broad recognition or "super" promoter in a Nicotiana benthamiana system. We have also assembled promoters with individual TAL effector binding sites to test activity and specificity.

2. Testing activation of gene constructs against a diverse world wide collection of X. citri isolates.
Using the transient transformation method that we have developed, we have tested the reaction of thirty X. citri isolates on grapefruit leaves. We see a very high correlation between isolates which are capable of inducing disease in standard susceptible germplasm and recognition by our promoter constructs, indicating that the resistance constructs we have created will be able to confer broad resistance to diverse strains of citrus canker. Additionally, we are preparing and testing X. citri strains with single or multiple disruptions in their TAL effector complement to test the role of specific TAL effector proteins in the disease and resistance process.

3. Stable transformations.
The transformed lines generated last Fall and Winter have progressed through selection, shoot formation and rooting, and are now growing in soil. These lines are tested by PCR as they reach adequate size, and positively scored lines have been subjected to pathogen testing by pin-prick assay with X. citri. We have identified several canker resistant transgenic lines.

We are currently setting up additional transformations to generate more transgenic material for line testing and with new promoter constructs.

4. Manuscript preparation
We are in the process of drafting a manuscript of our results.

PI First Name Diana

PI Last Name Horvath

Email dmh@2blades.org

Phone 847 425 1277

Organization Two Blades Foundation

Contract Number 102

Project Duration (years) 3 *Year of Project* 2

Total Funds (current year) $187,008.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.