

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)

New false spider mite species for California

Proposal Title

Preparation for Citrus leprosis an emerging citrus disease: survey of California citrus for Brevipalpus mites and Brevipalpus transmitted viruses (BTVs)

Today's Date

Sponsoring Organization (drop-down)

Category (drop down)

May 10 11

Citrus Research and Development Foundation

Infection Consequences

REPORT UPDATE (500 words; summarize your accomplishments)

Multiple short term surveys were conducted between 2002 and 2010 to identify the species of false spider mites in the genus *Brevipalpus* (Acari: Tenuipalpidae) that occur primarily on citrus, selected other horticultural crops and ornamental plants in California. The morphological identifications would then be compared with the molecular results from samples taken from these same populations. The objectives of this survey were to determine: (1) the *Brevipalpus* species that occur on citrus and other selected plants using morphological methods and (2) to determine if there are significant population differences within the species found on citrus based on molecular methods. Results of this research will be used in future assessments to determine the ability of one or more of these species populations to vector citrus leprosis. Seven species of *Brevipalpus* mites were identified from the surveys using existing keys of morphological characters. Validation of these species was provided by Dr. Ronald Ochoa, USDA, ARS, Systematic Entomology Laboratory, Beltsville, Maryland. Five species of *Brevipalpus* mites were identified on California citrus: *B. californicus* (Banks), *B. sp.* [Cuneatus group], *B. hondurani* Evans, *B. lewisi* McGregor, and *B. phoenicis* (Geijskes) (Table 2). Of these, only two were commonly collected in the different citrus orchards (i.e., *B. californicus* and *B. lewisi*) (Table 3). The single specimen of *Brevipalpus sp.* [Cuneatus group] is a suspected contaminant from a non-citrus host. Only one individual was recovered from citrus. Multiple specimens of *Brevipalpus hondurani* were collected from lemon fruit, leaves and twigs at Miramar College (San Diego County) in August 2006. Lemon was not sampled at that location after that date. Additional collections of *B. hondurani* were taken from *Pittosporum* leaves and twigs in San Diego on 28 August 2006 and on *Pelargonium* leaves and twigs in Ventura on 29 August 2006. It is likely that this species is widespread on various ornamentals and is capable of moving to citrus as well. It should be noted that *Brevipalpus mcgregori* Baker was reported on lemon in Santa Paula, California. The type material of this species needs to be examined to see if it is the same species as *B. hondurani*. Three *Brevipalpus obovatus* Donnadieu were collected from *Hibiscus* leaves and stems at Mira Costa College near Oceanside, California on 15 January 2010. A single male *B. phoenicis* (Geijskes) was recovered from citrus in Hemet, California in August 2002. Multiple samplings from numerous citrus trees in Riverside County (and other counties in California) failed to recover additional mites of this species. However, *B. phoenicis* was also recovered from *Pittosporum* leaves and twigs in San Diego on 28 August 2006. Movement of various ornamental plants into California is a likely source of future potential infestations by this species. A COI gene fragment have been consistently amplified from single individuals from different populations and comparisons within them and with morphological types are under way. AUTHORS: Jose C Verle Rodrigues (Univ Puerto Rico) and Carl C. Childres (Emeritus Prof. Univ Florida). Collaborators: Elizabeth Grafton-Cardwell and Joseph Morse (University of California). Sponsoring: Citrus Research Board, California.

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SUBMIT REPORT