



## Clothes Moths and Plaster Bagworms<sup>1</sup>

P. G. Koehler<sup>2</sup>

### Clothes Moths

Clothes moths are major pests of fabric and other items made of natural fibers. Clothes moth larvae commonly feed on wool, feathers, fur, hair, upholstered furniture, animal and fish meals, milk powders, and most animal products, such as bristles, dried hair and leather. Larvae will also infest or feed on lint, dust, paper and materials soiled with oil. Clothes moths can feed on mixtures of natural and synthetic fabrics. However, they cannot feed on materials made of synthetic fibers. In nature, clothes moths have been found infesting pollen, hair, dead insects and dried animal remains.

The most common clothes moths are the webbing clothes moth and the case-making clothes moth. Adult moths do not feed on fabrics, only the caterpillars damage fabrics. Fabrics injured by clothes moths have holes eaten through them by the tiny white caterpillars. Damaged fabrics often have silken cases or silken threads on the surface. Adult moths may be found running over the surface of infested garments or materials. Unlike many other moths, clothes moths are not attracted to light and avoid lighted areas.

### Description

Clothes moths (Figure 1) are small yellowish or brownish moths from 1/4" to 1/2" in length, depending on species. The head and front wings of the webbing clothes moth are golden or yellowish in color; the wings do not have spots. The case-making clothes moth has a dusty, brownish head and front wings with three dark spots, which may be rubbed off with wear.

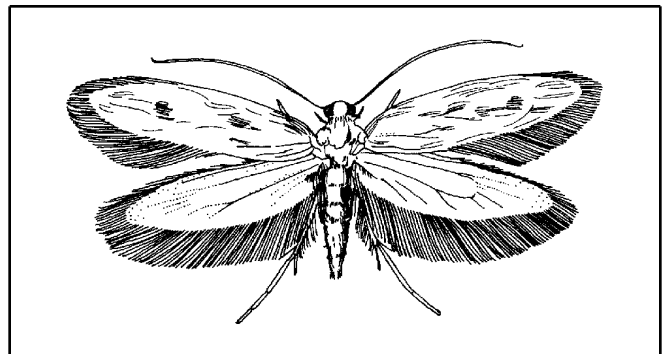


Figure 1. Case-making clothes moth adult. Credits:

The larvae spin a silken tube or case to protect them from the environment and natural enemies. The tubes created by the webbing clothes moth are attached to and are often located in dark protected areas such as seams or hems. Therefore, the larvae of

1. This document is ENY-223, one of a series of the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: January 1994. Revised: May 1999. Please visit the EDIS Website at <http://edis.ifas.ufl.edu>. Additional information on these organisms, including many color photographs, is available at the Entomology and Nematology Department WWW site located at <http://www.ifas.ufl.edu/~entweb/entomolo.htm>.

2. P. G. Koehler, professor/extension entomologist, Entomology and Nematology Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, 32611.

the webbing clothes moth are stationary and feed in one area. The case made by the case-making clothes moth is not attached to the fabric. The larvae drag the case along and are relatively mobile.

### Life Cycle

The life cycle of the clothes moth can last from two months to 2 yrs. The adults lay eggs on products that the larvae will consume. Each female moth can lay from 100 to 150 eggs, which hatch in about five days. The small white caterpillars vary in size from 1/16 inch newly hatched to 1/3 inch fully grown. The larval stage varies greatly according to conditions and food supply. The larvae live in cases that are enlarged as they grow. When the larvae pupate, the case is transformed into a tough cocoon. The adult moth emerges in one to four weeks.

### Control

#### Prevention and Inspection

The most important method of clothes moth control is good housekeeping. All susceptible articles should be brushed and cleaned periodically, especially items that will be stored for any length of time. Dry clean items such as woolen sweaters, before they are stored. Sweep or vacuum regularly to remove woolen lint or hair from floors, shelves and drawers. Also inspect areas for the presence of clothes moths, such as attics, ventilation ducts, and other areas where insects and dust accumulate. Clothing bags, cedar closets, and cedar chests only provide protection when stored materials are free from infestation.

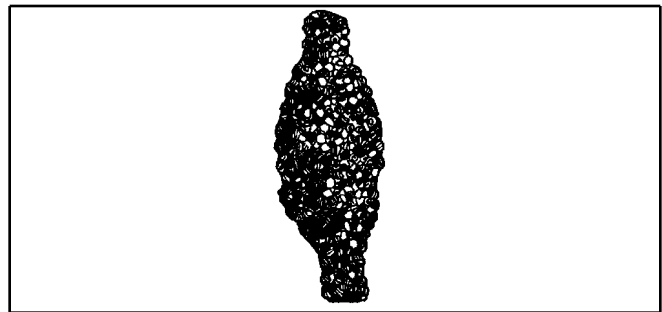
#### Chemical Control

Some woolen fabrics and carpets are mothproofed by the manufacturer; however, less than 20 percent of susceptible products are mothproofed today. Spot treatment with insecticides may be necessary when clothes moths become established in the home. Apply sprays according to label directions and do not apply directly to clothing. Sprays are effective when properly applied to surfaces as spot treatments. Sprays should be directed to all known or suspected breeding places. Clothing should be removed from closets and drawers before spraying

interior surfaces. Space spray aerosols will kill flying moths, but provide no residual protection. Dusts may be used around felts on pianos, under rugs, or on fabrics which may be stained by sprays. To insure protection, treatments may be applied two times per year. Tight closets, trunks, or chests can be mothproofed by application of moth balls at the rate of 1 pound per 50 cubic feet of space.

### Plaster Bagworms

Plaster bagworms (Figure 2) are similar in appearance and closely related to clothes moths. The larvae of bagworms live in a flattened, gray, watermelon seed-shaped case about 1/2" inch long. The case is constructed of silken fiber and sand particles, lint, paint fragments, and other debris. The case has a slit-like opening at each end, and the larva is able to move around and feed from either end.



**Figure 2.** Plaster bagworm. Credits:

Plaster bagworms are easily seen on light-colored walls. Close examination of the house may reveal bagworms attached to the underside of chairs, bookcases, and other furniture. They are often found along the edge of rugs, near baseboards, or on the lower edges of walls. Bagworms are quite common in garages and underneath buildings. The larvae mainly feed on spider webs; however, they will also feed on fabrics made of natural fiber.

Control of plaster bagworms is similar to control of clothes moths. Good housekeeping is important, especially the removal of spider webs. Sweep down and remove any spider webs and bagworm cases.

Table 1. Pesticides Available

Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
<b>Aero-cide Contact Insecticide (Aerosol)</b>		<b>Pyrethrins + d-trans Allethrin + Piperonyl Butoxide + MGK264 - 1.0 + 1.0 + 4.0 + 4.0%</b>		
<b>Structures</b>	Clothes Moths	2 hours	None	None
Locate source of infestation. Treat nearby cracks and crevices and perform general volumetric treatment of infested area. Treat garments by holding at a distance of 18 inches. Treatment should be repeated every 6 months or as needed. Dry clean treated clothes before wearing. (General volumetric treatment-- open cabinets and doors in area to be treated. Turn off air conditioners and fans and close doors and windows before treating. Disperse toward area suspected of harboring the greatest insect infestations. Keep area closed for 15 minutes. Open and ventilate the treated area.) Do not use in aircraft cabins.				
<b>Food Areas of Food Handling Establishments</b>	Clothes Moths	2 hours	None	None
Locate source of infestation. Treat nearby cracks and crevices and perform general volumetric treatment of infested area. Treat garments by holding at a distance of 18 inches. Treatment should be repeated every 6 months or as needed. Dry clean treated clothes before wearing. General volumetric treatment -- open cabinets and doors in area to be treated. Turn off air conditioners and fans and close doors and windows before treating. Disperse toward area suspected of harboring the greatest insect infestations. Keep area closed for 15 minutes. Open and ventilate the treated area.				
<b>DeltaDust (Dust)</b>		<b>Deltamethrin - 0.05%</b>		
<b>Structures</b>	Clothes Moths	None	None	None
In living areas, make applications in such a manner as to avoid depositions on exposed surfaces or introducing the material into the air. In the home all food processing surfaces and utensils should be covered during treatment or thoroughly washed before use. Exposed food should be covered or removed. This product is intended for applications with hand or power duster, with a paint brush or by other suitable means, to hiding and runway areas and other places where insects are found. Authorized for use in non-food/feed areas of food/feed plants. This product may be used as a void treatment. Be sure to thoroughly treat service ducts, false floors and ceilings, wall voids, attics and crawl spaces.				
<b>Ficam D (Dust)</b>		<b>Bendiocarb - 1.0%</b>		
<b>Structures, Restaurants/Commercial Kitchens</b>	Clothes Moths	None	None	None
This product is intended to be applied with a hand or power duster to hiding and runway areas and those places where pests are found. Use dust as a crack and crevice treatment in closets and other storage areas where these pests are found. Do not treat clothing.				
<b>Ficam Plus Insecticide (Wettable/soluble powder)</b>		<b>Bendiocarb + Pyrethrins - 29.45 +3.06%</b>		
<b>Structures</b>	Clothes Moths	Do not contact until dry	None	None
Do not apply to humans, their clothing or bedding. Avoid breathing and working in spray mist or dust. With proper spraying, this product does not produce a visible deposit. However, if unevenly applied, or sprayed to run-off, a visible deposit may occur on some dark surfaces. Do not apply in conduits, motor housings, junction boxes, and switch boxes or ther electrical equipment because of possible shock hazard. Do not contaminate fruit, vegetables, or other feed or food crops.				

Table 1. Pesticides Available

Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
<b>Food Areas of Food Handling Establishments</b>	Clothes Moths	Do not contact until dry	None	None
Application is limited to spot or crack and crevice treatment only. Do not apply to clothing. Spot treat closets and other storage areas. Do not apply to humans, their clothing or bedding. Avoid breathing and working in spray mist or dust. With proper spraying, this product does not produce a visible deposit. However, if unevenly applied, or sprayed to run-off, a visible deposit may occur on some dark surfaces. Do not apply in conduits, motor housings, junction boxes, and switch boxes or ther electrical equipment because of possible shock hazard. Do not contaminate fruit, vegetables, or other feed or food crops.				
<b>USDA Inspected Facilities</b>	Clothes Moths	Do not contact until dry	None	None
Do not apply to clothing. Spot treat closets and other storage areas. Do not apply to clothing. Spot treat closets and other storage areas. Do not apply to humans, their clothing or bedding. Avoid breathing and working in spray mist or dust. With proper spraying, this product does not produce a visible deposit. However, if unevenly applied, or sprayed to run-off, a visible deposit may occur on some dark surfaces. Do not apply in conduits, motor housings, junction boxes, and switch boxes or ther electrical equipment because of possible shock hazard. Do not contaminate fruit, vegetables, or other feed or food crops.				
<b>Microcare Pressurized Pyrethrum Capsule Suspension (Aerosol)</b>		<b>Pyrethrins + Piperonyl Butoxide + MGK264 - 0.300 + 2.200 +0.336%</b>		
<b>Structures, Food Processing (non-food/feed areas), Food Areas of Food Handling Establishments</b>	Clothes Moths	Do not contact until dry	None	None
<b>Utilities</b>	Clothes Moths	Do not contact until dry	None	None
Use actuator to treat open boxes and exposed surfaces.				
<b>Mobile Homes/Travel Trailers/Recreational Vehicles, Vessels (Boats/Ships)</b>	Clothes Moths	Do not contact until dry	None	None
Close all windows and doors. Disperse in all locations. Leave area closed for 15 minutes.				
<b>Microcare Pressurized Pyrethrum Capsule Suspension (Formula 1) (Aerosol)</b>		<b>Pyrethrins + Piperonyl Butoxide + MGK264 - 0.300 + 2.200 + 0.336%</b>		
<b>Structures</b>	Clothes Moths	None	None	None
Use this product with supplied actuator and tubes. Inject this product into cracks and crevices. Spot, space, and general treatments are permitted for certain applications. To make a spot treatment release product onto surface.				

Table 1. Pesticides Available

Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
<b>Mobile Homes/Travel Trailers/Recreational Vehicles, Vessels (Boats/Ships)</b>	Clothes Moths	None	None	None
Use this product with supplied actuator and tubes. Inject this product into cracks and crevices. Spot, space, and general treatments are permitted for certain applications. To make a spot treatment release product onto surface. Treat area for 1-3 seconds. Leave unoccupied for 15 minutes.				
<b>P.I. Contact Insecticide (Formula 1) (Aerosol)</b>		<b>Pyrethrins + Piperonyl Butoxide - 0.5 + 4.0%</b>		
<b>Structures</b>	Clothes Moths	None	None	None
To protect woolens and other keratin containing material, treat thoroughly by holding dispenser at least 18 inches from garment.				
<b>Food Areas of Food Handling Establishments</b>	Clothes Moths	None	None	None
To protect woolens and other keratin containing material, treat thoroughly by holding dispenser at least 18 inches from garment. When applying as a space treatment in food areas, the operation being treated should be shut down. All food utensils and equipment must be covered or cleaned after treatment.				
<b>Hospitals</b>	Clothes Moths	None	None	None
To protect woolens and other keratin containing material, treat thoroughly by holding dispenser at least 18 inches from garment. Patients should be removed from room prior to treatment. Room should be ventiated for at least 2 hours after spraying. Do not return patients to room until after ventilation.				
<b>Nursing Homes</b>	Clothes Moths	None	None	None
To protect woolens and other keratin containing material, treat thoroughly by holding dispenser at least 18 inches from garment. Patients should be removed from room prior to treatment. Room should be ventiated for at least 2 hours after spraying. Do not return patients to room until after ventilation.				
<b>Saga WP Insecticide (Wettable/soluble powder)</b>		<b>Tralomethrin - 40.00%</b>		
<b>Structures</b>	Clothes Moths	Do not contact until dry	None	None
<b>Food Areas of Food Handling Establishments</b>	Clothes Moths	Do not contact until dry	None	None
Applications are permitted in food/feed areas of food/feed handling and processing establishments as a general spray, spot, or crack and crevice treatment.				
<b>USDA Inspected Facilities</b>	Clothes Moths	Do not contact until dry	None	None
Apply only when facility is not in operation. Do not apply directly to food/feed or food/feed handling surfaces.				
<b>Aircraft</b>	Clothes Moths	Do not contact until dry	None	None

Table 1. Pesticides Available

Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
Do not apply when passengers or non-essential personnel are present in area to be treated.				
<b>ULD BP-100 Contact Insecticide (Formula 1) (Ready-to-Use Liquid)</b>		<b>Pyrethrins + Piperonyl Butoxide + MGK264 - 1.00 + 2.00 + 2.94%</b>		
<b>Structures</b>	Clothes Moths	2 hours	None	None
Use full strength or dilute product as desired according to dilution table. Apply using a mechanical aerosol generator. Do not remain in treated areas after application, and leave room closed for at least 1 hour. Ventilate thoroughly before occupants are allowed to re-enter.				
<b>ULD BP-50 Contact Insecticide (Ready-to-Use Liquid)</b>		<b>Pyrethrins + Piperonyl Butoxide - 0.5 + 5.0%</b>		
<b>Structures</b>	Clothes Moths	None	None	None
This product may be applied through mechanical aerosol or ULV generators, as well as thermal and conventional fogging or spraying equipment. Use as a space or contact spray.				
<b>Food Areas of Food Handling Establishments, USDA Inspected Facilities</b>	Clothes Moths	None	None	None
Designed for use in edible product areas of official establishments operating under the federal meat, poultry, shell egg grading and egg products inspection programs and in other food processing plants. This product may be applied through mechanical aerosol or ULV generators, as well as thermal and conventional fogging or spraying equipment. Use as a space or contact spray.				
<b>ULD BP300 Contact Insecticide (Formula 1) (Ready-to-Use Liquid)</b>		<b>Pyrethrins + Piperonyl Butoxide + MGK264 - 3.00 + 6.00 + 10.00%</b>		
<b>Structures</b>	Clothes Moths	2 hours	None	None
Do not apply product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons. Do not enter treated areas without protection until thoroughly ventilated or sprays have dried. For indoor application as a space, area, or contact spray. This product may be applied through mechanical aerosol of ultra low volume cold aerosol generators as well as thermal and conventional fogging or spraying equipment. As a space spray, use undiluted to kill accessible stages of insects infesting food in storage or being processed. Close room or warehouse and shut off all ventilating systems. Do not remain in the treated area after application and leave room closed for at least 1 hour. Ventilate thoroughly before occupants are allowed to re-enter. This product may be diluted using a white mineral oil or an odorless light petroleum hydrocarbon.				
<b>Vikane (Fumigant)</b>		<b>Sulfuryl Fluoride - 99.8%</b>		
<b>Structures</b>	Clothes Moths	None	None	None
For use in dwellings (including mobile homes), buildings, construction materials, furnishings, and vehicles including automobiles, buses, surface ships, rail cars, and recreational vehicles (but not including aircraft). When fumigating, observe local, state and federal rules and regulations including such things as use of chloropicrin, clearing devices, positive pressure self-contained breathing apparatus, security requirements, and placement of warning signs. Remove all edible items from the structure before fumigation if they cannot be adequately sealed to prevent exposure to treatment. Do not re-enter treated areas for 8 hours after aeration by ventilation with fans or detection of <5 ppm with an Interscan or Miran detector.				