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)

More releases of Tamarixia radiata to control more psyllids

Proposal Title

Enhanced Biological Control of Asian Citrus Psyllid (ACP) in Florida through Introduction and Mass Rearing of Natural Enemies

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
10/6/10	Citrus Research and Development Foundation	Vector Management

REPORT UPDATE (500 words; summarize your accomplishments)

More T. radiata wasps originally imported from Vietnam, China, and Pakistan were produced by colonies established at DPI-Gainesville and Southwest Florida Research and Education Center and released in Florida citrus. That is the major focus of two (number 1 and 3) of the three objectives of this project. From Pakistan, south China, and North Vietnam colonies established at DPI-Gainesville, 26,861, 16,248, and 12,940 wasps were produced and released, respectively, that increased the number of total released wasps to 48,079, 49,495, and 38,544, respectively. Parasitoids from the Pakistani colony were released at the SWFREC experimental grove in Collier County and from south China and N. Vietnam were integrated with biweekly sprays of horticultural oil in replicated trials at two commercial groves, in Glades and Charlotte Counties, respectively, the latter being organic. A total of 1,196 adults of D. citri and 58 adults of T. radiata (4.6% parasitism) emerged from feral nymphs collected in August at SWFREC and reared in the laboratory. No mummified nymphs were recovered on sentinel plants placed at these locations during July or August but 8% of nymphs were mummified among those recovered on sentinel plants placed in a neighboring commercial grove in July. Samples of feral nymphs collected in September from the Glades grove and reared in the laboratory produced 880 adults of D. citri and one adult of T. radiata (0.1% parasitism) from oil-treated plots and 741 adults of D. citri and and 25 adults of T. radiata (3.3% parasitism) from untreated plots. During the same month, nymphs collected from treated and untreated plots in the Charlotte grove produced 103 and 51 adults of D. citri, respectively, but no parasitoids. No mummified nymphs were recovered on sentinel plants placed in July in treated and untreated plots at both locations. The colony at SWFREC of the previously established strain of T. radiata produced 11,855 wasps that increased the previous total to 56,645 produced this year and used to maintain the colony at OrangeCo, conduct laboratory experiments, and release in experimental, organic and conventional groves including the ones mentioned above. These wasps were also released in the treated and untreated plots of an experimental block of a commercial grove in Collier county where treated plots received insecticides and nutritional sprays. The feral nymphs collected in August and reared in the laboratory produced 792 adults of D. citri and three adults of T. radiata (0.4% parasitism) from treated plots, and 764 adults of D. citri and one adult of T. radiata (0.1% parasitism) from untreated plots. In September, 448 and 366 adults psyllids but no parasitoids emerged from nymphs collected from treated and untreated plots, respectively. We are collaborating with California Department of Food and Agriculture, USDA-ARS, USDA-APHIS and Florida Department of Ag & Consumer Services (Division of Plant Industry) to arrange a meeting this November in Florida to discuss mass production and release of T. radiata for biological control of the Asian citrus psyllid. Publications:

1) Mann, R.S., J. A. Qureshi, P. A. Stansly and L.L. Stelinski. 2010. Behavioral responses of Tamarixia radiata (Hymenoptera: Eulophidae) to volatiles emanating from Diaphorina citri Kuwayama (Hemiptera: Psyllidae) and citrus. Journal of Insect Behavior (In press).

2) Barr, N.B., D.G. Hall, A. Weathersbee, R. Nguyen, P. A. Stansly, J. A. Qureshi, and D. Flores. 2009. Comparison of laboratory colonies and field populations of Tamarixia radiata, an ecto-parasitoid of the Asian Citrus Psyllid, using ITS and COI DNA sequences. Journal of Economic Entomology. 102: 2325-2332.

PI First Name Phillip

PI Last Name Stansly

Email PStansly@ufl.edu

Phone 239-658-3400

Organization SWFREC - University of Florida

Contract Number 0078146

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

Total Funds (current year) $148,775.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.