

## IPM Fact Sheet Series

### **UMass Extension Fruit Team**

Fact Sheet #AI-001

#### **Apple – Apple Maggot Fly (*Rhagoletis pomonella*)**

##### **Overview**

Female AM deposit single eggs under the skin of apples and, once hatched, larvae tunnel through apple flesh leaving brown trails. Egg-laying punctures are difficult to find unless the fruit is heavily attacked, as are most apples in an abandoned orchard.

**ID/Life Cycle:** The adult fly is slightly smaller than a common housefly. The AMF body is black with a white dot on the back of the thorax. The two clear wings have four black bands in the shape of an 'F' that mimic the appearance of a spider's legs. Mature larvae are 3/8 inch long, legless, white, peg-shaped, legless, and resemble typical housefly maggots.

Apple maggot fly (AMF) overwinters as pupae in the soil. Adults emerge in mid to late June. Adults mate after a period of sexual maturation. Shortly afterwards, the females begin laying eggs under the skin of the apple. Larvae then tunnel through the apple flesh, causing apples to drop prematurely.

After fruits drop, larvae leave the fruit and enter the soil to pupate. Activity usually ceases in late August or early September but can extend into October on late cultivars. There is only one generation of AMF per year.



**Adult apple maggot fly. Photo credit:** Joseph Berger, Bugwood.org.



**Damage to fruit, including larval tunneling, caused by apple maggot fly. Photo credit:** Whitney Cranshaw, Colorado State University, Bugwood.org

**Damage:** Damage occurs from the tunneling of larvae in the flesh of the apple fruit. Infested fruit can be riddled with tiny brown trails throughout the flesh of the fruit. Damage can result from a single larva, but many larvae may be present in one fruit. Damage can be evident at harvest or develop during storage.

##### **Management Strategies**

**Monitoring:** Adult AMF respond strongly to red, spherical shapes that mimic fruit. Both males and females respond strongly to apple odor (synthetic lures are commercially available). Monitor adult AMF with yellow cards or with red sticky spheres

(2 or 3 traps per every 2 to acre block). Set traps in mid-June. Predicted first emergence of adult AMF occurs after approximately 796 to 1297 degree days base 50 have accumulated.

Traps should be placed on the outer edge of the sunny side of host trees within the fruiting canopy, preferably at least 6 ft. high. Remove foliage from around the trap for 8 to 12 inches to increase its visibility to adult flies.

The action threshold is an average of 1-2 AMF on the yellow cards or in unbaited sticky spheres, or a cumulative average of 5 AMF per trap on baited spheres. Trap captures for a week following insecticide treatment are ignored. Subsequent sprays can be applied once the threshold is reached again.

### Cultural/Biological

- Pick up and dispose of apples within a few days after they have fallen to the ground. This reduces the number of overwintering pupae in the orchard.
- Remove abandoned apple trees and alternate hosts for 100 yards around the orchard.
- In small orchards, infestation may be reduced by trapping out adults using unbaited sticky traps at the rate of one trap per tree.



**Red sticky sphere used for AMF monitoring. Photo credit:** Jaime Piñero, UMass Extension

### Chemical

- Refer to the [New England Tree Fruit Management Guide](#) for specific materials and rates recommended for managing Apple Maggot.
- Spray recommended insecticides when trap catches reach threshold levels, usually around mid-summer.
- Apply border or perimeter sprays on large (>10A) orchard blocks. This can greatly reduce the pesticide load on the environment while maintaining adequate control.
- Apply additional sprays at recommended intervals if trap catches continue.
- Rotate insecticides from different IRAC groups to reduce the chance of resistance development in the pest.

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**Author(s):** Jaime Piñero, Elizabeth Garofalo, Sonia Schloemann, UMass Extension

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