

AGRICULTURAL GUIDE

Published by the University of Missouri-Columbia Extension Division

Insect Control

APR 20 1984

The bagworm in Missouri

The bagworm is a native insect of Missouri. In its native habitat, it causes little concern except occasionally when populations of the pest build up on a favorite host such as the Eastern red cedar and complete defoliation results. In cities, towns, and farmsteads where people use evergreens and deciduous trees and shrubs for landscape purposes, the bagworm represents a constant threat. Although Eastern Red Cedar and its horticultural varieties, other juniper species, and arborvitae are favorite hosts, this pest will attack a wide range of other plants including willow, apple, maple, rose, and boxelder.

Life history

The bagworm has one generation each year in Missouri. The adult female bagworm moth deposits between 500 to 1,000 eggs in the pupal case inside the tough silken bag late in the fall. The bag, which is securely attached to a branch of the food plant, somewhat resembles a Christmas tree ornament as it dangles from a limb and offers some protection for the overwintering eggs.

The larvae, measuring some $\frac{1}{25}$ inch in length, hatch from the eggs late in May and crawl away from the overwintering bag. They begin to spin a cone-shaped silken case around themselves almost immediately after hatching, then begin to feed on the leaves of the host plant. As they grow, the larvae increase the size of the bags by adding silk to the open end. At the same time, they add bits of the food plant to the bags which helps to camouflage them and protect the larvae from natural enemies. The larvae reach maturity about mid-August when bags may be from $\frac{3}{4}$ to $1\frac{1}{2}$ inches in length. They spin several threads of silk around a twig, close the upper end of the bag and change to pupae.

The pupal stage lasts for from three weeks to one month, and then the adult moth emerges. The male moth resembles a small wasp. It is sooty black in



The tough, silken bag offers protection for the overwintering eggs.

color, clear-winged, and has feathery antenna. The wing span is about one inch across. The female moth is about $\frac{3}{4}$ inch long, creamy white in color, legless, wingless, and wormlike. After mating, the female deposits the eggs and dies, thus completing the cycle.

Control

The surest and cheapest means of controlling bagworms on small evergreens, shrubs and shade trees in home plantings is to hand pick the pests. This can be done at any time during the year, but you have to be persistent. Be sure and pick off *all* bags and destroy them by mashing or burning.

Insecticide	Formulation	Dosage per gallon	Dosage per 100 gallons
Carbaryl (Sevin)	50% wettable powder	2 table-spoons	2 pounds
	80% wettable powder	2 table-spoons	$1\frac{1}{4}$ pounds
Diazinon	50% wettable powder	2 tea-spoons	1 pound
	25% emulsifiable concentrate	2 tea-spoons	1 quart
Malathion	57% emulsifiable concentrate	2 tea-spoons	1 quart

Chlorpyrifos (Dursban)	2 lbs./gal. emulsifiable concentrate	1 tea- spoon	¼ pound
Acephate (Orthene)	1.3 lbs./gal. emulsifiable concentrate	1½ table- spoons	2⅓ qts.

Natural enemies such as birds, insect parasites and insect predators will take their toll of larvae; however, they seldom control large populations until after extensive damage has occurred.

When the bags are too numerous to handpick, then it may be necessary to spray the infested plants soon after the bagworm eggs have hatched with one

of the insecticides listed in the preceding chart during early June in the southern part of the state and about mid-June in the northern part of the state.

NOTE: Malathion will injure cannarti, Burk, and Sargeant's juniper.

Caution

Handle insecticides with care. Follow directions on the insecticide label. Keep the insecticides off the skin, and out of the eyes, nose and mouth. Wash immediately with soap and water if concentrates are accidentally spilled on the skin. Store unused insecticides in a dry area, out of the reach of children and pets.

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■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. Leonard C. Douglas, Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.