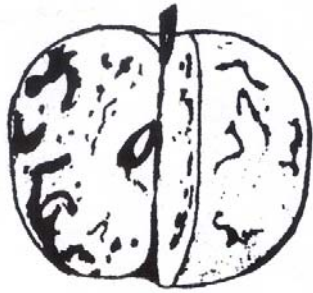



## Apple Maggot

*Rhagoletis pomonella*



APPLE INJURED BY  
APPLE MAGGOT



APPLE MAGGOT FLY  
ACTUAL SIZE = 

**Injury.** In the fruit growing areas of New York State, the apple maggot (AM) or “railroad worm” is one of the most serious pests of apples. All apple varieties are attacked, but summer varieties and early fall varieties are especially subject to injury. The insect also attacks certain varieties of European plums.

Signs of the infestation on the fruit are minute egg punctures in the skin and pitted areas on the surface. In the late season varieties the injury usually appears as corky spots or streaks in the flesh. In the varieties ripening during July, August and September open tunnels may occur. Rot producing organisms follow the maggots causing rapid decay of infested fruit.

**Life history.** The adult apple maggot is a black-bodied fly slightly smaller than the housefly. The female is larger than the male, has four white bands across the abdomen, while the male has only three. The wings of the fly are crossed by four dark bands. The adult flies emerge from their overwintering puparia (cocoon-like structures) in the ground during the latter half of June and continue to emerge through the middle of August.

The flies require approximately 10 days after emergence to feed, mate and lay eggs. During this time they may be seen resting on the leaves or fruit of apples and other host plants lapping up drops of honeydew or moisture with their fleshy mouthparts.

The female has a sharp ovipositor with which she punctures the skin of the apple and inserts her minute whitish egg into the pulp of the fruit. A large number of eggs may be deposited in a single fruit, and fruits of late varieties become much dimpled and pitted as a result.

The eggs hatch in 4 to 6 days, young maggots begin at once to tunnel through the fruit causing brown trails. Severely infested fruits often fall to the ground early. The numerous trails in the fruit reduce the inside of the apple to a brownish, pulpy mass and render it unfit for consumption.

The full-grown maggot (about 3/8 inch long) leaves the fallen fruit and burrows into the soil to a depth of 1 to 2 inches. Here it changes to a puparium in which stage it overwinters. The following year the cycle starts again.

**Monitoring.** Monitoring for these insects will help you determine when AM is active in your area and this information will help you with management decisions. Home gardeners may use visual traps to effectively monitor apple maggot populations. Red sphere traps and yellow sticky boards are two types that are currently available, but red spheres are better and more accurate. Synthetic volatile lures are now available, which greatly increase the efficiency of traps. Traps should be placed in mid (Southeastern NY) to late June (Upstate NY) at head height, clearly visible on the outside edge of the canopy. Traps should be checked 1-2 times per week for

AM flies. If a cumulative average of 5 AM flies per baited trap is caught a spray of a suitable pesticide is recommended, and the traps can then be ignored for 10-14 days (the period of time the spray residue will protect the fruit). Begin checking traps again after the protection period. Trapping can be stopped by August 30. Traps should be cleaned of insects periodically and recoated with stickum if necessary. No treatment is recommended until a cumulative total of 5 AM flies per trap are caught.

**Management.** Apple maggots are very difficult to control with insecticide sprays. Adults insert eggs directly into the pulp beneath the skin of the fruit and the maggots never leave the apple until they are full-grown. Likewise sprays applied to the soil are not effective as the flies migrate in from hedgerows or abandoned fruit trees nearby.

Picking up and destroying fallen apples at weekly intervals from early August through harvest destroys the larvae within the fruit and reduces potential for maggot injury the following year. This is most practical where trees are isolated and wild or abandoned trees are not nearby.

Use visual traps for monitoring or control of one or a few dwarf trees. The proper use of red sphere sticky traps may provide control as well as serving as a monitoring device. Unbaited red sphere traps should be hung in trees at a rate of 1/100-150 fruit to help control adult flies; or use 1 trap per dwarf tree, 2-4 per medium tree, and 6-8 per full size tree. Follow manufacturer's directions for placement. Traps should be placed in mid-(in Eastern NY) to late-July.

In a limited spray program, an application of Surround (Kaolin) during the mid-July in Southeastern NY, the first week of August (Upstate) may be sufficient to reduce damage to an acceptable level. Combine with use of red sphere sticky traps, three or four per tree. Scrape off flies and resurface with stickum one or two times per week.

Proper timing of the spray applications and thorough coverage of fruit and foliage are as important as the insecticide used. The spray should be applied until it starts to drip from the fruit and foliage.

In conventional spray programs, the first spray is applied 7-10 days after the first AM fly has emerged. The flies do not begin to lay eggs for 10 days after emergence and during this time feed on moisture present on the fruit foliage. Spray with Surround or a multipurpose fruit tree spray every 10-14 days from mid-July to late August. (Start in early July on Long Island and Southeastern New York.)

4/1972            Prepared by Carolyn Klass, Sr. Extension Associate, Dept. of Entomology, Cornell  
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