

Fig Fruit Fly (*Zaprionus indianus*) (Diptera:Drosophilidae)

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- Native to Africa, the Middle East, and southern Eurasia.
- Spreading throughout the tropics due to trade, now found in India, islands of the Indian Ocean (e.g., Madagascar, Mauritius) and Atlantic Ocean (e.g., Canary Islands).
- First detection in western hemisphere was in 1999 in São Paulo, Brazil.
- Has spread to Uruguay (2001), Panama (2003), Mexico, Guatemala, Colombia, and the USA-Florida (2005), California, Georgia, and Arizona (2006), Oklahoma and South Carolina (2007).
- First detect in St. Lucie County in 2005 and in 2006 flies were collected from Broward , Indian River, Martin, Okeechobee, DeSoto , St. Lucie, Palm Beach, Highlands, Osceola, Collier, and Leon Counties.

Origin and introduction

Basic biology

- Drosophilidae – sometimes called small fruit flies or pomace flies.
- Generally found on damaged and decaying fruit or vegetation.
- Adults live on average about 80-90 days (up to 145-150 days), females produce about 58 offspring and are fertile for an average of 60 days.
- Adult females can produce offspring when about 13 days old. The development time from egg to adult is about 37 days.
- The populations of the fig fruit fly may decrease during the dry period (Oct.-April).
- Multiple generations per year. Generally the population explodes after 24 months of existence in a new region.
- Does very well in urban and forest environments due to the large amount of indigenous and introduced fruit hosts present.

Fig Fruit Fly description

- Body yellowish-brown.
- Distinctive white stripes extend from the antennae to the tip of the thorax and from the thorax to wing-base.
- White and black stripes on head and red eyes.
- Small insect ~3.5 mm.



Photo credit: GJ Steck, FDACS-DPI

- In Africa, the fig fruit fly has been found infesting 74 fruit species including acerola, avocado, banana, carambola, citrus spp., fig, guava, wax jambu, longan, mango, persimmon, pineapple, etc. However, these were damaged or decaying fruits.
- In Brazil, infestations of peach, fig, and citrus. Non-damaged fig are infested through a natural opening in the fruit.
- In Florida, this fly has been found infesting damaged or over-ripe guava and longan.
- This fly has been reared on acerola, rose apple, avocado, banana, carambola, cashew, Surinam cherry, citrus (orange, calamondin, kumquat, grapefruit), white grape, guava, Cattley guava, strawberry guava, loquat, persimmon, plantain, and pond apple.

Hosts

- Determination if the Fig Fruit Fly (FFF) infests longan, lychee, avocado, and guava under grove conditions.
- Determine the prevalence of the FFF in groves and packinghouses.
- Grove survey –
 - Observe FFF in action.
 - Collect immature, mature, ripe, and decaying fruit to determine if there is any natural infestation of fruit at these stages of development and decline.
 - Determine if commercially-grown fruit picked at horticultural maturity is a host of FFF.

Current research

- The FFF was found at very low numbers infesting guava during June-August and longan at moderate numbers during June-September.
- Green and ripe guava were infested at very low numbers but green mature fruit were infested at a greater level.
- Longan fruit were not infested at the green and green-mature stages but were infested at the ripe fruit stage.
- More work needs to be done to see if time of year influences infestation rate and precisely when longan becomes a host.

Results to date

- Monitoring groves for FFF especially as fruit mature.
- Sanitation: remove and/or destroy damaged or decaying fruit which are typical breeding sites for FFF.
- Guava – bag fruit, apply malathion when FFF is detected.
- Longan – bag fruit clusters, pick fruit promptly at maturity, apply SpinTor or Provado when FFF is detected.

Current management strategies

- EDIS - Univ. of Fla.-IFAS at <http://edis.ifas.ufl.edu>
- Miami-Dade Co. Coop. Extn. at <http://miami-dade.ifas.ufl.edu/>
- FDACS-DPI at <http://www.doacs.state.fl.us/pi/enpp/ento/zaprionusindianus.html>
- Univ. of Fla.-IFAS, Tropical Research and Education Center at <http://trec.ifas.ufl.edu>

More information