UT Extension
SP 341-U
(Available online only)

Insects

The Bagworm and Its Control

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The bagworm, *Thyridopteryx ephemeraeformis* (Haworth), is one of the more curious and interesting insect pests of trees and shrubs. Its carrot-shaped bag is constructed of bits of material from the plant upon which it is feeding and is enlarged as the bagworm grows. The bag is carried wherever the worm goes. When disturbed, the bagworm merely pulls its head back into the bag for protection.

Food Plants

The bagworm is especially fond of junipers, cedars, arborvitae and white pine, but it also is found feeding on a number of shade tree and shrub species. Some 128 species of plants are susceptible to bagworm feeding injury.

Importance and Nature of Injury

Damage to plants is caused by the larva eating plant foliage. If not controlled while they are small, the maturing larvae can do considerable defoliation during the summer. Studies have shown that as few as four bagworm larvae feeding on the foliage of a 4-foot arborvitae in the summer can cause consumer sales rejections, even when bags are absent. Higher populations of bagworms can easily defoliate plants. This is particularly a problem on evergreens because the defoliation alters the shape and beauty of the plant. The plant will need to be replaced if damage is severe.

Life Cycle and Habits

Bagworms spend the winter as eggs inside the female's bag. Several hundred eggs may be laid and overwinter in a bag. Since some bags contain only males, not all bags examined will contain eggs during the winter.

The eggs begin to hatch in late April to mid-May. Upon hatching, the young larvae crawl out of the bottom of the bag and start to feed and construct silken shelters over their bodies. These young bagworm larvae are highly mobile in their search for food plants; walking or using wind currents to disperse. Their bags, at this time, consist of little more than spun silk and dust particles. As the larvae feed and grow, they continue to enlarge the exterior of their bags with pieces of twigs and foliage, bits of bark, shed skins and excrement. The bags offer camouflage and even repel rainwater. Being hard to wet, the bags are highly impervious to pesticide sprays, which seldom penetrate to reach the larvae.

Feeding and growth usually continue until August, when the larvae are full grown and the bags are about 21/2nches long. At this time, they stop feeding and loop strands of silk around a twig and become firmly attached. After the top of the bag is closed, the larvae reverse their position in the bags so their heads are facing downward. They then change into the pupal (resting) stage. The male moths emerge about four

weeks after larval feeding has ceased. The female never leaves the bag to mate. After mating, eggs are deposited within the abdomen of the female before she dies. The eggs remain in the bag throughout the winter and into spring. There is only one generation of bagworms each year.

Control Measures

Non-Chemical Control: One of the best ways to control bagworms is to handpick and destroy them in the fall, winter or before the eggs hatch in the spring. A thorough job must be done. On large trees, handpicking may be dangerous and impractical. A number of natural enemies feed on the larvae and eggs and apparently this explains why populations of bagworms fluctuate from year to year.

Chemical Control: Chemicals should be applied when the bagworms are small. The larger the worms, the more difficult they are to kill. Do not apply insecticides to plants not listed on the label. Because the rates of insecticides vary with plant species, check the label carefully to ensure the proper amount of insecticide is used. For chemical control recommendations, refer to **tiny.utk.edu/ag/insectandmite**. Always refer to the insecticide label to make sure that the insecticide can be legally applied on ornamental plants at your site, such as a residential landscape or commercial nursery.

References

Kaufman, T. 1968. Observations on the Biology and Behavior of the Evergreen Bagworm Moth, Thyridopteryx ephemeraeformis (Lepidoptera: Psychidae). Ann. Entomol. Soc. Amer. 61 (1): 38-44.

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SP 341-U (Rev.) 4/14 14-0169

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