

## Bagworms

The bagworm is a general pest of trees and shrubs. The caterpillar of a moth (order *Lepidoptera*), the bagworm constructs a carrot-shaped case or bag formed from plant material.

Bagworms feed on many kinds of plants. Evergreens such as arborvitae, southern white cedar, red cedar, juniper, spruce and pine are especially vulnerable to attack. While evergreen trees and shrubs cannot recover from complete defoliation, deciduous trees such as boxwood, maple, sycamore, willow and other broadleaf species usually can develop new leaves following complete defoliation.

### Appearance of Injury

A bagworm infestation often goes unnoticed at first because bagworms are inconspicuous when young. By the time they are nearly full grown, the branches are bare as a result of their feeding, and the 1- to 2-inch bags are more visible. Early detection of an infestation requires careful examination of plants when the tiny bags of the developing caterpillars can be seen attached to leaves or needles of plants.



### Description

Bagworms live in a cocoon-like case that enlarges as they feed. Full grown, they may be two inches long and 1/2 inch wide. Just after egg-hatch, young bagworms are tiny, about 1/25 inch long, glossy black on the back, and a dull-amber underneath. A full-grown bagworm is dull, dirty gray, and splotched with darker markings toward the head. In mid- to late summer the bagworm changes to a dark red-brown resting stage called the pupa.

The adult stage completes the life cycle [follows]. The female has no wings and remains in the same bag. Male bagworms develop into small, black, hairy-bodied moths that emerge from the bags. The eggs are round, yellowish, and about 1/32 inch in diameter. They are found inside the shell of the old female, still in the protective case.

## Life History

Bagworms pass the winter in the egg stage inside old cases or bags. Eggs hatch in late spring (about June 1 in Delaware, depending on the spring temperatures), and the young larvae crawl about the bush or tree, spinning long threads of silk on which they drop to other parts of the plant. As they hang suspended on the silk threads, the wind carries some of them to other trees. This is the way bagworms spread around the countryside.

Very soon after emerging, each tiny larval caterpillar begins spinning a protective bag around itself, leaving an opening at the head end to permit crawling about and feeding. As they feed, they attach small pieces of leaves or needles of the host plant to their cases; as they increase in size, they add more pieces to the bag. Bags on different hosts may differ somewhat.

By late August the bagworms are full grown, they stop feeding and change inside the bags to the pupal stage. During September and early October, males leave the cases and fly to bags containing females, where mating takes place; the females remain in the bags. Bags that produced males will have a pupal skin protruding from the lower end during fall and winter [(Figure 3)]. Females produce between 500 and 1,000 eggs, which remain in their bodies after they die. Bagworms pass winter in the egg stage and hatching occurs in early June the following year.

## Control

Hand-picking the bags from infested plants and destroying the cases is a simple way of reducing bagworm numbers. This procedure is especially advantageous during spring, late summer, and during the fall and winter. For effective control, you must get every bag. In late fall, you can put the bags in coffee cans or jars with coarse screening to allow any parasites in the bags, such as flies or parasitic wasps to emerge and escape. These natural biological control organisms will help in control of future bagworm populations.

When bagworms are too numerous to hand-pick, an insecticide may be applied. Remember, however, that the older bagworms become, the more difficult it is to kill them with insecticides. In Delaware the best time to treat for bagworms is early to mid-June. *Bacillus thuringiensis* (Thuricide, Dipel), carbaryl, cyfluthrin, neem, acephate, esfenvalerate, spinosad (naturalyte), pyrethrin, malathion, dimethoate, dylox, and permethrin are labeled for home owner use.

Pesticides mentioned in this publication are generally listed as the active ingredient or common chemical name. The active ingredient is the chemical in the formulation that is active against the pest. Read the pesticide label to determine if the correct active ingredient is present. Regardless of the product you choose, be sure the plant and/or the pest you want to control is on the label.

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