

Pantry and Fabric Pests in the Home



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Food and fabric pests can be found in nearly every home. They are usually no more than an occasional inconvenience. If an infestation develops in your home, the information in this publication should help you control it.

Some insects feed primarily on *plant materials* and are usually found in stored foods in kitchens and pantries. Other insects feed primarily on *products containing animal proteins*, such as woolen fabrics, leather and hides, hair, feathers, powdered milk and some pet foods. Animal product pests are more likely to be found in closets and areas other than kitchens. Either kind of pest can be found almost anywhere in a home, however. If you find the same kind of insect repeatedly in a kitchen or closet it is good evidence of a pest problem.

How did they get in my house?

Food pests are usually brought home from the grocery or pet store. Food can become infested while in the farm or garden, or during storage or transport. While food manufacturers and grocery stores control most food pests with strict sanitation and the judicious use of pesticides, it is possible for a few insects to make their way into your home.

Insects that feed on animal products also may come into your home from the grocery store, but are more likely to enter from outdoors. Clothes moths and carpet beetles occur outdoors in bee, bird and rodent nests. Carpet beetle adults are

often found on crape myrtles and other ornamental shrubs and flowers. Should they come indoors, carpet beetles or clothes moths may lay their eggs on woolen carpets or stored fabric items.

Pests of seeds, grains and spices

The Indian meal moth is a common and distinctive pantry pest. It is the most common pest of dried fruit, nuts, cereals and oilseeds. It also infests powdered milk, chocolate and other candies, bird seed and dog food. The adult Indian meal moth has wings that are whitish-gray at the base and deep pink or copper colored on the outer two-thirds. The wingspan is about $\frac{3}{4}$ -inch. The caterpillars, or immature stage of the Indian meal moth, are often noticed crawling up walls and spinning cocoons on textured walls or ceilings. Inside the cocoons they pupate and become adults.



Figure 1. The Indian meal moth is the most common indoor moth pest. Adults are easily identified by their bi-colored wings. (Photo courtesy USDA)

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Another pantry moth is the **Angoumois grain moth** (AHN goom wah), which commonly infests popcorn, Indian corn decorations, and seeds in dried flower arrangements.

Cigarette beetles and **drugstore beetles** are the most common pests of home pantries in Texas. The larvae of these beetles feed on all kinds of plant material including tobacco, seeds, grain, nuts, beans, spices, cottonseed meal, dried fruits and vegetables, flour, potpourri and dried flower arrangements. They are strong fliers and may be attracted to lights and windows. Adults do not feed, but lay their eggs on food sources.

Merchant beetles and **saw-toothed grain beetles** infest cereal and flour products, macaroni and dried fruits. Adults are about $\frac{1}{8}$ inch long, brown, elongated and flattened in shape. With a magnifying glass, they can be distinguished from other grain beetles by their six saw-like teeth on the margins of the segment behind the head. Adults of these beetles do not fly, but their flattened bodies make it easy for them to enter food packages.

Rice weevils and **granary weevils** are pests of whole grain or processed grain foods such as macaroni. These weevils are cylindrical, about $\frac{1}{6}$ inch long, and have prominent snouts. Larvae are pale, c-shaped and legless. Adults of



Figure 4. Weevils have prominent snouts and are usually found in whole grains. (Photo courtesy USDA)

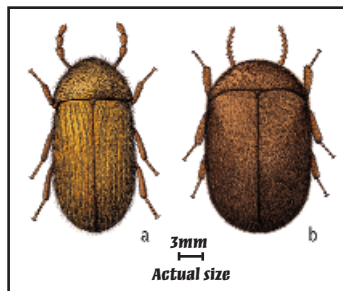


Figure 2. Drugstore and cigarette beetles (a and b, respectively) are similar in appearance. Their small size, rounded profile and concealed head are characteristic. (R. White, USDA)



Figure 3. The saw-toothed grain beetle is a common pest in grain-based processed foods. It can be identified, with the aid of a magnifying lens, by the saw-like teeth on the edge of the shield behind the head. (A. D. Cushman, USDA)

both species are reddish-brown to black, but the rice weevil may have four pale red or yellow markings on the wing covers. These beetles rarely penetrate unopened food packages. Rice weevil adults can fly and are attracted to lights. Granary weevils do not fly, but enter homes in infested food.

Flour beetles are also common and destructive pests. Adult flour beetles are elongated, reddish brown, and $\frac{1}{8}$ to $\frac{3}{16}$ inch long. They feed on cereals, grains, beans, nuts, dried fruits, spices, milk chocolate, dried milk and, occasionally, hides. They tend not to feed on whole grains or intact seeds, but favor flour and other milled grain products. Food products infested with flour beetles have a foul odor and taste.

Pest of woolens, hides and feathers

Beetles in the genus *Dermestes* are collectively known as **carpet, hide and larder beetles**. Most feed on animal proteins, though some will also feed on high-protein plant materials. In the pantry, they may be found in powdered milk, dried meats, or pet foods that contain fish meal or other animal byproducts.

Hide beetles are a serious problem in museums. They attack leather goods, trophy heads, hides, skins, and dried fish. In the home they also feed on pet food, bacon, cheese and feathers.

Household infestations often can be traced to bird or rodent carcasses in attics, old bee nests, or accumulations of dead insects in windows or light fixtures. When fully grown, these larvae sometimes bore into wood or other hard substances to pupate, leaving $\frac{1}{8}$ -inch-wide holes.

Adult hide beetles are relatively large, $\frac{1}{4}$ to $\frac{3}{8}$ inch long. They are dark brown to black, with various markings. The larvae are cigar-shaped and covered with fine hairs that give them a fuzzy appearance. Hide and larder beetles in the genus *Dermestes* can be recognized by a pair of large, curved "horns" on the last body segment.

Beetles of the genus *Anthrenus* and the genus *Attagenus* are smaller than *Dermestes* beetles and are colorfully marked. *Anthrenus* and *Attagenus* beetles are $\frac{1}{8}$ to $\frac{3}{16}$ inch long and round or

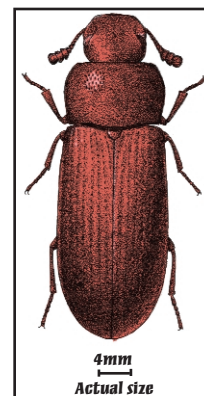


Figure 5. The red flour beetle feeds on processed grains, nuts, fruits and meat-based products. Its flat shape enables it to hide in narrow cracks and enter narrow openings in food packaging. (A.D. Cushman, USDA).

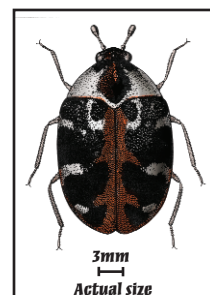


Figure 6. Carpet beetles feed on woolen sweaters, rugs, feathers and furs. Adult carpet beetles are common outdoors and can enter homes through doors, windows or attics.

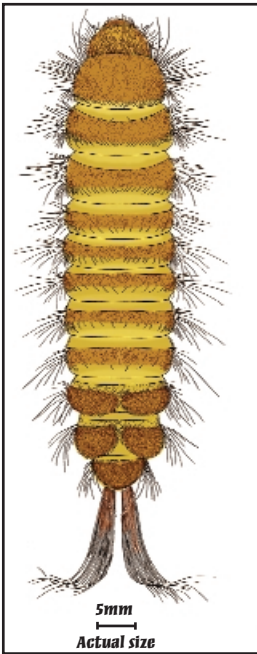


Figure 7. Immature carpet beetles are cigar-shaped with a banded appearance. They may be found feeding on dead insects in lights, on window ledges, or in closets (C. Feller, USDA).

oval. Larvae are light tan to brownish and about the size and shape of small rice kernels. Larvae are ringed with circular tufts of hairs, giving them a banded appearance. Like hide beetles, infestations of carpet beetles may start in bird nests or accumulations of dead insects in light fixtures. Once established inside a home these beetles can cause considerable damage to woolen articles, furs, feathers, hair brushes and other valuable possessions.

Warehouse beetles, of the genus *Trogoderma*, look much like black carpet beetles but have light brownish bands on the wing covers. They feed on both animal and plant products. Both *Trogoderma* and *Anthrenus* beetle larvae have barbed hairs on their bodies that

can irritate the digestive tract if the beetles are accidentally ingested.

Clothes moths feed on silk, wool, fur, feathers and hair. Rugs and clothing that contain these substances can be seriously damaged. They also feed on powdered milk and products containing meat or fish meal, such as pet food. Synthetic or cotton fabrics are attacked only if they are soiled, or interwoven with natural animal fiber materials. Clothes moths occur naturally outdoors. In homes, they may be found in accumulations of pet hair or feeding on dead insects.

Clothes moths are secretive. The larvae prefer to feed in protected places such as under clothing collars or in folded sweaters. Adults also

shun light and are rarely seen flying during the day (see box). One of the best ways to control these pests is the old-fashioned practice of "spring cleaning," or periodically shaking and airing rugs and woolens outdoors in the sun. Clothes moth larvae are very sensitive to light and low humidity.



Figure 8. Clothes moths attack stored clothing. They shun light and rarely fly. (Photo courtesy USDA)

Distinguishing between clothes moths and pantry-infesting moths

Clothes moths and pantry moths can be distinguished by their appearance and behavior.

- Clothes moths are smaller than pantry moths, have narrower wings, and are more secretive.
- Clothes moths avoid light and are weak fliers, preferring to run when disturbed.
- Clothes moths have unmarked wings with a span of about $\frac{3}{8}$ inch (10 to 14 mm), and shiny gold scales on their bodies. With a magnifying glass you can see that the head has a fluffy pompadour of reddish-gold hairs.
- Clothes moths are not commonly seen because they are active mostly at night. The larvae rarely leave their food source.
- Pantry moths, such as the Indian meal moth, are larger, with wingspans of $\frac{1}{2}$ inch or more. They may be seen actively flying during the day. They are usually found near stored food and are more likely to be seen crawling up walls and on ceilings.

Controlling pantry pests

Non-chemical control. The first step in controlling pantry pests is to locate and eliminate infested foods. Removing an infested package of flour, macaroni or cake mix is often all that is needed to solve the problem. But finding the source of an infestation is not always easy. Infested packages are usually the oldest, most difficult to reach foods in the pantry. Even unopened containers may be infested; waxed paper, plastic and cardboard containers can be penetrated easily by some pests. In the store, check that bags or containers are well sealed.

Infestations frequently start in spilled grains, pet foods or other foods. So, good sanitation is important. Keep food spills cleaned up. Vacuum and clean pantry areas periodically to remove spilled foods. Remove and clean under shelf paper, too. Discard old packages of grain and pasta. Most pantry pest problems can be prevented by using all dried food within 2 to 4 months of purchase. Spices and other products that are kept for longer periods should be sealed in airtight containers.

Pet food can be a special problem. Birdseed and dog and cat foods are the most commonly infested pantry items. Store pet foods in well-sealed plastic buckets or storage containers and use them promptly.

Occasionally, mice can be the cause of a persistent beetle infestation. Hoarded seed and grain in abandoned rodent nests can support a small population of pests. Old rodent bait that contains grain also can harbor insects. Place rodent bait where it can be retrieved and discarded after use to prevent insect problems.

Heat or cold treatments can get rid of pests in some food items such as pet food, bulk grains and beans, or home-grown dried beans or peas. Put the product in the oven at 130 degrees F for an hour, or in the freezer for 7 to 14 days. Store foods that may attract pantry pests in the refrigerator or freezer to prevent infestation.

Chemical control. On rare occasions, insecticides are needed to control difficult infestations. Insecticides can be used to treat inaccessible areas that cannot be easily cleaned, or to help reduce heavy pest infestations. Insecticide sprays may be applied to crevices and void areas around cupboards, drawers and pantries. All food products, utensils and containers should be removed from the treatment area before spraying. Allow spray to dry before placing clean shelf paper on the shelves and returning food items.

Insecticide products that are labeled for use in food storage areas contain ingredients that are short-lived and relatively safe to use in the home. These ingredients include pyrethrins, resmethrin, allethrin and tetramethrin. For areas where long-term, residual control is desired, look for products containing synthetic pyrethroids, such as permethrin, esfenvalerate, cyfluthrin or bifenthrin. Aerosol fog products can temporarily suppress infestations of flying insects, but aerosols alone will not solve a pantry pest problem. Always make sure that the label of the product you use states that the product can be used indoors and in kitchens.

Controlling clothes moths and dermestid beetles

Eliminating clothes moths and dermestid beetles can be a challenge. As with pantry pests, the first step is to locate and eliminate all feeding sites. Unfortunately, there may be many points

of infestation. Check these potential problem areas:

- **In drawers:** folded silks, woolen blankets, felt fabrics, and leathers; natural hair art brushes, and other susceptible materials.
- **In closets:** woolen sweaters, shirts and jackets (especially under the collars); furs; feather dusters or other feather items; felt hats; stuffed trophies, etc.
- **On the floor:** woolen rugs; carpet pads made from animal hair; pet hair accumulations along baseboards and under furniture.
- **Furniture:** old chairs or sofas stuffed with horse hair; accumulations of pet fur.
- **On walls:** susceptible art objects; wool, mohair or silk draperies; trophy mounts; dried flower arrangements.
- **In walls, ceilings and attics:** old bird, rodent, bee or wasp nests; bird or animal carcasses; old rodent baits; stored items; accumulations of dead insects in light fixtures or on window sills. Previous infestations of lady beetles or box elder bugs may leave accumulations of dead insects that are food for dermestid beetles.
- **Other sites:** spilled pet food in utility rooms; old mouse nests under cabinets; decorations containing grains or noodles; pot-pourri, etc.

Non-chemical control. Discard infested items, or treat them and protect them from further attack. Clothing can be disinfested by washing or dry-cleaning. Annual or semi-annual "spring-cleaning" is especially effective in controlling clothes moths. Rugs and blankets should be beaten or shaken vigorously and exposed to bright sunlight for a few hours. Thoroughly vacuuming storage areas and susceptible rugs is helpful. The best protection for valuable stored items is to open and inspect them frequently.

Valuable articles of clothing and other items can be treated by freezing them for 7 to 14 days (which is less destructive than heating if done properly). In general, textiles, furs, feathers, leather, paper and wood can be safely frozen. Put articles into air-tight polyethylene bags, with as much of the air removed as possible, before placing them in the freezer. This reduces the chance of ice forming directly on the article and causing damage. If you have concerns about possible damage to a valuable item, contact a local museum with experts in the conservation of historical artifacts.

Clothing that is susceptible to insect damage should be stored in airtight boxes or garment bags. Cold-storage is effective in protecting furs and other valuable items from attack.

Chemical control. Cedar closets, cedar chests and pieces of cedar wood placed in storage areas may repel insects for a short while, but do not guarantee protection. Vapors from cedar wood are effective only when the wood is freshly cut or chipped and the container is well sealed. Few cedar chests more than 2 or 3 years old produce enough vapor to kill pests. Naphthalene and paradichlorobenzene (PDB) products are more effective than cedar, but must be sealed tightly with the clothes. Use 1 to 2 pounds of repellent per 100 cubic feet of air to kill moth larvae. The fumes from PDB crystals will soften or melt certain plastic products, so be careful using them with plastics.

Insecticide sprays can supplement good sanitation and other measures. Spray around windows and light fixtures to help keep pests out of the home. Closets with carpet beetle or moth infestations may also be treated. Remove clothing first and let the spray dry before putting items back in the closet. Sprays also can be applied along the edges of carpets where pet hair and insects accumulate, or on the undersides of carpets or carpet pads. Because most clothing pests are not out in the open, aerosol insecticides ("bombs") are not very effective. Aerosols cannot penetrate into the pests' hiding places. Getting help from a pest control professional is often the best choice for controlling carpet beetles and clothes moths.

Monitoring

Some pests can be detected with pheromone traps and other devices. Pheromones are special hormones that insects produce to communicate with one another. There are pheromone lures for several storage pests, including the cigarette bee-

tle, drugstore beetle, Indian meal moth, Angoumois grain moth, warehouse beetle and webbing clothes moth. Pheromone traps do not control pests, but they can help you detect infestations and pinpoint problem areas. Pheromone traps are generally most effective for flying insects.

Other traps, such as the FLITe-TRAK® and Pantry Patrol™ traps, use food or other attractants in addition to pheromones to lure pests. These traps are useful in kitchens and pantries and are available from the manufacturers or from pest control professionals.

Sticky traps are useful for monitoring the success of your control program. They are available through pest control companies, do-it-yourself pest control shops, and some grocery stores. Sometimes sold as roach "hotels," sticky traps contain a glue that captures crawling insects. When placed on the closet floor or on closet shelves, they trap dermestid beetles.



Figure 9. Insect sticky traps catch crawling insects and can help pinpoint the source of an infestation. Place traps next to a wall or beside a cabinet for best success.

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