



Managing Pantry Pests Descriptions and Photographs

Indian Meal Moth (*Plodia interpunctella*)

The Indian meal moth is the most common food-infesting moth found in homes, grocery stores and any place where dried pet foods are produced or stored. It feeds on a large variety of stored food products, but home infestations often get started through dried pet food or birdseed. Nuts are a favorite breeding source; infestations have been found in nut caches of squirrels in attics and chimneys.

The larva prefers coarse grades of flour, whole grains, cereal, dried fruits, seeds and spices. Foods infested with these insects will have silk webbing present, especially near the food surface.

Adult moths are nearly 1/2-inch long and have distinctive wing markings. The base of the forewing is pale grey and the outer two-thirds is reddish-brown with a coppery luster. They have a distinctive way of "resting" on the wall at an angle with their wings folded. The larvae are generally dirty-white in color with shades of yellow, pink, brown or green. Mature larvae, which are about 1/2-inch long, usually move away from the feeding site before pupating within silken cocoons.

When female Indian meal moth's are ready to breed, they emit a sex pheromone which only the male moths can smell. This pheromone has been identified and synthesized and made into a lure that can catch male moths in a sticky trap. This is an ideal, non-toxic method of detecting the earliest signs of an Indian meal moth infestation and help pinpoint areas of activity. These lures attract males 25 to 50 feet away and last eight to 12 weeks. In a typical home environment, only one trap is often needed. These pantry pest sticky traps are available at many retail locations.

Dermestid Beetles (Family: *Dermestidae*)

These common insects scavenge and feed on animal matter like dried meats, dead insects, hides and woolens. The species that feed on wool and other natural fibers or blends are sometimes called carpet beetles. Closely related species, such as the warehouse beetle, varied carpet beetle and larder beetle, have expanded their diet and also feed on grain and grain-based products. They are especially common in flour and cereals, but also are found in candy, cocoa, cookies, corn meal, nuts, pasta, dried spices and many other dry foods.

The adult beetles are small, oval and variously colored. The full grown larvae are similar in size to the adults for each species and tend to be cigar-shaped and banded with dark, long hairs. In some species, the larvae have a tuft of hair at the tail-end of the body.

Typically, only larvae will be seen in infested food because the adults feed on pollen and leave the food once they have emerged from their pupal stage. Sometimes only the larval "skins" will be found. Dead adults are often found in window sills because they fly to the light, trying to get outside.

Because some of these species feed on woolens, infestations in the pantry may spread and damage valuable clothing, woolens and furs. Proper cleaning and storage of natural fabrics will help prevent damage.

Sawtoothed Grain Beetle (*Oryzaephilus surinamensis*)

The Sawtoothed grain beetle is another very common pantry pest. It does not feed on intact whole grains, but feeds on many processed food products such as breakfast food, bran, dried fruits, nuts, sugar, chocolate and macaroni. It is especially fond of oatmeal and birdseed. These flat beetles can even get into sealed boxes and packages of food.

Adults are nearly 1/4-inch long, slender, brownish-red and active. Their name comes from the six saw-like teeth on either side of the thorax behind the head. After finding a potential food, the female lays white, shiny eggs that hatch into yellowish-white larvae. There can be as many as seven generations each year, but sawtoothed grain beetles often stop breeding in the winter, unless buildings are heated and moisture is sufficient. Adults are very long lived and remain active in the winter.

Cigarette and Drugstore Beetles

These small, stout beetles are common in homes where they attack pet food, cereals, spices, drugs, tobacco and other packaged foods. Because they closely resemble each other, they are often confused. The heads of both beetles are tucked under the prothorax and are not visible from above. Both are brown and about the same size.

The two beetles can be distinguished by their wing covers. The wing covers of the drugstore beetle have rows of longitudinal grooves, while those of the cigarette beetle are smooth. Another distinguishing feature is the antenna. The drugstore beetle has a three-segmented club, while the cigarette beetle has an antenna that looks a little like a saw blade.

Both the cigarette and drugstore beetles belong to the family Anobiidae and can be confused with some wood-boring beetles of the same family. It is important to have the beetle identified because wood-boring beetles have greater damage potential than the cigarette and drugstore beetle. However, if the beetles are found in food or grain products, it is most likely a cigarette or drugstore beetle.

Drugstore beetles (*Stegobium paniceum*): The drugstore beetle will feed on bread, but it will also feed on any dried, food-based material. It will damage book bindings. It has been found to perforate tinfoil and sheet lead and easily chews through most food packaging material.

Cigarette beetles (*Lasioderma serricorne*): The cigarette beetle derives its name from its serious infestations of stored tobacco. Adult beetles are about 1/8-inch long, light brown and oval. The most common food materials include pet food, cereal, peppers, spices, raisins and seeds.

Pheromone traps are available for cigarette beetles, although they most often are used in tobacco processing and storage areas and other facilities where cigarette beetles have been a problem.

Flour Beetles (*Tribolium spp*)

There are a number of species of tiny beetles that infest flour, but the two most common flour beetles are the confused and red flour beetles. These beetles are scavengers in that they cannot attack whole grains, but rely on other insects to damage the kernels first. In homes, they can be found feeding on flour, cracked grains, cake mixes, beans, peas, dried fruits, nuts, chocolate, spices and tobacco.

These red and confused flour beetles are very similar: both are reddish-brown and about the same size, 3/16-inch long. They can be distinguished by their antenna. The antenna of the red flour beetle ends abruptly in a three-segmented club while the antenna of the confused flour beetle gradually enlarges toward the tip, ending in a four-segmented club. In addition, the sides of the red flour beetle's thorax are curved while the confused flour beetles thorax has straighter sides.

The biology of these two beetles are very similar. The primary difference is the red flour beetle flies and the confused flour beetle does not. If you see a red flour beetle crawling on the counter, the breeding source is probably nearby, but not necessarily. A confused flour beetle crawling on the counter is almost certain from a nearby food source.

Granary and Rice Weevils (*Sitophilus spp*)

These insects damage whole grains or seeds. They generally do not feed on flour or cereals unless it has become caked. Adult weevils are very similar. Both are dark reddish-brown and range in size from 1/8 to 3/16-inch long. They have a long snout projecting from the head and wing covers with distinct ridges.

Females lay eggs on seeds, kernels or other suitable foods. The larvae chew into the seed and feed on the inside of whole kernels/seeds. Pupation normally occurs within hollowed-out kernels or seeds.

There can be as many as three to five generations each year. Weevil-damaged grains are typically hollow and have small round emergence holes.

Because they feed on whole grains, these insects are more likely to be a problem in grain bins and warehouses, but it is possible to have infestations in homes. Most common sources are popcorn, birdseed, decorative Indian corn and nuts.

Bean Weevil (*Acanthoscelides obtectus*)

The most common pest of stored legumes, such as beans, cowpeas and peas in Nebraska is the common bean weevil. The bean weevil is not a true weevil, like the granary and rice weevils, discussed earlier. They are members of the closely related seed beetle family. Their body shape is more round than the rice and granary weevils and they do not have the slender protruding snout of these true weevils.

Bean weevils are common in the field. Sometimes, gardeners harvest beans from the garden that look perfectly good, but can be infested. The homeowner may notice bean weevils for the first time on windows and doors as they emerge from stored seeds. They are attracted to light and are attempting to escape. Usually, there is little concern for their presence until a sack of dried beans or peas, especially homegrown, is emptied and found full of holes. Occasionally, one may take a package of dried beans or peas out of the cupboard to find it infested with small, stout beetles with a short, broad snout.

The adult bean weevil is a short chunky beetle, about 1/8 inch in length. It is olive-brown with darker brown and gray patches on the wing covers. The elytra are shorter than the abdomen leaving a few segments exposed. Legs are reddish.

With beans stored indoors at warm temperatures, bean weevils breed continuously as long as there is food left in the beans. Populations can become very high.

Spider Beetles (Family: *Ptinidae*)

Spider beetles get their name because many actually resemble small spiders in appearance with their small head, prothorax and large globular-shaped abdomen. With a quick glance, their six long legs and two long antennae look like the eight legs of a spider.

Adults vary in size from 1/8 to 1/4-inch long, are reddish-brown to black. Females lay eggs within the food mass, such as grain, seeds, cereals, dried fruits, meats, wool and hair. Mature larvae are approximately 1/4-inch long, cream to tan in color and curved. Larvae usually curl their bodies when disturbed. Most spider beetles have two or three generations each year.

Spider beetles are mainly scavengers, but will infest grain-based products that are old, moist and possibly moldy. There is often an association with spider beetles and infestations of rodents, birds, bats or bee/wasp nests in walls or attics. These beetles will feed and breed in accumulations of animal excrement. Older homes and warehouses tend to have more spider beetles due to the likelihood of these food sources. As infestations become severe, beetles will crawl and emerge from walls between floors, attics, basements and crawl spaces. When associated with an animal infestation, removal of animal wastes is an essential component of managing spider beetles.

Grain Mites (*Acarus siro*)

The grain mites are pests of food and feed products, like cereals, dried vegetable materials, cheese, corn and dried fruits. These mites proliferate under high moisture conditions and are often found in conjunction with fungal growth. Severe infestations result in brownish tinge over the commodity, called "mite dust" because of the light brown coloring of the mite legs. This "mite dust" gives off a "minty" odor if the mites are crushed. The life cycle from egg to adult takes only about two weeks at normal room temperatures. Overcrowding in heavily infested products will force mites to move off in search of other food sources.



Red flour beetles in a newly opened bag of flour.



Indian Meal Moth Adult.



Indian Meal Moth Larvae



Warehouse Beetle (Dermestid). Adult and larvae



Larder Beetle Adult (Dermestid)



Cast (shed) skins from dermestid beetle larvae



Sawtoothed Grain Beetle Adults



Left: Drugstore Beetle Adult
Right: Cigarette Beetle Adult



Confused Flour Beetle Adults



**Red Flour Beetle
Adult & Larvae**



Grainary Weevil Adults



Rice Weevil Adult



Common Bean Weevil Adult



Spider Beetle Adults



Grain Mites: Adults, Immatures & Eggs