

## Household Insect Series

# Pantry Pests

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Infestations of insects in pantries and cupboards can cause problems for the individual in the kitchen. While these infestations are not everyday occurrences, pantry pests are most annoying. They may destroy or spoil considerable quantities of food products with the result that they are more than just a nuisance.

To most people, the identity of these pests is uncertain, and frequently their origin is mysterious. Commonly they are called “weevils,” and before modern manufacturing methods and strict inspection of food processing, “weevily” cereals and condiments were not at all uncommon.

Most pantry pests are either beetles or moths. They may be brought into the house in packages contaminated with eggs which escaped detection in milling or packaging. The resulting infestations may spread from package to package in the cupboards.

The first indication that a pest exists is often the discovery of large numbers of worm-like, immature insects crawling about in a box or sack of cereal or spices. When this happens, the infested product should be discarded. A quick investigation of other nearby containers should be made, and if no additional insects are seen, it may be assumed that there was a limited infestation.

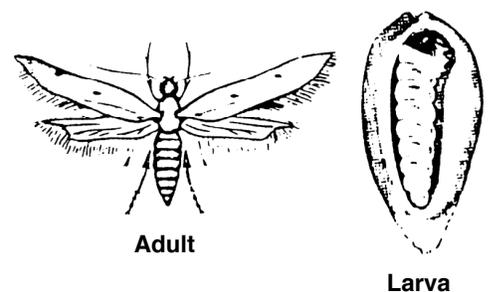
However, if the first indication is the observation of insects crawling or flying about, then a more thorough search for the source of the pests is necessary. All opened containers of dry packaged foods such as nutmeats,

dried fruits, flour, meal, macaroni, breakfast cereals or spices (especially red pepper, paprika and chili powder) must be examined carefully. Adults or small wormlike larvae may be found. Unopened containers must also be checked to see that there is no way for insects to gain entrance. Infested foods should be thrown away and the shelves cleaned thoroughly to eliminate food material or insect eggs or larvae which could be left in cracks or corners. Keeping food in tight containers such as metal canisters or plastic containers with a tight-fitting lid prevents a buildup of pests.

### Pests Infesting Whole or Intact Kernels

#### Angoumois Grain Moth

Angoumois grain moths are similar in size and color to clothes moths. The moth is light tan with a few dark specks on the forewings and a fringe of hairs at the rear of the hindwings. They will fly around homes during the daytime, while clothes moths shun light. Angoumois grain moth larvae feed and develop only in whole kernels of corn or wheat. In homes they generally infest popcorn, Indian corn



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decorations, seed in dried flower arrangements and bulk-stored grains. Moths emerge from kernels through a tiny, circular hole, although a flap of seed coat may conceal this hole.

### Grain Weevils

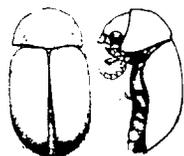
Grain weevils are dark brown beetles which can be recognized by their long snouts. The larvae or grubs feed inside intact kernels of wheat, rye, rice, corn or other grains. The adult beetles feed on the kernels or on grain dust created by the infestation.

### Bean and Pea Weevils

Bean and pea weevils are lighter brown than grain weevils and flecked with patches of black, gray and white. They have short, stout bodies and very short snouts. The larvae or grubs develop only within the dried seeds of legumes, such as dried beans, peas or cowpeas.

## Pests Infesting Processed Dried Food Products

### Grain and Flour Beetles, Cigarette and Drugstore Beetles



Cigarette Beetle

These small, reddish-brown to cinnamon colored beetles are often called “bran bugs” or, mistakenly, “weevils.” The immature stages or larvae are small, cream-colored worms with dark brown heads which are often found in the infested materials. Flour, dried pet

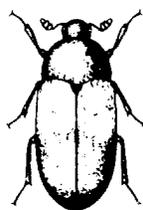
foods, meal, macaroni, cereals, crackers, prepared cake mixes, spices and dried fruits can be infested. Adult beetles often are found crawling around the infested vicinity or, in the case of foreign grain beetles and cigarette or drugstore beetles, flying and collecting around light fixtures. The adults feed on the same materials infested by the larvae.

### Dermestid Beetles

The members of this family are scavengers on plant and animal products. Leather, furs, skins, dried meat products, woolen and silk materials, cheese and cereal grain products are attacked.

**Dermestids can be divided into three categories based upon the type of food preferred.**

**Larder beetles** and larvae prefer products of animal origin and may infest dried meats and cheese. They may be found near incinerators or compost piles. They are rarely found on food materials of plant origin.



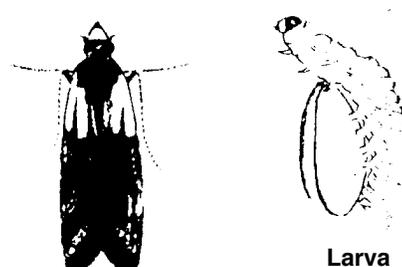
Larder Beetle

**Carpet beetles** also prefer products of animal origin, but may be found throughout the home feeding on carpets, clothing, upholstery or lint accumulation from either wool or silk fabrics. They are occasionally found on stored food products. Adult carpet beetles feed on the flower pollen of landscape plants.

**Cabinet beetles** are the only group of dermestids which prefer cereals, grain products, spices and other pantry items. The larval stages of these common pantry pests do most of the damage. Cast skins shed by the larvae as they grow have a characteristic pattern of dark brown banding. The adult beetles feed mostly on pollen outdoors, but may feed on stored products in the pantry.

### Flour Moths

These small moths are about 1/3 inch long when at rest. The **Indian meal moth** has bicolored forewings, which are brick red on the outer two-thirds and light grayish brown on the basal one-third near the head.



Adult

Larva

Indian Meal Moth

The **Mediterranean flour moth** has pale gray forewings with very faint, black, wavy transverse lines. The larvae will leave their food site and crawl around searching for a protected place to pupate. The moths are strong fliers and often are found flying in the house near the infestation site.

### Miscellaneous Pests

Several species of **spider beetles** may infest stored food products. These are small beetles (1/4 inch long) which have a spiderlike appearance because of their long, spindly legs and globose body shape. Both the adults and larvae are active feeders.

Three other pests may be found in the pantry when stored food products become moist or moldy. **Grain mites** and **booklice** (or Psocids) are very tiny, active pests. **Mealworms** are large (up to 1 1/2 inches long), sluggish, hard-shelled larvae of dark-colored, medium-sized beetles. When these pests are discovered, proper control procedures include not only destruction of the infested materials but also correction of the moisture problem.

## Prevention of Pantry Pests

The following procedures help prevent pantry pest infestation from developing.

- Purchase dried food in packages that can be used up in a short time.
- Examine packages in the store to be certain they are not broken and appear to be fresh. Packages with clear plastic or wax paper coverings should be checked for the presence of insects. Many times foods are infested when brought into the home.
- Store unused portions of dried foods in screw-top glass containers. This will prevent entry or escape of insects. Ordinary metal kitchen canisters are not tight enough to exclude insects. Some plastic containers with very tight-fitting lids may be acceptable. Cardboard, paper or plastic wrapping will not prevent insect infestations.
- Storing dried foods in a home freezer will prevent pantry pests from developing and will kill those that might be present at the time of storing.

### Procedures That Control Pantry Pests

- Determine infestation sources by carefully examining all susceptible foods. Be thorough, as infestations generally develop in seldom used foods and the least disturbed storage areas. Throw away any infested items.
- If the infested item has further value or if the infestation is questionable, heat shallow pans in the oven at 155°F for at least 1/2 hour or place in a deep freeze at 0° for 7 days.
- Remove all food, food packages, utensils, dishes or other food-related items from areas that will receive insecticide treatment. Cover these items to prevent their contamination by drifting spray particles.
- Vacuum cabinets and shelves to pick up spilled or loose infested materials, then scrub cabinets and storage spaces with soap and hot water.
- After shelves and cabinets have dried, spray them lightly, forcing spray into cracks and crevices. If a sprayer is not available, apply insecticides with a paint brush. Do not allow any spray to come in contact with foods or cooking utensils. Use one of the insecticide products listed in the Insecticide Control of Pantry Pests table.
- After spray has dried, cover shelves with clean, fresh paper or foil before replacing food or cooking utensils.

- Avoid food spillage and keep storage places clean. Purchase foods in small quantities so that they will be used within a short period of time. Small amounts of highly susceptible foods such as spices can be kept in the refrigerator.
- As a further precaution, store foods in glass, plastic or metal containers which can be sealed tightly.
- Control moths or beetles flying around indoors by using a “flying insect” household aerosol insecticide. Total release aerosols containing synergized pyrethrins are also available for this use.
- If insects should continue to be observed, check other rooms in the home for possible sources. Tree seeds blown into ventilators or around windows may harbor these pests. Dermestids (carpet beetles) develop in many products such as feathers, silk, wool, fur, stuffed animal skins, dead insects, wasp nests and lint or other materials that may be behind baseboards.
- If decorations made from plant products or seeds are found infested, the insects can be killed by placing them in a heavy plastic bag with a few tablespoons of paradichlorobenzene (PDB) moth nuggets or a section cut from a Vapona resin strip. Leave decorations in the bag for a week or so. If this is not convenient, insects can be killed by heating the decoration in an oven as described previously.

## Controlling Insects in Popcorn, Dried Beans and Peas

Commercially packaged popcorn, dried beans and peas are normally free of insects at the time of purchase. Infestations usually take place after the packages have been opened and the products are stored for a relatively long period. However, if these foods are homegrown, the initial infestation may take place in the field prior to harvest.

These foods should be stored in glass, metal or other sealable containers. If infestations develop, the insects can be killed by placing the material in a deep freeze at 0°F or lower temperature for 7 days. Infestation in beans and peas can also be eliminated by heating in the oven at 155°F for 1/2 hour. Heat is not recommended for popcorn. Seeds being kept for planting should not be subjected to heating or freezing as these treatments may reduce seed germination.

Be careful not to allow insecticides to drift onto open food or cooking utensils. Place paper on the treated shelves before replacing any of the food containers. Also be sure to read the label before

buying the material and **follow the instructions carefully** during application.

All insecticides are potentially poisonous to man and wildlife. Use them only when needed with

extreme care. Follow the printed label directions and heed all precautions. Store insecticides in closed, well-labeled containers, in a dry place where they will not contaminate food and where children and animals cannot reach them.

### Insecticide Control of Pantry Pests

Pests	Pesticide	Actual Chemical Wanted		Method of Application	Remarks
		Spray	Dust		
<b>Pantry and Stored Product Pests</b>	amorphous silica gel (Drione, Tri-Die)	4%	40%	<b>Indoors:</b> Spray cracks and crevices in shelves <b>lightly. Do not overspray.</b> Spray only when shelves are empty and thoroughly cleaned. Force spray into cracks and crevices.  Use residual sprays for crawling insects.  Use nonresidual aerosols for flying insects.	<b>Nonchemical control:</b> Carefully inspect all products in infested areas. Either destroy the infested products or salvage them by superheating in an oven at 155 degrees F for 1/2 hour or super-cooling by placing in a deep freeze at 0 degrees F for 7 days.  Vacuum cracks and crevices in food cabinets. Dispose of contents.  When treating, <b>do not contaminate food</b> , utensils, dishes, etc., with the pesticide. Store insect-free foods in containers with tight lids. Do not store large amounts of food for long periods of time.
	bifenthrin (Ortho Home Defense)	0.05% RTU	-----		
	boric acid (Perma-Dust, Hot Shot)	-----	20 to 99%		
	cyfluthrin (Real Kill Home Insect Control)	0.1% RTU	-----		
	cypermethrin (Raid)	0.1% aerosol			
	deltamethrin (Enforcer Home Pest Control)	0.02% RTU	-----		
	diatomaceous earth (Answer, Organic Plus, PermaGuard)	-----	83.6 to 90%		
	diatomaceous earth + pyrethrins (Organic Plus)	-----	90% + 0.2%		
	esfenvalerate (Ortho)	0.05% aerosol	-----		
	imoprothrin (Raid)	aerosol			
	lambda cyhalothrin (Spectracide Bug Stop Home Insect Killer, Hot Shot Home Insect)	0.03% RTU	-----		
	permethrin (Eliminator Home Pest Insect Control, Raid)	0.25% RTU 0.2% aerosol			
	pyrethrins, pyrethrum (Hot Shot, Raid)	0.1% aerosol	-----		
	resmethrin (Vectrin)	3%	-----		
	sumithrin (Blast Roach Erase II)	2% aerosol			
tetramethrin (Bug Out Ant & Roach Spray)	0.25% aerosol				
tralomethrin (Raid, Real Kill, Hot Shot)	0.01% aerosol				
<b>Follow label directions.</b>					

**USE INSECTICIDES WITH CARE. READ THE LABEL!**

This fact sheet has been updated from a previous fact sheet by Dr. Bill F. Jones and Dr. Donald R. Johnson (retired University of Arkansas Cooperative Extension Service specialists).

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