EXOTIC PEST - FOR SUSPECT DETECTIONS CALL THE HOTLINE ON 1800 084 881

Melon fruit fly (*Zeugodacus cucurbitae*)

EXOTIC PEST DETECTION & SAMPLING GUIDE

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Background

The Melon fruit fly is perhaps the most damaging exotic pest of plants from the gourd family. This includes all commercially-grown melons, and many vegetables such as cucumber, pumpkin, squash and zucchini. It is also a major pest of other produce, including mango, avocado, oranges, peach, passionfruit and pawpaw. The species (previously known as Bactrocera cucurbitae) is likely native to India but is now widespread across nearly all of southern Asia, much of Africa and many pacific islands including Papua New Guinea. It is not present in Australia, but there is risk of it being introduced through illegally fruit or vegetables or by natural dispersal into Northern Australia.

How would I identify Melon fruit fly?

Identification by morphology

Adult Melon fruit flies are about 8mm long, and are of a similar size and shape to the Queensland fruit fly (Qfly), which is native to parts of eastern Australia but is also a significant agricultural pest. However, adult Melon fruit flies have quite different features – the thorax and abdomen are generally quite a bit paler brown in colour, the legs are all pale, and the wings have a distinctive spotted pattern. The abdomen also has a black, often incomplete, T-shaped marking (Figure 1).

It is not possible to distinguish Melon fruit fly larvae from those of other pest fruit flies. Identification of larvae would rely on DNA molecular analysis to reliably discriminate between different fruit fly species.

Like other related pest fruit flies, adult females 'sting' ripening fruit and lay their eggs just below the skin. Developing larvae (maggots) then feast on the fruit and the flesh rots. Once the larvae reach maturity they crawl out, then burrow into the soil and pupate. A week or more later, depending on ambient temperatures, new adult flies emerge. If introduced, Melon fruit flies could potentially spread across much of Australia's horticultural regions.

Identification by damage

Melon fruit fly is a particularly serious pest of cucurbits – cucumbers, pumpkins, squash, and melons, including watermelon and rockmelon, but are also known to attack a range of other produce and may also become a significant pest of beans and tomato.

Damage caused to fruit or other produce is similar to damage caused by other related fruit fly species, such as Qfly. When adult female flies sting fruit to lay their eggs, bacteria is introduced, the fruit starts to rot and affected fruit may show skin discolouration or watery patches around the sting marks. Larval feeding on the fruit pulp leads to fruit rot.

How do I scout for Melon fruit fly?

The most obvious signs of Melon fruit fly infestation are small discoloured or water-soaked patches on the skin of cucurbit produce, which develop after fly attack, and premature fruit rot. This fruit can be cut open to inspect for signs of larval feeding. Pheromone lure traps that are used to catch Qfly are also able to catch Melon fruit fly so traps should be checked for anything unexpected, particularly dead flies that have dark spots on their wings.

Could it be confused with an endemic species?

Melon fruit fly is quite similar in appearance to one other native species, *Zeugodacus choristus*, which is present in parts of eastern Queensland and Papua New Guinea. However, this other species is not a pest and only feeds on one type of non-commercial wild melon.

Figure 1. Melon fruit fly (Left) and Queensland fruit fly (Right)

Melon fruit fly | Queensland fruit fly

This guide covers the exotic melon fruit fly (Bactrocera curcurbitae). Check the additional exotic guides for specific information for the other two possible exotic Bactrocera fruit flies.

Cover image: Pest and Diseases Image Library , Bugwood.org
Figure design and all illustrated components: Elia pirtle, eliapirtle.com

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What should I do if I suspect Melon fruit fly?

Melon fruit fly is a priority plant pest, exotic to Australia. If you notice an unusual fly of similar size and shape, but is different in appearance to known pest species (Qfly in eastern Australia, or Mediterranean fruit fly in Western Australia) that appears to be attacking produce, call the **Exotic Plant Pest hotline on 1800 084 881**. The hotline will divert you to the appropriate state biosecurity agency, which will investigate the suspect detection further. To support an investigation you should take note of:

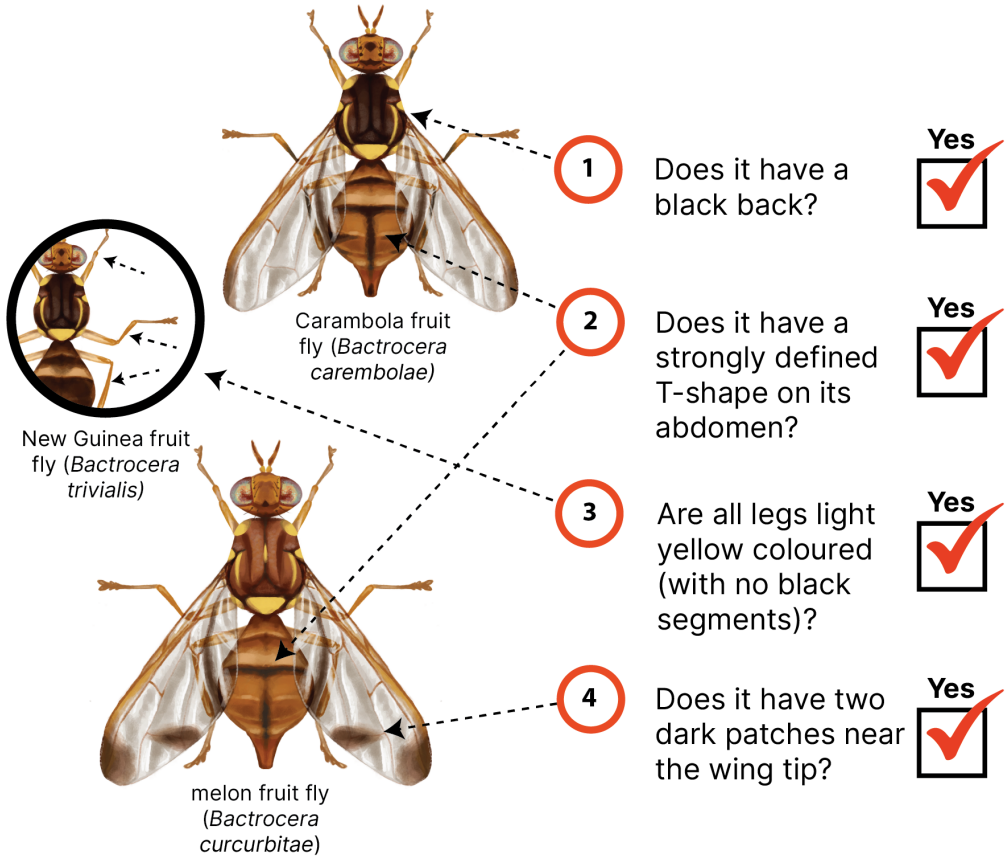
- The detection location (take a GPS coordinate using your phone);
- The host plant on which the suspect detection has been made;
- Damage symptoms (e.g. string marks, rotting fruit); and
- A photo of all life stages observed (taking close-up photos of the same specimen from multiple angles is most useful for identification).

Taking a sample

Taking a sample will also assist in a biosecurity investigation. Collect infested fruit in a ziplock bag – double bagging of specimens is ideal. Label the bag with the date and collection location and keep in the fridge in case a larval sample is needed by the biosecurity agency. If suspect adult Melon fruit fly are collected from pest monitoring traps, place in a jar or vial with 80-95% isopropyl alcohol (rubbing alcohol) or methylated spirit.

Figure 2. Reporting decision making for Melon fruit fly (*Zeugodacus cucurbitae*)

If you answer yes to ANY ONE OF the following three questions, it could be one of the **exotic Bactrocera fruit flies**. Report it!



But if you answer no to ALL questions, it is likely the already established Queensland fruit fly (Q-fly), which has:

a brown back and abdomen

little to no T-shape

a black segment on the back legs

only a thin dark band along the wing tip

More information

Fruit Fly Identification Australia, Business Queensland Melon Fly, Vegetable Fruit fly control IPM trap video

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