Cereal grain products and other foods stored in kitchen cabinets, pantries or other areas in the home may become infested with insects or other organisms. These food invaders are commonly referred to as “pantry pests.” Nearly all dry, stored human food products as well as dry pet food and birdseed are susceptible. These pantry pests eat and contaminate the products, rendering them unfit for consumption. Pantry pests also may leave the infested food and crawl or fly around the house, which is annoying to some people.

Control of pantry pests begins with a careful examination of all susceptible materials to find and identify the pests and the extent of the infestation. Listed and illustrated in this publication are the more common pantry pests. There are many other less common ones in addition to the ones described below.

**Flour and grain beetles**

Small reddish brown beetles in and around stored cereal grain products usually are the first signs of an infestation called “bran bugs.” While this common name is applied to several different insects, those most often encountered are the saw-toothed grain beetle, the confused flour beetle and the red flour beetle (Figure 1).

**Saw-toothed grain beetle.** This insect gets its name from six toothlike projections located on each side of its thorax (that part of an insect just behind the head). This small insect is about 1⁄10 inch long, slender, flat, and dark red or brown.

The saw-toothed grain beetle feeds on most grains and cereal products, nuts, seeds, yeasts, dried meats, dried fruits and candy. The beetle readily penetrates packaged foodstuffs and may be brought into the home in groceries.

**Confused flour beetle and red flour beetle.** The confused flour beetle is reddish brown and about 1⁄8 inch long. It feeds on a wide variety of foods, including grains, cereal products and starchy materials, beans, peas, baking powders, dried fruits, some drugs and even cayenne pepper.

The eggs of this beetle are laid on or near food products and hatch into small yellowish white, wormlike larvae. After several weeks of feeding, they form a protective covering by sticking small bits of food materials together. Within this protection, they pupate and become immobile. A week or so later, they emerge as the adult form. The adults may live for two or three years.

The red flour beetle so closely resembles the confused flour beetle in appearance and habits that the illustration in this publication applies to both insects.

**Anobiid beetles**

Two species of the family Anobiidae, the cigarette beetle and the drugstore beetle, infest a wide variety of foods. Both adults and larvae cause damage. These insect species are quite similar in appearance. They are each about 1⁄8 inch long and covered with small “hairs,” which give them a silky, yellowish brown color. The head is tucked down beneath the front of the body and cannot be seen from above. The legs usually extend slightly past the edges of the cylindrical body.
The adult drugstore beetle is most readily distinguished from the cigarette beetle by the three-segmented club of the antenna. The wing covers (elytra) of the cigarette beetle are smooth, while those of the drugstore beetle have faint lines running lengthwise.

The wormlike larvae are somewhat C-shaped in appearance and are creamy white except for the yellow head and dark brown mouth parts. The larvae differ in that the drugstore beetle larvae are not as “hairy” as the cigarette beetle larvae.

**Cigarette beetle.** This insect (Figure 2) is a serious pest in tobacco warehouses, attacking stored bundles or processed items such as cigars and chewing tobacco. It also readily infests cottonseed meal mills, furniture factories and libraries. Some other materials that cigarette beetles infest are grains and cereal products; various dried fruits (raisins and dates); spices such as aniseed, ginger, nutmeg and pepper; dried fish; drugs; seeds; and furniture upholstered in flax and straw.

Cigarette beetles usually produce three generations in a year. Under favorable conditions of high uniform temperatures, high humidity and protection from rapid evaporation, the life cycle continues uninterrupted and five or six generations can occur annually.

**Drugstore beetle.** This beetle (Figure 3) has an even more varied diet than the cigarette beetle. It will attack almost any dried food as well as many inedible items. Infested materials can include bakery products, flour, meal, cereals, cayenne pepper and other spices, cosmetics, drugs and even strychnine. This insect has been known to bore through a whole shelf of books as well as perforate tinfoil and sheet lead.

Like the cigarette beetle, the drugstore beetle can produce several generations a year under favorable conditions of abundant food and warm temperatures.

**Dermestid beetles**

The members of this family are scavengers and feed on a wide variety of products of plant and animal origin. The larvae do most of the damage; the adults are thought to feed mainly on flower pollen outdoors.

The adults are small, oval, convex beetles varying in length from 1⁄8 to 1⁄4 inch. They usually are hairy or covered with scales. Most have a distinct color pattern based on these hairs or scales. The larval stages are generally brownish, covered with relatively long hairs, with a tubular shape. They may reach about ¼ inch in length when mature. Some species have bundles of specialized hairs on the last three or four segments while others have a long terminal tuft of hairs.

**Cabinet beetles.** Several species of this group (Figure 4) are common pantry pests that prefer cereal grain products. The fuzzy, slow-moving larvae are the stages most often found in infested food products. The adults are likely to be found around lights or windows in the area of the infested food product.

**Carpet beetles.** This group (Figure 5) prefers products of animal origin. The larval stages may feed on carpet, clothing, furniture or any such thing of animal origin. Their occasional invasion into plant-origin food products is more or less accidental.

**Larder beetles.** Larder beetles (Figure 6) also prefer products of animal origin such as dried meat and cheese. The larval stages only occasionally invade food products of plant origin.

**Seed weevils**

Several species of the beetle family Bruchidae may damage stored dry beans and peas. The adults lay their eggs on the surface of the pod in the field or on the surface of the seed in storage. The grublike larvae develop inside the seed. Adult weevils are short, stout-bodied beetles about 3⁄16 inch long with the wing covers shortened and not covering the tip of the abdomen. The body is somewhat narrowed anteriorly and usually ranges from dull gray to brown, often with small spots of contrasting color. The adults often leave the infested material and fly to windows seeking to escape to the outdoors. The more common species include the bean weevil (Figure 7), the pea weevil and the cowpea weevil. Developmental time is three to 10 weeks, depending on environmental conditions.

**Grain weevils**

Weevils are beetles of the family Curculionidae and are characterized by a head elongated into a snout. Two species of this large family, the rice weevil and the granary weevil, are common pests of stored whole grain and may become pantry pests. The adults feed on the outside of grain kernels. The larvae are small, white, legless grubs that develop inside the kernel.

**Granary weevil.** This weevil is about 3⁄16 inch long and is chestnut brown to black (Figure 8). There are no wings under the wing covers, so it cannot fly. Both
adults and larvae feed on a great variety of grains. The adult female uses her mandibles to bore a small hole in a kernel, into which she lays an egg. The larva develops entirely inside the kernel. Developmental time from egg to adult is about four weeks.

**Rice weevil.** This weevil is almost 1⁄8 inch long, reddish brown to nearly black and marked with four light red to yellow spots on the wing covers (Figure 8). Unlike the granary weevil, it has a second pair of wings under the wing covers and can fly. Its biology and habits are very similar to those of the granary weevil.

**Spider beetles**

Several species of beetles of the family Ptinidae may be found infesting all types of stored food products. These beetles have long legs and a general spider-like appearance (Figure 9). Both adult beetles and the C-shaped, grublike larvae feed on the infested material. Under favorable conditions, the development time from egg to adult is about three and a half months.

**Mealworms**

The term “mealworm” applies to the larvae of several species of beetles of the family Tenebrionidae (Figure 10). These worms are associated with cereal grain products that are damp and out of condition and stored in undisturbed out-of-the-way places such as basements.

**Yellow mealworm.** One of the largest insects that infest cereal products, the adult beetle is a polished dark brown to black beetle usually just over ½ inch long. Full-grown larvae are about an inch long, yellowish to brown, tubular and rather hard shelled. Developmental time from egg to adult is about a year.

**Dark mealworm.** This species is very similar to the yellow mealworm except the adult beetle is a dull, pitch black. The larval stage is darker brown than that of the yellow mealworm. The larval stages of both species often are reared in mass as food for pets in pet stores. Such “food” brought home with pets may be the source of an infestation.

**Flour moths**

Flour moths are among the most commonly occurring pantry pests. Adult moths with a wingspan of about ¾ inch may be seen flying around the infested area. Damage to stored food products is done by
the larva, which reaches a length of about \( \frac{1}{2} \) inch. Developmental time is about seven weeks.

**Indianmeal moth.** This is probably the most common pantry pest (Figure 11). It is rather strikingly marked by forewings slightly over \( \frac{1}{2} \) inch long, coppery colored on the distal two-thirds and a whitish gray on the basal ends. The larvae range from dirty white to greenish and pinkish. They leave a silken thread behind wherever they crawl, forming webs across the surface of the infested material. These larvae often leave the infested material and migrate some distance to find a snug place to spin their silken cocoons.

**Mediterranean flour moth.** This moth is slightly larger than the Indianmeal moth. Its forewings are pale gray with many black lines running across them. The larval appearance and habits are very similar to those of the Indianmeal moth.

**Grain moths**

The term “grain moth” is applied to moths whose larvae develop in unbroken grain kernels. Several species of these moths exist, but only one is common.

The Angoumois grain moth is a tiny buff to yellowish moth with a wingspan of almost \( \frac{1}{2} \) inch (Figure 12). The hind wings are distinctly pointed. These moths often are confused with clothes moths. The main difference is that they may fly around the house, while clothes moths shun light and usually are seen only in closets. Popcorn is a common host. Eggs may be laid on popcorn in the field or, more frequently, in storage. Developmental time is about five weeks.

**Psocids**

Psocids, also called booklice, are tiny insects about the size of a pinhead (Figure 13). They are pale gray or yellowish white, wingless, soft-bodied louselike insects with poorly developed eyes and long, slender antennae. They often are found with food products stored under moist conditions. Actual damage to the food products is hardly detectable. They are pests primarily by their presence, thus the contamination of the food product. Developmental time is about three weeks.

**Grain mites**

Grain mites are tiny, pale grayish, wingless, soft-bodied creatures much smaller than psocids (Figure 13). They often are found in stored grain and eventually may be brought into the home in grain food products. In damp conditions, they may build up rapidly to populations that make infested food seem to be alive with the mites. Developmental time is about two weeks.

**Steps in controlling pantry pests**

Pantry pest infestations may be eliminated by following a systematic and complete control program. Shortcuts may result in control failure.

1. Carefully examine all susceptible foods to determine sources of infestations. Throw away any that are heavily infested.
2. If infested food has further value or if infestation is questionable, heat the food at 130 degrees Fahrenheit for at least 30 minutes or place in a deep freezer at zero for four days.
3. Empty and clean up shelves with a vacuum and wash with soap and water.
4. Spray shelves lightly, particularly cracks where shelves and wall come together. If a sprayer is not available, use a paint brush to apply the insecticide. Use 1 percent propoxur (Baygon), 0.5 percent diazinon, 0.5 percent chlorpyrifos (Dursban), or 0.25 percent resmethrin or any other insecticide labeled for this use.
5. After the spray has dried, cover shelves with clean, untreated shelf paper before replacing food and dishes.
6. Store food that may become infested in tight containers.

Insects such as the Angoumois grain moth and the seed weevils, which occur in whole kernels of grain, can be controlled by the heat or cold treatment. Heat should not be used on popcorn for obvious reasons. Seeds kept for planting should not be subjected to heating or freezing, since such treatment may affect germination.