

JACKFRUIT, *ARTOCARPUS HETEROPHYLUS*, IS NOT A HOST OF *DIAPHORINA CITRI* (HOMOPTERA: PSYLLIDAE) IN FLORIDA

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The Asian citrus psyllid, *Diaphorina citri* Kuwayama 1907 (Rhynchoeae: Psyllidae), was discovered in south Florida in 1998 and is now established in the state (Halbert & Manjunath 2005). It is considered one of the most serious pests of citrus when the pathogens that cause citrus greening, which can vector, are also present (Halbert & Manjunath 2005). *Diaphorina citri* is an oligophagous species with a host range within genera in the family Rutaceae, e.g., *Aegle*, *Aeglopsis*, *Afraegle*, *Atalantia*, *Balsamocitrus*, *Citropsis*, *Citrus*, *Clausena*, *Murraya*, *Fortunella*, *Linonia*, *Merrillia*, *Microcitrus*, *Pamburus*, *Poncirus*, *Severinia*, and *Swinglea* (Viraktamath & Bhumannavar 2002; Tirtawidjaja 1981; Koizumi et al. 1996; Chavan & Summanwar 1993; Aubert 1990a,b; Lim et al. 1990; Garnier & Bové 1993; Halbert & Manjunath 2005). In addition to these host plant associations, Shivankar et al. (2000) reported *D. citri* on jackfruit, *Artocarpus heterophyllus* Lamarek, which is in the family Moraceae (Crane et al. 2002). Because there have been no other reports of *D. citri* infesting *A. heterophyllus* in Florida, nor anywhere *D. citri* has been observed, we investigated *A. heterophyllus* as a host plant of *D. citri*.

Field surveys were initiated in the fall of 2005. On Sep 30, 2005 samples of *A. heterophyllus* and orange jasmine, *Murraya paniculata*, a known host of *D. citri*, were collected in Miami-Dade County. Ten 10-cm shoots were collected from each of two jackfruit trees located approximately 28 m from a hedge of orange jasmine. Twenty 10-cm shoots also were collected from the orange jasmine hedge. Shoots were placed in individual bags and examined under a microscope to determine the numbers of eggs, nymphs, and adults per sample.

The mean numbers of *D. citri* collected from *Murraya* shoots were 8.85 ± 2.24 ($n = 20$). An average 3.45 ± 2 *Toxoptera aurantii* (Boyer de Fonscolombe) (Homoptera: Aphididae) were also recorded from *Murraya* shoots. No *D. citri* were found on the shoots collected from jackfruit; however, 10 nymphs of *T. aurantii* were found on the jackfruit terminals. Means for other arthropods recorded from jackfruit were 0.5 ± 0.22 *Anascirtothrips arorai* Bhatti (Thysanoptera: Thripidae), 0.05 ± 0.05 *T. aurantii*, 51.35 ± 0.22 *Ditrymacus*

integrifoliae Mohanasundaran (Acari: Eriophyidae), and 0.15 ± 0.15 unidentified leafhoppers (Homoptera: Cicadellidae).

On Dec 12, 2005, five 10-cm shoots ($n = 55$) were collected from 11 randomly selected jackfruit trees from the National Germplasm Repository Collection at the USDA, ARS, SHRS in Miami, FL. No other common hosts of *D. citri* were located within a 100-m radius from the site; therefore, no samples were collected from known hosts on that date. Samples were inspected as mentioned above. No *D. citri* were recorded from 55 shoots of jackfruit; the mean numbers of other arthropods per shoot were 0.4 ± 0.17 *A. arorai*, 2.46 ± 1.90 *D. integrifoliae*, 0.04 ± 0.04 *T. aurantii*, and 0.02 ± 0.02 unidentified Diaspididae.

On Feb 22, 2006, 15 shoots of jackfruit were randomly collected from the Fruit and Spice Park, Homestead, FL. Citrus species were located ca. 30 m from the jackfruit trees but no samples were collected from the citrus spp. No *D. citri* were collected from jackfruit; but 0.13 ± 0.09 *A. arorai* and 29.86 ± 15.85 *D. integrifoliae* were collected from the terminals.

In addition to the field surveys, no-choice trials were conducted in the greenhouse. Four 0.8-m potted jackfruit trees with suitable new growth were introduced each into individual nylon mesh screen cages ($91 \times 91 \times 122$ cm), each supported on a PVC frame. Depending on the date, ten to 20 adults of *D. citri* were introduced into each cage on Oct 5, 13, 19, Nov 1, 29 and Dec 22, 2005. *D. citri* densities were recorded 7 d after the introduction of each psyllid cohort. The jackfruit trees were inspected for *D. citri* eggs, nymphs and adults with aid of a 10 \times hands lens 7 d after the introduction of each cohort. No psyllid eggs, nymphs or adults were collected on Oct 11 (7-10 shoots/plant), Oct 18 (6-20 shoots/plant), Oct 26 (6-20 shoots/plant), Nov 9 (7-14 shoots/plant), Dec 5 (9-17 shoots/plant), or Dec 30 (6-11 shoots/plant).

On Feb 13, 2006, 4 potted jackfruit trees were placed in close contact with a *D. citri* infested hedge of *M. paniculata*. The shoots of each jackfruit plant were inspected with a 10 \times hand lens on Feb 16, 20, 22, 2006. One adult psyllid was observing resting, but not feeding on, a shoot on Feb 16. No eggs or nymphs of *D. citri* were observed

from 6 - 13 inspected shoots per plant. On Feb 20, 1 second to third instar *D. citri* nymph was observed crawling on one shoot, from a range of 9-14 shoots inspected per plant. No adults or eggs were recorded. On Feb 22, 2006, no adults, nymphs, or eggs of *D. citri* were observed from these plants.

Based on the field collections of several varieties of jackfruit, our no-choice greenhouse experiment, and our field two-choice experiment, it does not appear that *A. heterophyllus* is an acceptable host plant for *D. citri*. The present study refutes the report by Shivankar et al. (2000) listing jackfruit as a host of *D. citri*.

SUMMARY

The status of jackfruit, *A. heterophyllus* as a host plant of *D. citri* was investigated. Field surveys, a no-choice greenhouse test, and a field study showed that jackfruit is not an acceptable host for *D. citri*.

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