

Table 44. Effectiveness of insecticides for management of grape insects.

Material	PESTS								
	GBM	LH	GP	GCGL, JB	GCGR	GFB, CW	GMB	M	RC
Agrimek (abamectin)	++	?	?	0?	0?	0?	?	++	0?
Ecozin (azadirachtin)	?	++	?	++	?	+	++	+	++
*Guthion (azinphos-methyl)	+++	+	?	++	+++	++	?	0	++
Dipel (<i>Bacillus thuringiensis</i>)	++	0	0	0	0	0	?	0	0
Sevin (carbaryl)	+++	+++	0	+++	0	+++	?	0	+++
JMS Stylet Oil (parafin oil)	?	?	?	?	?	?	+++	+++	?
Diazinon (diazinon)	0	++	0	0	0	0	?	0	0
Kelthane (dicofol)	0	0	0	0	0	0	?	+++	0
*Thiodan (endosulfan)	?	++	+++	?	?	?	?	0	?
Vendex (fenbutatin-oxide)	0	0	0	0	0	0	?	+++	0
Danitol (fenpropathrin)	+++	+++	+	+++	?	++	++	++	?
M-PEDE (insecticidal soap)	0	++	0	0	0	0	?	?	0
Pyramite (pyridaben)	0	++	0	0	0	0	?	+++	0
Provado (imidacloprid)	0	+++	?	0	0	0	+++	0	0
*Lannate (methomyl)	++	++	?	?	?	?	?	?	?
Imidan (phosmet)	+++	+	?	+	++	?	?	0	+

+++=highly effective; ++= moderately effective; += slightly effective; 0= not effective/not labeled; ?= effectiveness unknown

Key to pests: GBM= grape berry moth; LH= leafhoppers; GP= grape phylloxera; GCGL= grape cane gallmaker; JB= Japanese beetle; GCGR= grape cane girdler;

GFB= grape flea beetle; CW= cutworm; GMB= grape mealy bug; M= mites; RC= rose chafer.

*restricted use pesticides

Foliage and Cane Pests

Grape flea beetle (*Altica chalybea*): This is a metallic blue beetle about 3/16 - 1/4" long that jumps when disturbed. It is found on swelling buds during the spring. The flea beetles overwinter as adults and emerge during April. They chew holes in the ends and sides of buds that are beginning to swell. Such damage destroys the capacity of a bud to develop a primary or secondary shoot. Once the buds have grown to a length of 1/2" or more, the beetles cannot cause significant injury.

Management: See pest management schedule for recommended materials and timing.

Grape Phylloxera (*Phylloxera vitifoliae*): The presence of this soft-bodied insect (about 1/16" or less in length) is indicated by galls or knob-like protrusions on the underside of leaves. It is found primarily on leaves of vinifera varieties, especially after bloom. The damage results from new leaves remaining curled and unproductive on the vine.

Management: Plant resistant rootstocks. Remove infected leaves. Spray applications should be made immediately after bloom and again 10 days later. See pest management schedule for recommended materials and timing.

Grape Leafhopper (*Erythroneura comes*) and **Potato Leafhopper** (*Empoasca fabae*): These soft-bodied, elongated insects about 1/8" in length, walk quickly when disturbed and hop when touched. The grape leafhoppers are yellow and white or red and white. The potato leafhopper is light green and has a distinctive side-ways walk. Leafhoppers appear primarily in mid-summer and are found on the underside of leaves, especially young ones. Feeding activity causes white blotches on leaves, leaf curling, and eventual leaf drop.

Management: When leafhoppers number 3 or more per leaf, apply an insecticide (preferably when most of the nymphs have hatched). See pest management schedule for recommended materials and timing.

Japanese Beetle (*Popillia japonica*) and **Rose Chafer** (*Macrodactylus subspinosus*): These clumsy, large beetles can feed heavily on the foliage of many different plants. Japanese beetles are a shiny copper color, almost round in shape with legs that tend to stick out. They will play dead when disturbed, dropping to the ground. Rose chafers are very similar behaviorally but dull green in color and more oval in shape. They can be found on both leaves and fruit. The feeding damage to leaves results in skeletonizing of the leaves with only the veins left;