Surveillance and management of Mediterranean fruit fly in Australia

January 2016  Primefact 1430  First edition
Plant Biosecurity & Product Integrity Orange

Mediterranean fruit fly (Ceratitis capitata) is a serious pest in Western Australia and threatens fruit and vegetable industries in eastern Australia. Mediterranean fruit fly is not present in New South Wales and is considered an exotic pest.

Mediterranean fruit fly

Mediterranean fruit fly (Medfly) is a very destructive fruit pest that can infest over 260 species of plant (Figure 1). Medfly eggs are laid under the skin of ripening host fruit. Larvae feed inside the fruit (Figure 2). Tunnelling in the fruit encourages fungal and bacterial rot.

Infested fruit is unmarketable. In infested areas, continuous management is costly but necessary for growers to retain market access.

Medfly is highly invasive and has successfully spread and established in many parts of the world. Long distance spread of Medfly occurs with the transport of larvae in infested fruit. Locally, spread by adults flying is restricted to less than 1 km.

Management and surveillance of Medfly in Australia is necessary to detect, track and reduce the impact of Medfly for fruit and vegetable industries.

Mediterranean fruit fly in Australia

The majority of Australia is free of Medfly. Medfly was discovered in Perth in 1895. Regulation and pest management practices have restricted Medfly distribution to WA, where it has established from Esperance through to Carnarvon, Broome and Derby.

Medfly quarantine areas

Quarantine boundaries and procedures have been established in Australia to prevent the spread of Medfly from known infested areas in Western Australia to regions and states currently free of Medfly.

Each state or territory has their own regulations in place to prevent the introduction of Medfly or control its spread. For specific import conditions, contact the relevant state authority.
New South Wales is currently free of Medfly and the introduction of any host fruit or soil from a Medfly infested area is strictly regulated.

It is illegal to move host fruit or soil that originates from, or has moved through, a State or Territory with a known infestation of Medfly into New South Wales unless certified as having met specific import conditions.

**Surveillance**

Surveillance for Medfly is carried out with the use of traps targeting adults. Traps are continuously positioned throughout likely areas where Medflies might appear.

Regular surveillance in New South Wales occurs with Medfly traps located in Sydney and other production areas. This surveillance provides both an early detection mechanism and negative trap results to demonstrate New South Wales’s freedom from Medfly for market access.

**Management options**

**Prevention**

The distance between New South Wales and current Medfly populations in Western Australia means that New South Wales is relatively safe from the natural spread of Medfly through flight.

Introduction of Medfly to New South Wales is likely to be a result of unintentional movement of larvae in infested host fruits or pupae in soil.

Regulations concerning the movement of Medfly host fruits and associated materials (e.g. transport bins, soil) into New South Wales should be observed at all times.

Good farm hygiene by removing and destroying fallen fruits reduces the number of breeding sites for Medflies and other fruit fly pests. This in turn can slow population increase and support eradication efforts.

**Management**

A number of management options are currently practised for the control of Medfly, either alone or in combination.

An important measure to ensure success of any control method is the disposal of fallen fruit (Figure 3). This basic hygiene measure, referred to as sanitation, is the basis for most pest control programs. Where fruit cannot be picked up and destroyed, fruit should be mulched by farm machinery so that fruit rots.

**Bait spraying**

Bait sprays combine a source of protein with an insecticide. Both male and female fruit flies are attracted to the protein source.

Bait sprays can be applied to just a few spots in a field or orchard and the flies will be attracted to these spots (Figure 4).

Bait spraying selectively targets fruit flies and conserves many beneficial insects.

**Cover spraying**

Cover spraying involves applying insecticides as very fine droplets to entire trees, including the fruit. Cover sprays are not selective and are generally used only when fruit fly numbers become unmanageable to bring populations back under control.

Cover spraying controls all life stages of fruit fly. Most cover sprays only kill adult flies on contact, and the population will increase again in two to three weeks if no other control is carried out.

**Trapping**

A wide range of fruit fly traps are available (Figure 5). Traps specific to fruit fly are generally composed of a lure and a killing agent.
The most common traps for fruit fly contain synthetic lures that mimic fruit fly pheromones. These lures are attractive to male fruit flies. Food based lures are also available that work in a similar way to bait sprays. These attract both female and male fruit flies.

The correct density of traps must be installed to provide effective control and will differ between trap types.

**Sterile insect technique**

Sterile insect technique (SIT) involves releasing large numbers of sterile males into wild fruit fly populations. Sterile males mate with females in the wild population, resulting in the production of infertile eggs. This results in a rapid decline in wild populations.

**Cultural control**

Wrapping fruit is one of the most effective, though labour intensive, control techniques against fruit flies. This technique is more suited to home gardeners than commercial producers. Wrapping fruit with newspaper, paper bag or polythene sleeve creates a simple physical barrier to egg laying. For the barrier to be effective, it must be applied before the stage at which the fruit is attacked.

**Plant Diseases Act subordinate legislation**


Order O-457 (Plant Diseases Act 1924) prohibits the importation, introduction or bringing of Medfly (including anything infested with Medfly) into New South Wales and outlines conditions for the importation, introduction or bringing of certain soil or certain host fruit into New South Wales.


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**Reporting**

If you suspect Medfly in New South Wales:

Call the Exotic Plant Pest Hotline on **1800 084 881**

Email clear photos with a brief explanation and contact details to

[biosecurity@dpi.nsw.gov.au](mailto:biosecurity@dpi.nsw.gov.au)

**More information**

Primefact 1426 - Exotic Pest Alert: Mediterranean fruit fly, NSW DPI


**Acknowledgments**

Figure 1 courtesy of Scott Bauer, USDA Agricultural Research Service, Bugwood.org

Figure 2 courtesy of Florida Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Bugwood.org

Figures 3 and 4 courtesy of the Department of Agriculture and Food Western Australia

Figure 5 courtesy of Rebekah Niall, NSW DPI

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Published by the NSW Department of Primary Industries.

PUB15/516