

Apple

Apple Maggot

Scientific name: *Rhagoletis pomonella*

(Reviewed 8/06, updated 3/09)



In this Guideline:

- [Description of the pest](#)
- [Damage](#)
- [Management](#)
- [Publication](#)
- [Glossary](#)

DESCRIPTION OF THE PEST

Apple maggot is a native pest of the eastern United States and Canada. In 1979 it was discovered in Oregon and has since moved into California, Washington, and other Western states. Hawthorn and apples are favored host plants, but cherries, pears, and other fruits have been attacked.

Adult flies are somewhat smaller than houseflies and have clear wings with characteristic black bands, a pronounced white spot on the back of the thorax, and a black abdomen with light-colored crossbands. Female flies have [four crossbands](#) on the abdomen, and males have three. The apple maggot is closely related to the walnut husk fly and cherry fruit fly. It can be distinguished from these other pests by the [banding on its wings](#). However, it is difficult to distinguish apple maggot from snowberry maggot, a close look-alike that occurs throughout California but that does not attack apples and pears. Larvae are cream-colored maggots with a blunt posterior and a tapered front end that contains two black mouth hooks.

DAMAGE

Female apple maggot adults [deposit eggs](#) singly under the apple skin. Damage is caused when [larvae burrow](#) and feed on apple flesh. Browning of the trails occurs as the apple responds to this injury and bacteria associated with maggots cause fruits to rot internally.

MANAGEMENT

In areas where apple maggot is established, the pest is managed with sprays of organophosphate insecticides targeted to the first emerging adult flies. Not all orchards require treatment. Use sticky traps for detection and treatment timing. If apple maggots are found in counties where it is not yet established, notify the county agricultural commissioner.

Biological Control

Because the apple maggot feeds within fruit, biological control agents have not been very effective.

Organically Acceptable Methods

Baited sprays such as GF-120 are organically acceptable. Mass trapping with dark-colored, plastic sticky spheres (placed 1–2 per tree) has been used by organic growers in the eastern U.S. to greatly reduce damage. Replace traps when sticky material is no longer effective.

Monitoring and Treatment Decisions

Emergence and dispersal of adult flies must be carefully monitored to effectively time treatments. Sticky traps, including yellow rectangles and red spheres, are both used in other areas to monitor adults and time treatments. Unfortunately, only provisional economic thresholds are available for

apple maggots, even in areas where it has long been a pest. You can detect the first emergence of adults by hanging yellow sticky traps in abandoned orchards or unsprayed apple trees in infested areas. To detect the beginning of egg laying, hang red sticky spheres in apple trees, then treat as soon as the first fly is found. In Oregon, where some orchards are now being treated regularly for apple maggots, the first maggot spray is applied 7 to 10 days after the first fly has emerged. Later sprays follow at 10- to 14-day intervals as long as adults are active and are being caught in traps.

Common name (trade name)	Amount to use** (conc.) (dilute)		R.E.I.+ (hours)	P.H.I.+ (days)
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When choosing a pesticide, consider information relating to the [impact on natural enemies and honey bees](#) and environmental impact.

A. SPINOSAD

(GF-120)#	Label rates	4	0
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MODE OF ACTION GROUP NUMBER¹: 5
COMMENTS: Most effective for small populations

B. CORN GLUTEN MEAL

(Nu-Lure Insect Bait)	1–3 pt/acre	0	0
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... PLUS ...
SPINOSAD

(Entrust)	2–3 oz	0.5–0.75 oz	4	7
(Success)	6–10 fl oz	2–3.3 fl oz	4	7

MODE OF ACTION GROUP NUMBER¹: 5
COMMENTS: Do not apply more than 9 oz/acre/crop of Entrust or 29 fl oz of Success/acre/crop.

C. PHOSMET

(Imidan) 70WP	4 lb	1 lb	3 days	7
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MODE OF ACTION GROUP NUMBER¹: 1B
COMMENTS: Apply alone or tank-mixed with Nu-Lure Insect Bait.

** Dilute rate is the rate per 100 gal water; use 400 gal solution/acre. Apply concentrate in 80–100 gal water/acre, or less if the label allows.

+ Restricted entry interval (R.E.I.) is the number of hours (unless otherwise noted) from treatment until the treated area can be safely entered without protective clothing. Preharvest interval (P.H.I.) is the number of days from treatment to harvest. In some cases the REI exceeds the PHI. The longer of two intervals is the minimum time that must elapse before harvest.

* Permit required from county agricultural commissioner for purchase or use.

Acceptable for organically grown produce.

¹ Rotate chemicals with a different mode-of-action Group number, and do not use products with the same mode-of-action Group number more than twice per season to help prevent the development of resistance. For example, the organophosphates have a Group number of 1B; chemicals with a 1B Group number should be alternated with chemicals that have a Group number other than 1B. Mode of action Group numbers are assigned by IRAC (Insecticide Resistance Action Committee). For additional information, see their Web site at <http://www.irac-online.org/>.

PUBLICATION



UC IPM Pest Management Guidelines: Apple

UC ANR Publication 3432

Insects and Mites

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