



## Oriental fruit moth (*Grapholita molesta*)

### Exotic threat to Western Australia

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### Background

The Oriental fruit moth (OFM) is native to north-west China. It was introduced into Australia at the beginning of the 20<sup>th</sup> century. Since then OFM has been introduced into many other countries. OFM has recently been intercepted in consignments of cherries imported from the Eastern states of Australia. Surveillance to maintain Western Australia's State freedom from OFM is through trapping by pheromone lures and is an ongoing activity. The inspection methods and treatment are designed to reduce the risk of pests coming into Western Australia. Fruit brought into Western Australia outside regulated importations would put the quarantine barrier at risk.



Fig 1. Adult OFM.

Photo: Jack Kelly Clark, University of California.

### Distribution

#### Europe

Austria, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Lithuania, Malta, Moldova, Portugal, Romania, Russian Federation (Central Russia, Russian Far East and Southern Russia), Slovakia, Spain, Switzerland, Ukraine and Yugoslavia.

#### Asia

Armenia, Azerbaijan, China (Guangdong, Hebei, Heilongjiang, Hong Kong, Hubei, Jiangsu, Jilin, Liaoning, Shandong, Taiwan, Zhejiang and Georgia), Japan (Hokkaido, Honshu, Kyushu and Shikoku), Kazakstan, Korea, Turkey and Uzbekistan.

#### Africa

Mauritius, Morocco and South Africa.

#### Western Hemisphere

Argentina, Brazil (Rio Grande do Sul and Sao Paulo), Canada (Ontario), Chile, Mexico, USA (Arkansas, California, Georgia, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, Virginia and Washington) and Uruguay.

#### Oceania

Australia (New South Wales, Queensland, South Australia, Tasmania and Victoria) and New Zealand.

### Potential impact

OFM is a serious pest of peaches and nectarines. OFM can also attack and cause economic damage on other commercial fruits such as apricots, and in recent years its incidence on apples has increased. OFM damage in pome fruit is difficult to distinguish from codling moth damage. In severe attacks, young trees can suffer distortion of growing shoots and stems. Attacks on fruits considerably reduce their quality and, therefore, their market value. OFM can cause economic damage at relatively low population densities.

### Important Disclaimer

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## Plants affected

**Primary host:** *Prunus persica* (peach and nectarine).

**Secondary hosts:** *Cydonia oblonga* (quince), *Malus domestica* (commercial and ornamental apple species), *Prunus armeniaca* (apricot), *Prunus domestica* (plum), *Prunus dulcis* (almond), *Prunus avium* (cherry), *Pyrus communis* (pear), *Pyrus* (pears) and *Eriobotrya japonica* (loquat).

**Associated with:** *Cydonia*, *Cotoneaster* and *Crataegus* (hawthorns).

## Life cycle and seasonal occurrence

In Western Australia OFM adults (Figure 1) of the spring flight, would emerge from their cocoons at any time from August to early November. Observations in eastern Australia indicate that adults from the spring flight start to lay eggs on warm days, but owing to the large day temperature ranges in spring, the eggs may not hatch until two to three weeks after first adult emergence. The translucent-white scale shaped eggs are laid on the underside of leaves, or on stems or smooth-skinned fruit. Round or slightly oval, these eggs measure about 0.7 mm across. Depending on temperature development of the larvae (Figures 5 to 7) lasts about 6 to 22 days. The summer cocoons, covering the full-grown larvae and the pupae, may be found on fruit, in axils of twigs, under pieces of bark, and on the ground under loose debris. OFM can have more than one generation per year. The number of generations depends primarily on temperature.

## Damage

In spring the larvae infest the young shoots of fruit trees, while in summer they feed on shoots and fruits (Figures 2 to 6). Under high spring population levels immature fruit may also be infested. Tip boring causes dieback, distortion (rosetting) and wilting of shoots and is referred to as 'shoot strike'. Frass (excretions) can also be seen on the surface of the damaged shoot. Shoot strikes are most apparent on vigorously growing shoots at the top of the trees. Economic damage occurs when larvae bore into the fruit and feed around the seed (stone) in summer. Larvae usually enter fruit near the stem-end, but may enter anywhere on the surface, especially where two fruit touch.



Fig 2. External damage to peach.  
Photo: Muriel Knipe, INFRUITEC, S. Africa.



Fig 3. External damage to nectarine.

Photo: Muriel Knipe, INFRUITEC, S. Africa.



Fig 4. Shoot strike caused by OFM on peach.

Photo: Muriel Knipe, INFRUITEC, S. Africa.



Fig 5. OFM larva in fruit.

Photo: Muriel Knipe, INFRUITEC, S. Africa.

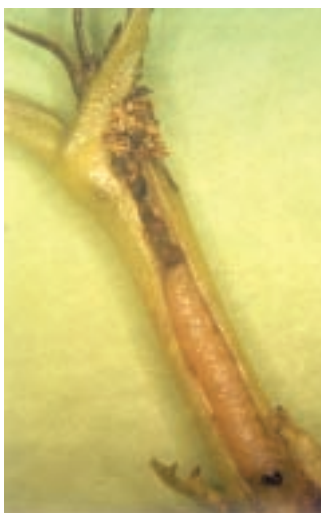


Fig 6. OFM larva in shoot.

Photo: Muriel Knipe, INFRUITEC, S. Africa.



Fig 7. OFM next to larger codling moth larva.

Photo: Muriel Knipe, INFRUITEC, S. Africa.

