

# Landscape & Ornamental

Department of Entomology

## BAGWORMS

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During July and August, bagworms may defoliate arborvitae, junipers and other trees and shrubs. Bagworms are caterpillars that live inside spindle-shaped bags which they construct to protect themselves against birds and other enemies. These bags, composed of silken threads and bits of foliage, look so much like a part of the tree that they may go unnoticed until extensive damage has occurred. Bagworms are common throughout the state.

### LIFE HISTORY

Early in June, the insects hatch from eggs which wintered in the old bags attached to tree branches. As soon as the young worms appear, they start to spin bags and continue to enlarge these as they feed and grow. The caterpillars crawl part way out of the bags to feed. If disturbed, they retreat safely inside, and it is almost impossible to pull them out. Each female bag can produce over 1,000 bagworms.

Bagworms mature in late August or early September. At this time the bags are about 2 inches long and can no longer be killed by pesticides. The worms then attach the bags firmly to branches or other objects and change into the adult stage. The wingless female never leaves the bag and is fertilized by the winged male. The eggs are laid in the bag where they pass the winter. Eggs of bagworms located south of Monticello, Peru and Bluffton, or near Lake Michigan usually survive the winter. In other parts of the State, eggs can be killed during cold winters. There is only one generation each year.



Bagworm caterpillar feeding.

### CONTROL MEASURES

Bagworms tend to be a problem on trees that are isolated or in urban settings. When bags are found in the tree, simply pick the bagworms off and drown them in a bucket of soapy water. This method is most effective before eggs hatch out of the bags in June.

Bagworms can be controlled by spraying the foliage with insecticides after eggs have hatched and small bags are seen on the trees. Caterpillars must consume the foliage for the insecticide to kill them. For best results, use a biorational pesticide listed in Table 1. The biorational materials will kill



Bagworm hanging from branch.



Young bagworm covering itself with leaves.

the caterpillars without killing the natural enemies of spider mites and scale insects that can cause additional damage to the plant. (See E-42-W *Spider Mites on Ornamentals* and E-29-W *Scale Insects on Shade Trees and Shrubs*). Caterpillars may have to feed on treated leaves for 1-2 days to get a lethal dose of these materials. In contrast, rescue materials can kill caterpillars feeding on the foliage within hours after application. All pesticides are most effective when directed against worms in bags that are still small. Dipel is only ef-

fective on bags < 1” long. Two weeks after any pesticide application look for live bagworms to determine if additional treatment is needed.

Alternatively, a soil application of dinotefuran may be applied to the base of the tree. Applications should be made in early May to allow enough time for this material to get into the foliage before eggs hatch. Our research has shown this product to be most effective on young bagworms on small trees.

**Table 1. Pesticide List**

Insecticide	Formulation	Amount per 100 gallons	Amount per gallon	Suggested Use	General Use Restriction (Check label) H=Homeowner C=Commercial
Acephate (Orthene)	75% S 15.6% EC	1/3 lb. 1 1/5 cup	1/3 tsp. 1 1/2 Tbsp.	Rescue	H, C
Acetamiprid (TriStar)	30 SG	2.7-5.3 oz.	-	Rescue	H, C
Azadirachtin (Azatrol, Azatin-o and others)	1.2% SEC	96-160 fl. oz.	1-1.6 fl. oz.	Biorational	H, C
<i>Bacillus thuringiensis</i> (Kurstaki) (Dipel, Biotrol, others)	See label	See label	See label	Biorational	H, C
Beta-Cyflurin (Tempo)	20 WP 0.75 EC	1.9 oz. -	- 1 Tbsp.	Rescue	C H (Bayer)
Bifenthrin (Talstar L&T and other site specific products)	0.7 F	5.5 - 10.9 oz.	1/3 - 2/3 tsp.	Rescue	H, C
Carbaryl (Sevin and others)	4 F 2 F	1 qt. 2 qt.	2 tsp. 4 tsp.	Rescue	H, C
Chlorantraniliprol (Acelepryn)	1.67 SC	1-2 fl. oz.	-	Biorational	C
Cyfluthrin (Decathalon) (Bayer Lawn & Garden)	20 WP 0.75 EC	1.9 oz. -	- 1 Tbsp.	Rescue	C H (Bayer)
Deltamethrin (Deltagard T&O) (Suspend SC)	4.75% EC	4 - 8 oz.	1/4 - 1/2 tsp.	Rescue	H, C
Dinotefuran (Safari)	20 G	See label	See label	Rescue	C
Fluvalinate (Mavrik)	2 F	5 - 10 oz.	1/4 - 1/2 tsp.	Rescue	H, C
Indoxacarb (Provaunt)	2.4 SC	1.2-2.5 fl. oz.	-	Biorational	C
Lambda-cyhalothrin (Scimitar, Demand)	9.7% EC	1.5 - 5 oz.	-	Rescue	H, C
Malathion	57% EC	2 - 4 pt.	2 tsp.	Rescue	H, C
Permethrin (Astro EC) (Spectracide Bug Stop) (Eight)	36.8% EC 2.5% EC	4 - 8 oz. -	1/4 - 1/2 tsp. 2 Tbsp.	Rescue Rescue	C H
Spinosad (Conserve) Bulls-Eye Bioinsecticide Fertilome Borer, Bagworm, Leafminer & Tent Caterpillar Spray	SC SC	6 oz. -	1/2 tsp. 4 Tbsp. 4 Tbsp.	Biorational	C H H
Tebufenozide (Confirm)	25% EC	4 - 8 oz.	1/4 - 1/2 Tsp.	Biorational	C

READ AND FOLLOW ALL LABEL INSTRUCTIONS. THIS INCLUDES DIRECTIONS FOR USE, PRECAUTIONARY STATEMENTS (HAZARDS TO HUMANS, DOMESTIC ANIMALS, AND ENDANGERED SPECIES), ENVIRONMENTAL HAZARDS, RATES OF APPLICATION, NUMBER OF APPLICATIONS, REENTRY INTERVALS, HARVEST RESTRICTIONS, STORAGE AND DISPOSAL, AND ANY SPECIFIC WARNINGS AND/OR PRECAUTIONS FOR SAFE HANDLING OF THE PESTICIDE.

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