

Small area control involves destroying the infested fruits by burying, submerging in water, collecting in plastic bags and exposing to the sun, all resulting in death of the larvae. Feeding infested fruits to poultry is also a good option.

Additional to destroying infested fruit farmers can use traps to catch the adult flies. The Dome McPhail trap works with a food lure, and does not only attract the Carambola fruit fly but also the other local fruit flies like the *Anastrepha species*.



McPhail trap

In countries that do not have Carambola fruit fly, traps like the McPhail trap, and also the Jackson trap (baited with methyl-eugenol) serve in detection systems.

ECONOMIC IMPACT

Fruit Flies are a major threat to Caribbean Agriculture. Their larvae damage fruit making it unfit for human consumption and trade, negatively impact farm incomes and national economies. Total export losses for the region are estimated US \$25 million. Production losses for Brazil could be as high as around US\$ 60 million annually, while for the smaller countries in the region this could be around US \$ 500,000.

WHAT CAN WE DO?

- Do NOT bring into your country any fruit or agricultural produce without the required Plant Quarantine Import Permits/Approval
- When you travel declare all agricultural items.
- Report any infested (pierced or larvae present) fruit to your Ministry or Department of Agriculture
- If fruit flies are present do not sell or transport infested fruit
- Follow all control recommendations from your Ministry or Department of Agriculture



**CARIBBEAN
PLANT HEALTH
DIRECTORS**
PROTECTING CARIBBEAN AGRICULTURE

PRIORITY PEST THREATS TO THE REGION

CARAMBOLA FRUIT FLY



Bactrocera carambolae

Originally from tropical Asia, the Carambola Fruit Fly was introduced in South America in Suriname in the 70's. It spread into Guyana, French-Guiana and the state of Amapa, Brazil.

PROTECT

Safeguard our agriculture & environment do NOT bring in undeclared fruit.

DETECT

Monitor for Signs & Symptoms of Carambola Fruit Fly.

REACT

Report any suspect fruit to your Ministry or Department of Agriculture and follow ALL recommendations for Control or Eradication

CARAMBOLA FRUIT FLY

Bactrocera carambolae Drew & Hancock.

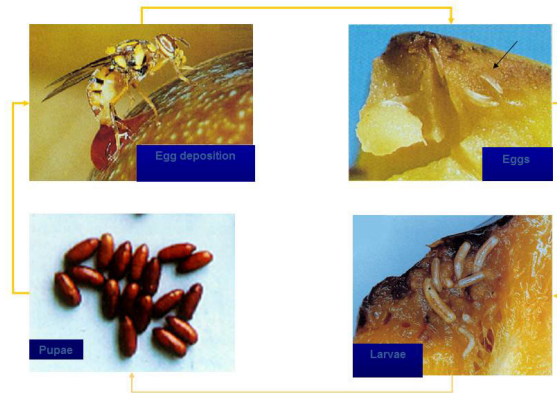


LIFE CYCLE

The Carambola fruit fly (CFF) infests around 28 different host plants in South America. Favourite hosts are carambola (*Averrhoa carambola*), Curacao apple (*Syzygium samarangense*), West-Indian cherry (*Malpighia puniceifolia*), mango (*Mangifera indica*), Guava (*Psidium guajava*), Starapple (*Chrysophyllum cainito*) and Sapodilla (*Manilkara achras*).

The adult female lays eggs just under the skin of the fruits. The egg hatches after two days, and the larva feeds on the fruit pulp. After 7-10 days, when the fruit matures and falls on the ground, the larva pupates in the soil, and emerges approximately 8 days later. The adult flies need around 19 days to become fully mature, before they start laying eggs, which makes the total life cycle around 35 days.

LIFECYCLE



Mature carambola fruit fly larvae have the ability to 'jump'; if they are placed on a dry surface, they curl up and jump about 10 centimeters. *Anastrepha* larvae do not have this feature.

SYMPTOMS AND INFESTATION



Infestations of Carambola fruit fly on fruits can be found as the dark dots, caused by egg-laying. Especially on carambola, cherry and guava this can be seen, other fruits show less to no symptoms of infestation

DISTRIBUTION

The Carambola fruit fly has spread from Suriname to Guyana, French-Guiana and to the state of Amapa in Brazil. It is especially present in cultivated areas, due to the hosts, but it is also infesting some wild hosts and might therefore be adapting to our ecosystem.



CONTROL

Carambola fruit fly males strongly react to the lure methyl-eugenol, a fragrance from cloves. This can be used to apply Male Annihilation Technique, in which blocks impregnated with the lure and an insecticide are spread in a large area, during at least a year, resulting in the absence of males, which are attracted by the lure and killed by the insecticide in the blocks. This technique only works if applied in a large area.