# Apple

## Green Fruitworms

**Scientific name:**
**Speckled green fruitworm: *Orthosia hibisci***
**Humped green fruitworm: *Amphipyra pyramidoides***
(Reviewed 8/06, updated 3/09)

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**DESCRIPTION OF THE PESTS**
Immature larvae of both species are light green caterpillars. Mature green fruitworms have green bodies and green heads. Speckled green fruitworms have cream-colored lines down the back and sides of the body. Humped green fruitworms are distinguished by a prominent hump on the last segment, bright yellow lines on the side, and less distinct white lines on the back. They have only one generation a year. Egg hatch extends from pink bud to after petal fall.

**DAMAGE**
Young green fruitworm larvae feed on leaves. Fruit feeding usually begins about petal fall and continues until larvae have completed their development. At harvest, these fruit are misshapen and have large, roughened, russeted cavities.

**MANAGEMENT**
Green fruitworm populations in an orchard are usually spotty; often they occur near borders where windbreaks and other trees serve as sources of infestation. Delayed dormant treatments containing organophosphates applied for other pests may control green fruitworms. In orchards where a delayed dormant spray was not applied, green fruitworms can become a problem. Monitor to determine need for treatment.

**Organically Acceptable Methods**
Sprays of *Bacillus thuringiensis* and the Entrust formulation of spinosad are organically acceptable.

**Monitoring and Treatment Decisions**
Because populations of green fruitworm are often spotty within an orchard, thoroughly sample each block. Three sampling methods may be used: (1) Inspect 100 fruit clusters for presence of worms; (2) Take 50 beating-tray samples, especially around petal fall when larvae are easy to dislodge; (3) Inspect a block for a half hour looking for damaged foliage and clusters. When one or more larvae per 100 clusters or 50 beating tray samples are found, treatment may be necessary.

| Common name (trade name) | Amount to use** (conc.) | (dilute) | R.E.I.+ (hours) | P.H.I.+ (days) |
|---|---|---|---|---|

***When choosing a pesticide, consider information relating to the impact on natural enemies and honey bees and environmental impact.***

**A. BACILLUS THURINGIENSIS ssp. KURSTAKI#**

| | | | | |
|---|---|---|---|---|
| (various products) | Label rates | — | 4 | 0 |

MODE OF ACTION GROUP NUMBER[1]: 11.B2

COMMENTS: Apply at bloom or petal fall. Least harmful to beneficials. Bt is a stomach poison and must be consumed by the caterpillar; therefore, it is most effective when applied during warm, dry weather when larvae are actively feeding. Most effective against young larvae. Requires more than 1 treatment; apply second application 7–10 days after first.

**B. SPINOSAD**

| | | | | |
|---|---|---|---|---|
| (Entrust)# | 2–3 oz | 0.5–0.75 oz | 4 | 7 |
| (Success) | 6–10 oz | 2–3.3 oz | 4 | 7 |

MODE OF ACTION GROUP NUMBER[1]: 5

COMMENTS: Apply at pink bud or petal fall when monitoring indicates larvae are present. To prevent the development of resistance to this product rotate to a material with a different mode of action after treating two consecutive generations. Do not apply more than 3 sprays/season directed at leafrollers.

**C. METHOXYFENOZIDE**

| | | | | |
|---|---|---|---|---|
| (Intrepid) 2F | 16 fl oz | — | 4 | 14 |

MODE OF ACTION GROUP NUMBER[1]: 18A

COMMENTS: Functions both as an ovicide (when applied to eggs and when eggs are laid on residues) and as a larvicide (must be ingested for it to be effective). For each generation, begin applications at early egg hatch before webbing and sheltering begin. Make a second application in 10–14 days. Spray coverage is extremely important. Ground application should use 200 gal water/acre with a sprayer speed of 1.5 mph. The addition of a spray adjuvant is recommended to enhance spray coverage.

D. CHLORANTRANILIPROLE

| | | | | |
|---|---|---|---|---|
| (Altacor) | 3–4.5 oz | — | 4 | 14 |

MODE OF ACTION GROUP NUMBER[1]: 28

COMMENTS: Do not apply dilute applications of more than 200 gal/acre; use 100–150 gal/acre for best results.

E. SPINETORAM

| | | | | |
|---|---|---|---|---|
| (Delegate) WG | 4.5–7 oz | — | 4 | 7 |

MODE OF ACTION GROUP NUMBER[1]: 5

**F. AZINPHOSMETHYL***

| | | | | |
|---|---|---|---|---|
| (Guthion) 50WP | 1 lb | 0.25 lb | 14 days | 14 |

MODE OF ACTION GROUP NUMBER[1]: 1B

COMMENTS: Apply at petal fall. Check the label for restricted entry intervals, which vary according to activity.

| | | | | |
|---|---|---|---|---|
| **G. DIAZINON* 50WP** | 2 lb | 0.5 lb | 14 days | 21 |

MODE OF ACTION GROUP NUMBER[1]: 1B

COMMENTS: Apply during delayed dormancy or at petal fall. Avoid drift and tailwater runoff into surface waters.

** For dilute application, rate is per 100 gal water to be applied in 300–500 gal water/acre, according to 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 two intervals is the minimum time that must elapse before harvest.

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

\# Acceptable for use on organically grown produce.

— Not recommended or not on label.

[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 PEER REVIEWED

*UC IPM Pest Management Guidelines: Apple*
UC ANR Publication 3432
Insects and Mites
J. L. Caprile, UC Cooperative Extension, Contra Costa County
L. R. Wunderlich, UC Cooperative Extension, El Dorado County
P. M. Vossen, UC Cooperative Extension, Sonoma and Marin counties
W. W. Coates, UC Cooperative Extension, San Benito County
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http://www.ipm.ucdavis.edu/PMG/r4301211.html