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Abstract

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Effects of weather and predators on the population *Brevipalpus yothersi* (Acari: Tenuipalpidae) in south Florida hibiscus hedges*

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Citrus leprosis diseased caused by citrus leprosis virus (CiLV) is considered one of the most destructive diseases of citrus. The putative vectors (*Brevipalpus* spp.) are present in the major citrus producing states in the U.S.A. Recently, Citrus leprosis virus C2 (CiLV-C2) Hibiscus strain, a virus with a high degree of homology with CiLV, was found infecting hibiscus in Florida and Hawaii. Hibiscus is an important ornamental plant generating over $21 billion (2010–2015) for the Florida nursery industry. We studied the presence of the CiLV-C2 vector *Brevipalpus yothersi* on hibiscus hedges located in south Florida to determine if hibiscus could be a reservoir for leprosis vectors and if predators and environmental conditions affect the population dynamics of the vector. For two years, samples were taken monthly from 3 hibiscus hedges. All *Brevipalpus* mites and known predatory mites were counted from three locations in the canopy (top, middle and bottom). Weather data was collected from local weather stations. *Brevipalpus* mites were always found on hibiscus but in very low numbers. The populations of *B. yothersi* were similar in all areas of the canopy but were different at the three locations. Humidity and precipitation did not explain changes in *B. yothersi* populations. *Brevipalpus yothersi* growth rate increased with temperature with a predicted peak at 26.1°C. Predators populations increased with increases in *B. yothersi* population. Hibiscus hedges appear to serve as a reservoir for predators. Higher temperatures that could occur with climate change could lead to an exponential increase in the abundance of *B. yothersi.*

Keywords: population dynamics, biocontrol, phytoseiid, flat mite

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