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Clothes moths

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What You Should Know

• Adult clothes moths or "millers" are harmless and do not cause any damage to fabrics. Larvae can feed on wool, feathers, fur, hair, cotton and synthetic fibers.

• Clothes moths prefer darkness and are weak flyers.

• Good housecleaning is vital to prevent damage from clothes moths; vacuuming can help prevent clothes moth damage.

Clothes moths belong to a large group of small moths in the family Tineidae. There are two species of clothes moths that are of considerable economic importance. The webbing and the casemaking clothes moths are worldwide in distribution. The larvae of clothes moths can feed on and cause damage to fabrics, furs, feathers, wool, carpets (Fig. 1), tapestries, drapes, piano felts, upholstered furniture, animal bristled brushes, hair, fish meal found in fish food, synthetics or fabrics, such as cotton, that have been blended with wool, skins, spices, stored tobacco, old clothing (Fig. 2), scrap piles, leather, lint, dust, paper, linen, silk, stuffed animals, blankets, and mounted animals. They prefer items stained with beverages, urine, oil, and sweat. Clothes moths can be distinguished from pantry-infesting moths because of their smaller size (¼″ long compared to ½″ long).

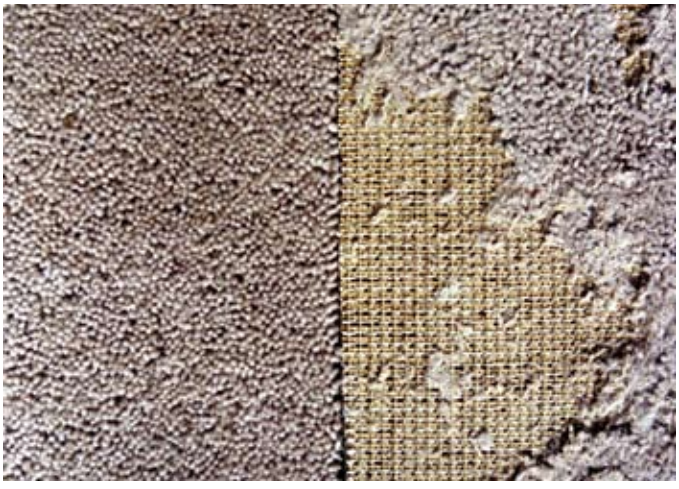

Fig. 1. Webbing clothes moth damage (right).[1]

Fig. 2. Clothes moth damage to clothing.[2]

Life Cycle and Habitat

Clothes moths go through complete metamorphosis (egg, larva, pupa, adult). Total development time of clothes moths depends greatly on food availability, temperature, and humidity, but generally lasts 1 to 3 months. In some cases they can survive up to a year or more. On average, females lay 40 to 50 eggs shortly after emerging from the pupal case. Eggs are glued onto threads of fabric. The females die shortly after laying eggs. The males outlive the females and continue to mate for the remainder of their lives. The eggs take 4 to 21 days to hatch into larvae.

Larvae are the damaging life stage in which they destroy fabrics and other sources of food. Larvae are shiny white with a brown head. Larvae go through 4 to 6 instars before becoming a resting pupae. Webbing clothes moth larvae feed for 35 days to 2½ years, and casemaking clothes moth larvae feed for 68 to 87 days. The pupal stage can take 8 to 40 days depending on the season, taking longer in the winter months. Generally there are two generations of clothes moths per year.

Webbing Clothes Moths

The webbing clothes moth, *Tineola bisselliella*, is the most common fabric moth. The adults are covered with shiny golden scales and the head has tufts of reddish golden hairs (Fig. 4). The compound eyes are black and the antennae are darker than the rest of the body. The wings are spotless and are ½″ wide. At rest, clothes moths are about ¼″ long and their narrow wings fold over the body. The margins of the hind wings are fringed with long hairs. The adults have three methods of movement: flying, running, and jumping. The females prefer to walk or run. The larvae of the webbing clothes moth have no eyes and are shiny white or cream with a brown head (Fig. 3). They are commonly found feeding under collars, cuffs, and other hidden parts of clothing. Some larvae spin webbing as they feed, which creates a feeding tube made of fibers on which it is feeding, silk, and fecal particles. However, the tube is not portable. Other larvae may just leave spun silken patches as they graze.

Fig. 3. Webbing clothes moth larva.[3]

Fig. 4. Webbing clothes moth adult. Note the fringed wing hairs.[3]

Casemaking Clothes Moths

Although similar in size and shape to the webbing clothes moth, the casemaking clothes moth, *Tinea pellionella*, is less common. The wings are long and narrow (⅜-½″ wide) and the hind wings are fringed with long hairs (Fig. 5). The body and wings are a golden buff color with a tinge of brown and three indistinct spots on the wings. The hairs on the head are lighter than that of the webbing clothes moth and the eyes are wider than the space between them. The larvae are similar to that of the webbing clothes moth, but have one simple eye on each side of the head. Unlike the webbing clothes moth, the casemaking clothes moth larvae carry a silken case with them as they feed (Fig. 6). They never leave this case, and enlarge it as they grow. They feed from the ends of the case and hide inside it when disturbed. The case will likely have dyes from the fabric on which the larva is feeding.

Fig. 5. Casemaking clothes moth adult, larva and silken larval case.[1]

Fig. 6. Casemaking clothes moth larva feeding on wool.[1]

Management

Damage to fabrics usually appears in hidden locations, such as cuffs or in folds of clothing or upholstered furniture. Clothes moths can be prevented and/or controlled in many ways. Some of these include:

• Occasionally cleaning areas where clothes moths are likely to reside will discourage infestations. Examine under furniture, along baseboards and in cracks where hair and debris collect, inside closets, and near and around heaters and vents.

• Properly store items in a clean, pest-free, airtight container to exclude females from laying eggs. If you find clothes moth larvae on garments or rugs they should be properly cleaned and stored. Consider replacing fabrics with synthetic materials if available.

• Periodically hanging fabrics in the sun and brushing furs will destroy eggs and expose larvae. Larvae dislike sunlight and will drop from the fabrics to find protection.

• Periodic dry cleaning (>120°F) of clothing items, since larvae are more likely to feed on soiled fabrics.

• Thorough vacuuming will remove dust from floors, shelves, and drawers where adults may lay eggs. Also give close attention to rugs, carpets, draperies, furniture cushions, corners, moldings and hard-to-reach places. Be sure to dispose of the vacuum bag when finished.

• Remove any bird or rodent nests in or near the home as clothes moth larvae will feed on feather and hair in the nests.

• If practical, try freezing infested fabrics for a few days to kill eggs and feeding larvae.

Chemical Control

In general, prevention is the best control method for clothes moths. Infestation can be prevented with regular housekeeping, but sometimes infestations may warrant additional management. Options for controlling clothes moth larvae include:

• Moth crystals or flakes containing naphthalene will repel moths in airtight containers. These products leave an unpleasant residual odor and can melt plastic; they are toxic and should be used with caution.

• Cedar-lined closets and chests have limited value against clothes moths because it is difficult to maintain repellent concentrations over time.

• Using pheromones (i.e., sex attractrants) on a sticky trap will attract male webbing clothes moths. Place traps in closets and other areas where fabrics are stored.

• Insecticides should be considered a last resort to reduce clothes moths. Products labeled for clothes moths can be applied directly to the fabrics, if needed. Some insecticides are oil-based and should not be sprayed on silk or other delicate fabrics. Products registered in Utah include: beta-cyfluthrin, bifenthrin, deltamethrin, and pyrethrin,

• Fumigation of furniture and other stuffed items may be required when a surface insecticide application is not sufficient. Place the infested item in a 30-gallon plastic bag (4 ml thick) with ½ lb of dry ice. Loosely seal the bag and let the dry ice evaporate completely. Fumigation will not prevent reinfestation.

• Consulting a professional should be considered if widespread clothes moth infestations develop.

[1] Images courtesy of Clemson University - USDA Cooperative Extension Slide Series (www.ipmimages.org).

[2] Image courtesy of University of Georgia Archive, University of Georgia (www.ipmimages.org).

[3] Images courtesy of Wikipeia (http://en.wikipedia.org/wiki/Common_Clothes_Moth).