

Elm Leaf Beetle

The elm leaf beetle (*Xanthogaleruca luteola*) is a serious pest of elm trees in Arizona. Siberian elm (*Ulmus pumila*) and European elm species are heavily damaged by the insects. Certain Asiatic and American elm species are not as heavily damaged. The adult and larvae feed on elm leaves. Adult beetles eat irregular holes in the leaves during mating and egg-laying periods. The larvae eat the lower surface of the leaves, leaving the veins. These skeletonized leaves turn brown and eventually fall. The damage is very noticeable at the end of the summer. Repeated defoliation weakens the tree and may cause branch mortality in large trees.

In fall and spring, elm leaf beetles become a serious nuisance in homes. The adults invade homes in the fall, seeking a place to hibernate, and they become a nuisance again in spring as they come out of hibernation. One to three generations may be produced during the year.

Identification: Adults are olive-green with black, longitudinal stripes along the margin and center of the back. Females lay the yellowish to grey eggs in double rows of about 5 to 25 on the underside of leaves. Newly hatched larvae are black. After feeding, larvae become a dull yellow or green with rows of tiny dark tubercles. Pupae are bright yellow.

Life cycle: Adults over-winter in bark crevices, litter, woodpiles, or buildings. They fly to foliage in the spring and feed and lay eggs. Larvae feed in the tree canopy for several weeks and develop through three instars or stages. Larvae then crawl down the tree trunk and form bright yellow pupae around the tree base. After about 10 days, adult beetles emerge from pupae and fly to the canopy to feed and lay eggs.

Cultural control: Good cultural care of trees is an essential component of integrated pest management. American elm species require proper irrigation to grow well in Arizona.

Chemical bark banding: Bark banding is an inexpensive and environmentally sound technique that can be part of an elm leaf beetle program. To bark band, use a hand pump sprayer or hydraulic sprayer at low pressure to spray an area of bark at least several feet wide encircling the trunk, around the first main branch crotch. Carbaryl (Sevin) is most commonly used and should be applied at the rate labeled for elm bark beetles. Do not use the rate labeled for foliar applications because this will not be as effective as trunk banding. About one-half gallon of diluted material is applied on each large tree. Larvae are killed by the insecticide while crawling down to pupate around the tree base after feeding in the canopy. By reducing the number of elm leaf beetles that pupate and emerge as adults, bark banding reduces damage by reducing later beetle generations and their progeny, especially when done over a large area.

Inspect foliage and spray the trunk when mature larvae are first observed. One to three generations occur each year, but a single application of carbaryl to bark each spring can kill most larvae that crawl over it all season long. Regularly inspect around the base of trees throughout the season. If many beetles have changed from greenish pre-pupae (the stage killed by banding) to yellowish pupae (unaffected beetles), another application may be warranted.



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