



Boxelder Leafroller

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Description

The boxelder leafroller, *Archips negundana*, is a pest of boxelder in various parts of the United States and Canada. It was first reported in Utah in 1931. Boxelder is the primary host but damage has also been noted on raspberry, birch, mountain elder, white elm, and various shrubs.

Adult females are buff-colored moths with a wing spread of approximately 1 inch. The undersides of their abdomens are dark colored. Males are similar in appearance but are slightly smaller and light yellow on the underside of the abdomen.

Life Cycle

Adults are present from about mid-June to late July. Females deposit eggs, in flattened masses of about 30 eggs each, in forks of branches and in bark crevices. The egg masses are covered with scales from the female's body and are difficult to detect. Winter is spent on the tree in the egg stage. Egg hatch occurs with the onset of warm temperatures in early May. The young larvae crawl to the developing leaves and begin to feed, often congregating in small groups on a single leaf. Older larvae feed individually in rolled leaves. Mature larvae are about 4/5 inch long, green, and very active. If disturbed, they quickly drop from the tree, suspended by a silken thread. Larvae are present into July but most larvae have completed development by mid-June in a "normal" year. Full grown larvae pupate (form cocoons) in the rolled leaves and emerge as adults beginning in mid-July to complete the cycle. There is one generation per year.

Damage

Boxelder leafroller damage results from larval feeding activities on the leaves. Young larvae form webs along folds and veins of the leaves and consume the tissue between the veins. Older larvae roll individual leaves and may web several leaves together. Heavy infestations can result in complete defoliation of the tree.

Boxelder trees have the capability of producing a second set of leaves if the first set is removed. Consequently, trees that are completely defoliated early in the growing season may appear nearly normal by the end of the summer due to leaf replacement. As a general "rule of thumb," if a deciduous tree is well established, growing under good conditions, in a suitable

site, and is not under additional stress, it can usually withstand about 30-35% leaf loss before its capability to store food reserves is significantly threatened. However, established boxelders that have been completely defoliated for three consecutive years have continued to live and grow normally. Their capacity to releaf apparently compensates to some extent for the early season leaf loss.

Control

If control of boxelder leafroller is desired to preserve the health of a young tree or to maintain the aesthetic and/or shade characteristics of the tree, insecticidal sprays should be applied in the spring as soon as damage to the leaves is noted. Homeowner application of insecticides to large trees is often difficult due to the inability to reach the tops of the trees with the spray. Trees up to 25-30 feet tall can be sprayed with hose-end sprayers if there is sufficient water pressure. Larger trees will require power equipment and the cost may be prohibitive, depending on the value placed on the tree by the homeowner.

Homeowner-type insecticides labeled for leafroller control on boxelder, maple, or ornamental shade trees (in general) include formulations containing *Bacillus thuringiensis* including varieties aizawai and kurstaki, canola oil, carbaryl, chlorpyrifos, diazinon, endosulfan, lindane, malathion, mineral oil, phosmet, synergized pyrethrins, and rotenone. Acephate is phytotoxic to some species of maple and should be used with caution on boxelder. A few additional formulations containing bendiocarb, cyfluthrin, cinnamaldehyde, cryolite, dimethoate, naled, tebufenozide, and thiodicarb are available for use by professional pest control operators.

Not all formulations containing the above active ingredients are suitable for use on trees. Before purchasing or applying any insecticide, check the label to be sure the tree you want to treat is listed or that the product is labeled for use on ornamental shade trees in general.

Precautionary Statement

All pesticides have both benefits and risks. Benefits can be maximized and risks minimized by reading and following the labeling. Pay close attention to the directions for use and the precautionary statements. The information on pesticide labels contains both instructions and limitations. Pesticide labels are legal documents, and it is a violation of both federal and state laws to use a pesticide inconsistent with its labeling. The pesticide applicator is legally responsible for proper use. Always read and follow the label.

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