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PANTRY AND FABRIC PESTS IN THE HOME

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Pantry and fabric pests are found occasionally in nearly every home. Although many of these pests are no more than an inconvenience, others can significantly damage food or personal items. These pests are not typically dangerous to your health, but they can be a nuisance. Strategies are available to help you manage infestations that develop in your home.

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 hair, hides, feathers, leather, powdered milk, woolen fabrics, and some pet foods. Pests of animal products are more likely to infest closets and areas other than kitchens.

Food and fabric pests can be found almost anywhere in a home. If you repeatedly find the same kind of insect in a kitchen or closet, it is good evidence of a pest problem.

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

Although insects that feed on animal products may also enter your home from the grocery store, they are just as likely to enter from outdoors. Clothes moths and carpet beetles live outdoors in bee, bird, and rodent nests. Carpet beetle adults often feed on ornamental shrubs and flowers and can easily enter the home.

PANTRY PESTS

Several insects infest foods, grains, seeds, spices, and other items commonly found in pantries.

Cigarette and **drugstore beetles** (Fig. 1). The larvae of these beetles feed on all kinds of plant material, including beans, flour, grains, nuts, seeds, spices, tobacco, potpourri, cottonseed meal, dried flower arrangements, and dried fruits and vegetables.

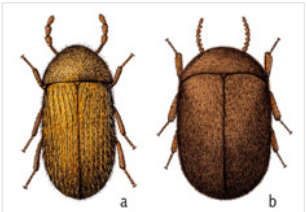

Figure 1. Drugstore (a) and cigarette beetle (b) adults. *(Adapted from R. White, USDA)*

The adults are 1/10 to 1/8 inch long with cylindrical, brown to reddish brown bodies. From above, the head is not visible. These beetles are strong fliers and may be attracted to light fixtures and windows. The adults do not feed but do lay eggs on food sources.

Figure 2. Saw-toothed grain beetle adult. *(Adapted from A.D. Cushman, USDA)*

Merchant grain beetles and **saw-toothed grain beetles** (Fig. 2) can infest birdseed, pasta, dried fruits, sunflower seeds, and cereal and flour products. The adults are brown, about 1/8 inch long, elongated, and flattened.

Under a magnifying glass, they can be distinguished from other grain beetles by their six sawlike teeth on the margins of the segment behind the head. The adults do not fly, but their flattened bodies make it easy for them to enter food packages.

Rice weevils (Fig. 3) and **granary weevils** are pests of whole grain or processed grain foods, such as pasta. These beetles are cylindrical and about 1/8 inch long. They have prominent snouts. The larvae are small, pale, and C-shaped. Adults of both species are reddish brown to black, but the rice weevil may have four pale red or yellow markings on the wing covers.

Figure 3. Rice weevil adults. *(Photo by W. Brown)*

These beetles rarely penetrate unopened food packages. Rice weevil adults can fly

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and are attracted to lights. Granary weevils do not fly but can enter homes in infested food.

Flour beetles (Fig. 4) are also common and destructive pests. Adult flour beetles are elongated, reddish brown, and ⅛ to 3⁄16 inch long. They feed on beans, cereals, chocolate, grains, nuts, spices, dried fruits, dried milk, and occasionally hides. They tend not to feed on whole grains or intact seeds but favor flour and other milled grain products or cracked or broken kernels. Food products infested with flour beetles can have a foul odor and taste.

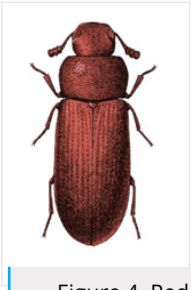

Figure 4. Red flour beetle adult. *(Adapted from A. D. Cushman, USDA))*

The **Indian meal moth** (Fig. 5) is the most common and distinctive pantry-infesting moth, and it is the most common pest of nuts, cereals, oilseeds, and dried fruit. Indian meal moths also infest birdseed, dog food, powdered milk, and chocolate and other candies.

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 ¾ inch. The caterpillar, or immature stage, of the Indian meal moth is creamy white with a brown head capsule. The caterpillars often crawl over surfaces and spin cocoons on textured walls or ceilings. Inside the cocoons, they pupate and become adults.

Figure 5. Indian meal moth adult. *(Photo by W. Brown)*

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

The adult is creamy white with a wingspan of ⅝ inch. The hindwings are narrow with a fingerlike projection of the tip, which can distinguish these moths from clothes moths and other pantry moths.

CONTROLLING PANTRY PESTS

Nonchemical control

The first step in controlling pantry pests is to find and eliminate infested items. Often all that is needed to solve the problem is to remove the infested package of flour, macaroni, cake mix, or other infested product.

However, it can be difficult to find the infestation's source. Infested packages are usually those that are the oldest and most difficult to reach in the pantry. Even unopened containers may be infested; some pests can easily penetrate plastic, waxed paper, and cardboard containers. Before buying an item in the store, check that the bag or container is well sealed and undamaged.

Infestations often start in pet foods, spilled grains, or other foods. Clean up spilled food promptly. Discard old packages of grain and pasta. Vacuum and clean pantry areas periodically to remove spilled foods. Remove and clean underneath shelf paper. Caulk around pantry edges and in cracks and crevices to reduce areas where spilled food may collect.

Most pantry pest problems can be prevented by using all dried food within 2 to 4 months of purchase. Seal spices and other products kept for longer periods in airtight containers.

The most commonly infested pantry items are birdseed and dog and cat foods. Store pet foods in well-sealed plastic buckets or storage containers, and use them promptly. Clean the containers thoroughly before refilling them with food. If possible, store dry pet food and birdseed in the garage and not in the pantry.

Occasionally, mice or other rodents can cause 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. When controlling rodents, prevent insect problems by placing the bait where you can retrieve and discard it after the rodents are controlled.

Heat or cold treatments can eliminate pests and their eggs in food items such as pet food, bulk grains, and dried beans or peas. Put the product in the oven at 130°F for 1 hour or in the freezer for 7 to 14 days. To prevent an infestation, store foods that may attract pantry pests in the refrigerator or freezer.

Chemical control

On rare occasions, insecticides may be needed to control difficult infestations. These chemicals can reach inaccessible areas that are difficult to clean; pesticides can also help reduce heavy pest infestations more quickly than other methods.

Insecticide sprays may be applied to crevices and void areas around cupboards, drawers, and pantries. Before spraying, remove all food products, containers, and utensils from the treatment area. Allow the spray to dry before placing clean shelf paper on the shelves and returning food, utensils, or containers to the pantry.

Insecticide products labeled for application in food-storage areas generally contain ingredients that are short-lived and relatively safe for home use. Active ingredients of these products include allethrin, pyrethrins, resmethrin, and tetramethrin.

For areas where long-term residual control is desired, look for products containing synthetic pyrethroids, such as permethrin, bifenthrin, cyfluthrin, or esfenvalerate. Aerosol fog products can temporarily suppress infestations of flying insects, but these fogs will not kill pantry pests in food containers or protected locations.

Before using an insecticide, always make sure that the label says that the product is safe for use indoors and in kitchens. Never spray food, dishes, utensils, or cooking items with pesticides.

FABRIC PESTS

Pests of woolens, hides, and feathers

Beetles in the family Dermestidae include carpet (Fig. 6), hide, and larder beetles. Although most of these beetles feed on animal proteins, some also consume high-protein plant materials. In the pantry, they may infest dried meats, pet foods, or powdered milk that contain fishmeal or other animal byproducts.

Figure 6. Carpet beetle adult. *(Adapted from USDA)*

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

Household infestations of hide beetles can often 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 the wood or other hard substances to pupate, leaving ⅛-inch-wide holes.

Adult hide beetles are relatively large—¼ to ⅜ 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. The larvae of hide and larder beetles in the genus *Dermestes* can be identified by a pair of large, curved "horns" on the last body segment.

Carpet beetles of the genus *Anthrenus* and the genus *Attagenus* are smaller than *Dermestes* beetles and are colorfully marked. *Anthrenus* and *Attagenus* beetles are ⅛ to 3⁄16 inch long, and have round or oval bodies. The larvae are light tan to brownish and about the size and shape of small rice kernels. The larvae are ringed with circular tufts of hairs, giving them a banded appearance.

Like hide beetles, carpet beetle infestations may start in bird nests or accumulations of dead insects in light fixtures. Once established inside a home, they can greatly damage furs, feathers, woolen articles, other valuable possessions, and hair brushes with natural bristles.

Figure 7. Warehouse beetle larva. *(Adapted from C. Feller, USDA)*

Warehouse beetles of the genus *Trogoderma* (Fig. 7) look much like black carpet beetles but have light-brownish bands on the wing covers. They feed on both animal and plant products. The bodies of both warehouse beetle and carpet beetle larvae have barbed hairs that can irritate the digestive tract if the beetles are accidentally ingested.

Clothes moths occur naturally outdoors and feed on feathers, fur, hair, silk, and wool. Rugs and clothing that contain these substances can be seriously damaged. These moths also feed on powdered milk and products containing meat or fishmeal, such as pet food. They attack synthetic or cotton fabrics only if they are soiled or interwoven with natural animal fiber materials.

The adult **webbing clothes moth** is gold colored with a tuft of reddish, hairlike scales on its head and a wingspan of about ½ inch. The larvae of some webbing moths build tunnels of silk in which they feed; others spin small silken patches from which they graze.

The **casemaking clothes moth** looks like the webbing clothes moth, and has a wingspan of ⅜ to ½ inch. It has brownish wings and three dark spots on each front wing. The larva is creamy white with a brown head capsule. Casemaking larvae get their name from the silken cases they spin and drag along as they move.

Clothes moth larvae prefer to feed in protected places such as under clothing collars or in folded sweaters. The adults also shun light and are rarely seen flying during the day.

Controlling fabric pests

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

Check these potential problem areas:

- **Attics, ceilings, and walls:** Old rodent baits; stored items; bird or other animal carcasses; old bird,

rodent, bee, or wasp nests; and accumulations of dead insects in light fixtures or on window sills. Previous infestations of lady beetles or boxelder bugs may leave accumulations of dead insects that provide food for dermestid beetles.

- **Closets:** Felt hats, furs, feather dusters, and other feather items; and woolen sweaters, shirts, and jackets, especially under the collars
- **Drawers:** Leather, felt fabrics, folded silks, woolen blankets and clothes, natural-hair art brushes, and other susceptible materials
- **Floors:** Woolen rugs, carpet pads made of animal hair, and pet hair accumulations along baseboards and under furniture
- **Furniture:** Old chairs or sofas stuffed with horsehair; accumulations of pet hair
- **Walls:** Trophy mounts, susceptible art objects, dried flower arrangements, and wool, mohair, or silk draperies
- **Other sites:** Potpourri, spilled pet food in utility rooms, old mouse nests under cabinets, and decorations containing grains or noodles

Nonchemical control

Discard infested items, or treat and protect them from further attack. Disinfect clothing by washing or dry-cleaning it.

An especially effective control of clothes moths is an annual or semi-annual "spring cleaning." Vigorously beat or shake rugs and blankets, and expose them to bright sunlight for several hours. Thoroughly vacuuming storage areas and susceptible rugs is helpful. The best protection for valuable stored items is to open and inspect them often.

Treat articles of clothing and other items by freezing them for 7 to 14 days; done properly, freezing is less destructive than heating. Furs, feathers, leather, paper, textiles, and wood can usually be frozen safely. Before placing an article in the freezer, enclose it in an airtight polyethylene bag with as much of the air removed as possible. This removal reduces the chance of ice forming directly on an article and damaging it. If you are concerned about possibly damaging a valuable item, contact a local museum with experts in the conservation of historical artifacts.

Store clothing that is susceptible to insect damage in airtight boxes or garment bags. Cold storage can effectively protect furs and other valuable items from attack.

Chemical control

Although cedar closets, cedar chests, and pieces of cedar wood placed in storage areas may repel insects for a short while, they do not guarantee protection. Vapors from cedar wood are effective only when the wood is freshly cut or chipped and the container is sealed well. Few cedar chests more than 2 or 3 years old produce enough vapor to repel pests.

More effective than cedar are naphthalene and paradichlorobenzene (PBD) products, but they must be sealed tightly with the clothes. To kill moth larvae, use 1 to 2 pounds of repellent per 100 cubic feet of air. A garment box that is 4 feet long, 3 feet wide, and 1½ feet tall holds 18 cubic feet of air and would require 0.18 to 0.36 pound of repellent. Because the fumes from PDB crystals can soften or melt some plastic products, be careful when using them with plastics.

Insecticide sprays can supplement good sanitation and other measures. To help keep pests out of the home, spray around windows and light fixtures. To treat closets infested with carpet beetles or moths, remove the clothing before spraying, and let the spray dry completely before returning the items to 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 live in protected locations, aerosol insecticides ("bug bombs") usually do not treat these pests effectively. Often the best choice for controlling carpet beetles and clothes moths is to get help from a pest control professional.

MONITORING

Some pests can be detected with devices such as pheromone traps, which contain chemicals that insects produce to communicate with one another. Pheromone lures are available for several storage pests, including Angoumois grain moths, cigarette beetles, drugstore beetles, Indian meal moths, warehouse beetles, and webbing clothes moths.

Although these traps do not control the pests, they can help detect infestations and pinpoint problem areas. Pheromone traps are generally most effective for flying insects.

Other traps, such as Storgard® and Pantry Patrol™ traps, lure pests with food or other attractants in addition to pheromones. Useful in kitchens and pantries, these traps are available from the manufacturers online or through local pest control providers.

Sticky traps (Fig.8) can help you monitor the success of your control program. They are available through pest control companies, do-it-yourself pest control shops, and some grocery or home improvement stores. Sometimes sold as roach "hotels," sticky traps contain glue that captures crawling insects. When placed on the closet floor or on closet shelves, they trap dermestid beetles and other crawling pests.

Figure 8. Sticky traps used for monitoring insect infestation
(Source from M. Merchant)