# A NEW HOST RECORD FOR THE CARIBBEAN FRUIT FLY (DIPTERA: TEPHRITIDAE)

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The Caribbean fruit fly, *Anastrepha suspensa* (Loew), has been established in Florida since 1965 (Weems 1965). It has been found in the Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico and the United States (Florida) (Hernández-Ortiz & Aluja 1993). In Florida, it has been recovered from 84 different host fruit species in 23 families, but is most common in fruits in the family Myrtaceae (Swanson & Baranowski 1972). In the family Rosaceae, species in the genera *Eriobotrya*, *Malus*, *Prunus*, *Pyrus* and *Rubus* have been recorded as hosts. *Chrysobalanus icaco* L. (Chrysobalanaceae, formerly Rosaceae) is also reported as a host (Norrbom & Kim 1988). The most important rosaceous host in Florida is loquat, *Eriobotrya japonica* Lindl., because it bears fruits in the winter months when other hosts are not available. Swanson & Baranowski (1972) found Caribbean fruit fly infesting blackberry identified as *Rubus* sp. Here we report that red raspberry, *Rubus idaeus* L. is also a host for the Caribbean fruit fly.

Raspberry primocanes of three cultivars, 'Autumn Bliss', 'Heritage' and 'Summit' were planted in February 1997 in an evaluation trial at the Tropical Research and Education Center in Homestead, Florida. In May 1997, it was noticed that a larva was feeding inside the fruit. Collections of ripe fruit were made on 29 May, 2 June, 11 June, and 27 June 1997. The fruits were counted and weighed and then placed in plastic boxes with screen tops containing vermiculite and held in the laboratory. For the first and last collections, all of the fruit picked was used. For the other two collections, because of the large number of fruits harvested, a subsample of uncrushed berries was used. After 7-10 days the fruit was removed and the vermiculite was passed through a sieve to collect the pupae. Pupae were held in separate petri dishes for each variety. After emergence was complete, the sex of the adults was determined and the flies counted. Specimens of both sexes were pinned and sent to the Florida State Collection of Arthropods in Gainesville, Florida for species confirmation (accession # E1997-003269-001). Table 1 shows the number of fruits collected, the number of pupae and the number of male and female Caribbean fruit fly that emerged. A total of 294 pupae from 5552 fruits was recovered. The percent of adult emergence was 82% for 'Autumn Bliss', 83% for 'Heritage' and 86% for 'Summit'. Very few males emerged from 'Autumn Bliss' fruits (26%) compared to percentages of 44% males in 'Summit' and 46% males in 'Heritage'. Also, 2 specimens of the parasitoid *Diachasmimorpha longicaudata* (Ashmead) (Braconidae) were recovered. This is an introduced species that was released and established in Florida as a biological control agent for Caribbean fruit fly (Baranowski et al. 1993).

The importance of raspberry as a host for Caribbean fruit fly remains to be determined. The only other species of *Anastrepha* reported feeding on *Rubus* fruits is *Anastrepha fraterculus* (Wiedemann) (Norrbom & Kim 1988). The other major host trees that had some fruit during this study were Surinam cherry (*Eugenia uniflora* L.) and guava (*Psidium guajava* L.). Adult Caribbean fruit flies were active in these hosts as indicated by captures in McPhail traps baited with torula yeast pellets. Both these hosts were planted within the dispersal distance of Caribbean fruit fly as reported by Wolfenbarger et al. (1976). Although relatively few pupae were recovered, this could be due to a number of causes. Caribbean fruit fly females may not oviposit readily into

TABLE 1. INFESTATION OF THREE CULTIVARS OF RASPBERRY FRUITS BY CARIBBEAN FRUIT FLY IN HOMESTEAD, FLORIDA, 1997.

| | 'Autumn Bliss' | | | | 'Heritage' | | | | 'Summit' | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | # Fruit | # Pupae | # M | # F[1] | # Fruit | # Pupae | # M | # F | # Fruit | # Pupae | # M | # F |
| 29 May | 765 | 16 | 3 | 10 | 1136 | 18 | 8 | 7 | 1185 | 48 | 21 | 21 |
| 2 June | 256 | 34 | 9 | 21 | 150 | 62 | 21 | 29 | 270 | 72 | 27 | 37 |
| 11 June | 263 | 6 | 0 | 3 | 300 | 12 | 4 | 7 | 300 | 7 | 2 | 3 |
| 27 June | 113 | 0 | 0 | 0 | 421 | 14 | 6 | 6 | 393 | 5 | 3 | 0 |
| Total | 1397 | 56 | 12 | 34 | 2007 | 106 | 39 | 49 | 2148 | 132 | 53 | 61 |

[1]M = male, F = female Caribbean fruit fly adults that emerged.

raspberry or the larvae may suffer a high mortality in this host. A confounding factor in this study was the fact that area-wide aerial insecticide spraying for mosquito control was being conducted during the collection period. This may have led to a temporary suppression of adult populations. Few fruits were available after the last collection date and after mosquito control measures were discontinued.

On a per fruit basis, the infestation levels of all three cultivars is about the same, 0.04, 0.05 and 0.06 larvae/fruit for 'Autumn Bliss', 'Heritage' and 'Summit', respectively. The first raspberry fruits were collected in February 1997 and the plants were still producing some fruit in August. The peak production appears to be in May (R. K. unpublished results). This winter and spring production of raspberry fruits could provide a resource for Caribbean fruit flies during a time of year when there are not many other hosts available. Even if the susceptibility to attack proves to be low, the presence of Caribbean fruit fly in raspberries will be a constraint to commercial production and marketing of this crop in south Florida.

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## SUMMARY

The Caribbean fruit fly, *Anastrepha suspensa* (Loew) (Diptera: Tephritidae), has been found on a new host species, red raspberry, *Rubus idaeus* L. (Rosaceae), in south Florida. The parasitoid, *Diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae) was also recovered.

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