

Oriental fruit fly complex

What is the Oriental fruit fly complex?

Papaya fruit fly (*Bactrocera papayae*), Oriental fruit fly (*Bactrocera dorsalis*) and Carambola fruit fly (*Bactrocera carambolae*) are all part of the Oriental fruit fly complex. All three species look extremely similar and can only be distinguished by a fruit fly expert.

Fruit flies are major pests and have been recorded on over 200 types of fruit and vegetables and can cause losses of up to 100% in unprotected fruit.

What does it look like?

Fruit flies are about the same length as a common housefly but more slender. They grow to 6-8 mm in length and have clear wings, generally black chests and paler abdomens with a distinctive black T-shaped marking. The Queensland fruit fly, by comparison, is much the same size but is an overall reddish-brown colour. An expert eye is needed to identify Oriental fruit flies under a microscope.

Pupae are white to yellow-brown in colour and barrel shaped, whilst larvae are about 10 mm long and creamy white. Eggs are white, elongate and elliptical measuring about 0.9 x 0.2 mm.

What can they be confused with?

Symptoms are similar to those caused by endemic flies such as Queensland fruit fly or Mediterranean fruit fly. Papaya, Oriental, and Carambola fruit flies look very similar to each other. Any fruit flies that look different from those regularly encountered should be reported and further examined by an entomologist.

What should I look for?

Adult female flies have exceptionally long ovipositors, allowing them to lay their eggs just under the skin of fruit, depositing fruit-decaying bacteria at the same time. Within one or two days, the eggs hatch into maggots (larvae) which feed on the decaying fruit, causing premature fruit drop.



Scott Bauer

The female has a serrated-tip ovipositor for penetrating the skin of fruit



Merle Shepard, Gerald R. Camer, and P.A.C. Ooi, Bugwood.org

Adults are about the same length as a housefly but are more slender bodied



William M. Brown Jr., Bugwood.org

Damage caused by Oriental fruit fly on papaya fruit



Considerable damage can occur inside the flesh before obvious signs of infestation can be seen on the fruit. The most obvious signs of infestation are small discoloured patches on the skin, which develop from punctures or stings made by the female as she lays her eggs.

Infested young fruit becomes distorted, callused and usually drop; mature fruit develop a water-soaked appearance. The larval tunnels provide entry points for bacteria and fungi that cause the fruit to rot.

How does it spread?

Adult flies can disperse over long distances through flight, while the transport of larvae in infested fruit can result in global movement.

Where is it now?

Papaya fruit fly is native to and widespread in south-east Asia (Thailand, Malaysia, Borneo, Singapore and Indonesia). It is present in most provinces of mainland Papua New Guinea. It was detected in Cairns, Australia in October 1995 and was eradicated.

Oriental fruit fly is widely spread throughout Asia and parts of the South Pacific. Carambola fruit fly is found in South America.

How can I protect my orchard from fruit flies?

Check your orchard frequently for the presence of new pests and unusual symptoms. Make sure you are familiar with common papaya insect pests so you can tell if you see something different.

If you see anything unusual, call the Exotic Plant Pest Hotline



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The thorax has yellow stripes on top and yellow marks on each side



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A T-shaped mark is often visible on the thorax



Pest and Diseases Image Library, Bugwood.org

Adult flies have a narrow brown band along the edge of their wings