Almond

Oriental Fruit Moth

Scientific name: *Grapholita molesta*

(Reviewed 3/09, updated 3/09)

In this Guideline:

DESCRIPTION OF THE PEST

Oriental fruit moth is an occasional pest of almonds. It overwinters as a mature larva in bark cracks and in leaf litter. The small, brown moths emerge in late February. Larvae are white to pink with a brown head capsule. There are five to six generations per year.

DAMAGE

First and second generation larvae mine young, tender shoots, causing them to wilt and die. Third and fourth generation larvae feed between the hull and shell; this damage is difficult to distinguish from that caused by peach twig borer. Damage is rarely significant. Occasionally, larvae have been found feeding on nut meats. They may feed in groups of several larvae within a nut. Larvae do not produce webbing but do produce a characteristic reddish brown frass in the hull.

MANAGEMENT

Degree-day calculator Degree-day table

Oriental fruit moth rarely causes significant damage to almonds. Sprays are usually only required if significant damage by this pest occurred the previous year or in orchards that are near to other sources of Oriental fruit moth (e.g. infested peach and nectarine orchards, which are harvested before almonds). Monitor Oriental fruit moth densities in late April to early May by opening shoot strikes and looking for larvae, as described in the monitoring section for peach twig borer. A harvest sample will help evaluate the effectiveness of your management program.

Monitoring and Treatment Decisions

Adult Oriental fruit moth populations can be monitored and treatments timed (if necessary) with pheromone traps. They should be placed in orchards by February 15 in the northern or eastern quadrant of the tree, 6 to 7 feet high. Use three traps per orchard or varietal block less than 30 acres. Use one trap per 10 acres for 30- to 80-acre orchards and one trap per 20 acres for orchards larger than 80 acres. Monitor traps once a week. Replace pheromone lures according to manufacturer's directions and trap liners when dirty, or after counting and removing an accumulated total of 150 moths. Oriental fruit moth traps usually catch many more moths than do peach twig borer traps, and like peach twig borer traps, trap catch numbers are generally not a good indicator of potential damage.

To determine optimum time to spray, accumulate degree-days beginning with the first male moth trapped from the second flight, which usually occurs in May. Use a lower threshold of 45°F and an upper threshold of 90°F. (For assistance in calculating degree-days, see "Degree-days". The optimum time to treat for Oriental fruit moth is 500 to 600 degree-days after first trapped male in any flight.

- Summary of Important Links

Common name (trade name)	Amount/Acre** (conc.)	(dilute)	R.E.I.+ (hours)	P.H.I.+ (days)

The following materials are listed in order of usefulness in an IPM program,taking into account efficacy and impact on natural enemies and honey bees. When choosing a pesticide, also consider information relating to environmental impact. Not all registered pesticides are listed. Always read label of product being used.

A. SPINETORAM

(Delegate) WG	3–7 oz	0.75–1.75 oz	4	14

MODE OF ACTION GROUP NUMBER[1]: 5

B. CHLORPYRIFOS*

(Lorsban) 4E	2 qt	—	24	14

MODE OF ACTION GROUP NUMBER[1]: 1B
COMMENTS: Do not apply more than 3 foliar applications/season. Do not allow livestock to graze in treated orchards. Avoid drift or tailwater runoff into surface waters.

C. AZINPHOSMETHYL*

(Guthion) 50WP	2–4 lb	0.5–1 lb	30 days	30

MODE OF ACTION GROUP NUMBER[1]: 1B
COMMENTS: Do not apply more than twice during postbloom. Allow 30 days between applications.

D. PHOSMET

(Imidan) 70WP	4–5 lb	1 lb	3 days	30

MODE OF ACTION GROUP NUMBER[1]: 1B
COMMENTS: Do not apply more than 1 foliar spray/season. Breaks down rapidly in water. Can be used where label restrictions prevent use of other organophosphates.

E. CARBARYL*

(Sevin) 80S	5 lb	1.25 lb	12	14

MODE OF ACTION GROUP NUMBER[1]: 1A
COMMENTS: Do not use early in season or exceed 18.75 lb/acre/season. May cause severe mite outbreaks. If pest mites are present, add a miticide to the treatment if carbaryl/organophospate resistant strains of the western predatory mite are not established.

F. SPINOSAD

(Entrust)#	1.25–3 oz	0.3–0.75 oz	4	14
(Success)	4–10 oz	1–2.5 oz	4	14

MODE OF ACTION GROUP NUMBER[1]: 5
COMMENTS: Apply in early morning or evening when bees are not actively foraging.

** For dilute applications, rate is per 100 gal water to be applied in 300–500 gal water/acre, depending on the label; for concentrate applications, use 80–100 gal water/acre, or lower 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 these two intervals is the minimum time that must elapse before harvest may occur.

Acceptable for use on organically grown produce.
* Permit required from county agricultural commissioner for purchase or use.
[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/.
— Not recommended or not on label.

PRECAUTIONS

PUBLICATION

UC PEER REVIEWED

UC IPM Pest Management Guidelines: Almond
UC ANR Publication 3431
Insects and Mites
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http://www.ipm.ucdavis.edu/PMG/r3300111.html