

# Cucurbits

## Cucumber Beetles

### Scientific Names:

Western spotted cucumber beetle: *Diabrotica undecimpunctata undecimpunctata*

Western striped cucumber beetle: *Acalymma trivittatum*

Banded cucumber beetle: *Diabrotica balteata*



(Reviewed 12/09, updated 12/09)

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## DESCRIPTION OF THE PESTS

The [western spotted](#) and the [western striped](#) cucumber beetles occur throughout California and are major pests of cucurbits; the banded cucumber beetle occurs primarily in southern California. Cucumber beetles overwinter as adults and are active by the time the earliest melons are planted in spring. Adults lay eggs at the base of plants. As soon as they hatch, larvae begin to feed on plant roots. They complete their development in the soil. There are about three generations a year.

Cucumber beetles are about 0.36 inch (9 mm) long and either have a greenish yellow background with black spots or alternating black and yellow stripes. They fly readily and migrate into cultivated areas from alfalfa and other crops and from uncultivated lands. Cucumber beetles like moisture and dislike heat; consequently, melon fields are especially attractive in hot weather during and after an irrigation.

Western striped cucumber beetle larvae feed exclusively on cucurbit roots, whereas western spotted cucumber beetle larvae feed primarily on grasses, corn, and legumes, and do not damage cucurbits.

## DAMAGE

Cucumber beetles are serious pests of smooth-skinned cucurbits, especially melon varieties such as honeydew, crenshaw, and casaba. They prefer tender, [succulent portions](#) of plants, including the flowers, which they may destroy with their feeding. The beetles chew holes in leaves and scar runners and young fruits. Adults tend to avoid heat and thus feed mainly on the underside of young melons. After the skin hardens, melons are much less subject to attack. Scarring in the crown of the plant is also typical of adult damage. Feeding on stems of young plants, followed by sustained winds, may result in severe stand reductions making replanting necessary. In some situations, larvae may cause serious injury by feeding on roots, and young plants can be killed. Cucumber beetles also spread squash mosaic virus.

## MANAGEMENT

Damaging populations of cucumber beetles are usually treated with insecticides.

### Biological Control

Cucumber beetles are attacked by a variety of natural enemies, the most important being a parasitic

tachinid fly, *Celatoria diabroticae*. Natural enemies are rarely effective enough, however, to reduce populations below economically damaging levels.

### **Cultural Control**

There are no effective cultural controls for these pests. Because spotted cucumber beetle larvae also feed on corn, avoiding planting cucurbits next to corn may help.

### **Monitoring and Treatment Decisions**

Cucumber beetles are difficult to control. Sprays must be directed at adult beetles. Larvae of western spotted cucumber beetle develop outside of cucumber fields. Striped cucumber beetle larvae are located on roots where they cannot be controlled.

Treatment of adults may be necessary if there is an average of one beetle a plant during the seedling-to-4-inch-tall stage. Infestations that develop late in the season are usually not as damaging as those that begin earlier because the population levels tend to be lower. Apply treatments before beehives are introduced into the field; typically, treatment is often made the day before bees are put in the field.

Common name (trade name)	Amount/Acre	R.E.I.+ (hours)	P.H.I.+ (days)
<i>The following materials are listed in order of usefulness in an IPM program, taking into account efficacy, pesticide registrations, information related to <a href="#">natural enemies and honey bees</a>, and environmental impact. Not all registered pesticides are listed. Always read label of product being used.</i>			
<b>A. CARBARYL*</b>			
(Sevin) 4F			
(Sevin) XLR Plus	1 qt	12	3
MODE OF ACTION GROUP NUMBER <sup>1</sup> : 1A			
COMMENTS: To avoid plant injury, do not apply when foliage is wet or when rain or excessive humidity is expected during the 2 days after application. May cause increased spider mite problems. The XLR Plus formulation is less hazardous to honey bees than other formulations if applied from late evening to early morning when bees are not foraging.			
<b>B. ESFENVALERATE*</b>			
(Asana XL)	5.8–9.6 oz	12	3
MODE OF ACTION GROUP NUMBER <sup>1</sup> : 3			
COMMENTS: Use to control adults; repeat as necessary to maintain control. Do not exceed 0.25 lb a.i./acre/season. Highly toxic to honey bees.			
<b>C. ENDOSULFAN*</b>			
MODE OF ACTION GROUP NUMBER <sup>1</sup> : 2A			
(Thionex) 3EC	0.66–1.33 qt	48	2
COMMENTS: Do not exceed 3 applications/year. Moderately toxic to honey bees.			
(Thionex) 50WP	1–2 lb	72	2
COMMENTS: Do not exceed 3 applications or 2 lb a.i./acre/year. Do not spray where water can get into drainage areas. Moderately toxic to honey bees.			
<b>D. CRYOLITE</b>			
(Kryocide) 96W	8–12 lb	12	see comments
MODE OF ACTION GROUP NUMBER <sup>1</sup> : 9A			
COMMENTS: Labeled for use on cucumber, squash, melons, and pumpkins. Can be applied as a spray or dust. Thorough coverage using ground equipment is necessary for adequate control. Do not apply immediately before harvest. Remove excess residues on edible portions by washing, brushing, or other effective means. Effectiveness of this material is lower than materials listed above. PHI is 7 days for summer squash and 14 days for winter squash, cucumber, melons, and pumpkins.			

... or ...

(Prokil Cryolite 96) 10–16 lb 12 see comments  
COMMENTS: Labeled for use on cantaloupe, squash, and watermelon. Applied as a spray. Thorough coverage using ground equipment is necessary for adequate control. Do not apply immediately before harvest. Remove excess residues on edible portions by washing, brushing, or other effective means. Effectiveness of this material is lower than materials listed above. PHI is 7 days for summer squash and 14 days for winter squash, cantaloupe, and watermelon.

- + 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.
- <sup>1</sup> 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: Cucurbits*  
UC ANR Publication 3445  
Insects and Mites  
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J. B. LeBoeuf, AgriData Sensing, Inc., Fresno  
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<http://www.ipm.ucdavis.edu/PMG/r116300511.html>