

Chapter 10 – Rodent and Insect Control

All rodents and many insects found in food establishments are considered **vectors** because they can transmit diseases to people by coming into contact with food and food contact surfaces. These animals must be given serious consideration when they are found in food establishments and every action must be taken to eliminate them.

MICE AND OTHER RODENTS

The **House Mouse** is the most important rodent vector in Idaho. It can be found in almost any food establishment without a good rodent control program. The following comments about the House Mouse are important:



- It can squeeze through a 2-inch diameter hole or 3/8-inch crack;
- It has a home range of 10' to 30';
- It is a nibbler, eating a little bit here and a little bit there until satisfied;
- It contaminates foods, food contact surfaces, single-service and single-use articles, and other supplies in food establishments with its feces and urine;
- It is a prolific breeder, having six or more litters of 6 to 8 young per year; and
- It does not need drinking water to survive.

RODENT SIGNS

Food establishment operators and supervisors should continually look for the following signs of these rodent pests:

- **Droppings.** Mouse droppings are very small (3/16 to 3/8 inch) and pointed at each end;
- **Gnawings.** As mice go about their business setting up home in a food establishment, they gnaw holes in packaged food and elsewhere.

RODENT CONTROL

Food establishment operators must have an effective rodent control program consisting of the following:

- **Sanitation.** Eliminating unwanted or unused equipment and materials from the establishment, proper storage of food waste and refuse, and keeping packaged food off the floor and away from the walls;
- **Mouseproofing.** Doors need to be tight fitting and openings around pipes, wires, etc., need to be effectively sealed; and

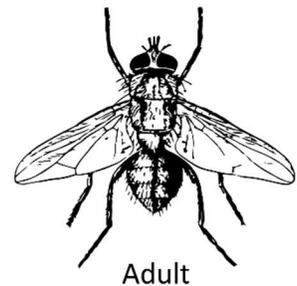
- **Trapping.** Snap traps and cage traps, when properly used, are effective in eliminating mice. Check traps regularly to remove dead mice and to reset or to change baits.
- **Poisoning.** Poisoning mice with commercially prepared anticoagulants (poisons with low toxicity) is allowed by the operator when used according to the label. Licensed pest control operators should be consulted for large poisoning campaigns.

Rats are not discussed in this manual because they have a limited distribution in Idaho. However, the above-mentioned control measures are effective against rats.

FLIES

Flies breed in decomposing animal and plant waste and feed on a variety of filth including feces, vomitus, garbage, etc. Flies transmit disease in the following ways:

- **Vomits on food.** To make solid foods liquid, the fly must regurgitate (vomit) a portion of its previous meal on the food to liquefy it;
- **Defecates on food.** Fly feces on food and food contact surfaces contribute to contamination.
- **Carries bacteria on body.** The fly is profusely covered with bristles and hairs that carry bacteria.



Adult



Maggot

Four common flies and actual Idaho problems associated with them are as follows:

- **House Fly.** This fly is a major problem in all of Idaho, particularly during the hot summer months. A Treasure Valley restaurant created a severe fly breeding problem by dumping liquid waste behind the restaurant.
- **Lesser House Fly.** Where problems of this fly exist, male flies can be commonly seen hovering in groups. A fly problem in an Eastern Idaho restaurant in December was attributed to this fly breeding in food waste behind a piece of equipment.
- **Blow Fly.** This fly is particularly attracted to meats in food establishments and will lay eggs on exposed foods. Maggots (immature flies) in a Treasure Valley restaurant were due to the lack of proper cleaning of meat scraps in a recess behind a cutting board.
- **Fruit Fly.** This small fly is attracted to rotting and fermenting foods. Maggots of this fly were found in a filthy speedbar of a popular Boise lounge.

FLY CONTROL

Food establishments must have an effective fly control program. The following methods are effective:

- **Exclusion.** All openings to the outside must be properly equipped with self-closing doors, closed windows, proper screening, controlled air currents, etc. Broken or torn screens need to be promptly repaired;
- **Proper Cleaning.** All equipment used in the food operation and all areas of the establishment,

especially under and behind equipment, must be properly cleaned of food scraps;

- **Proper Waste Disposal.** Dispose of garbage and liquid waste properly and frequently;
- **Chemical Control.** Chemicals can be used in food establishments for fly control provided they are used according to manufacturers' instructions (**as stated on the label**). Be especially careful to not contaminate food or food contact surfaces of utensils and equipment.

NOTE: Automatic spray systems and chemical pest strips can be used provided they are not used in food preparation areas. Pest strips are specifically *prohibited* in kitchens;

- **Other Control Methods.** For special fly problems, other control methods such as electrocution screens, fly traps and sticky fly paper can be used. ***These devices cannot be located over or close to food, food preparation areas or equipment storage areas.***

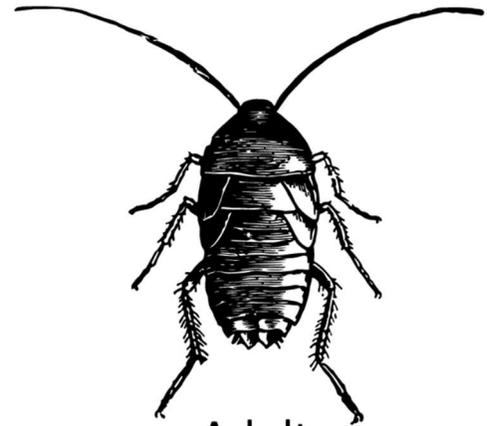
COCKROACHES

One of the hardest insects to control in food establishments is the cockroach. These insects are active when and where it is dark. When it is light, cockroaches hide in dark recesses between and under equipment, under sinks, in floor drains, etc. Because these areas generally cannot be properly cleaned, these insects come in contact with considerable filth and bacteria.

The **German Cockroach** contributes to most cockroach problems in Idaho. It is a prolific breeder. Females carry their eggs in an egg case on the tip of the tail. The egg cases will be dropped in the best place for their development. Immature German Cockroaches look like miniature replicas of the adults.

In a popular Eastern Idaho restaurant, a significant cockroach problem was discovered in stacked taco shells in a food cabinet.

In a Treasure Valley grocery store, a severe cockroach problem was found in the produce display and adjacent areas.



Adult

COCKROACH CONTROL

Although sanitation can reduce feeding and breeding sites to some extent, ***chemical control is almost always necessary to eliminate a cockroach infestation, once established.*** Most often, the services of a licensed pest control operator will be necessary to control an infestation. Also, repeated treatments will always be required to eliminate the pest completely.

It should also be noted that tracking powders are NOT APPROVED for use in food establishments as they can contaminate food products.

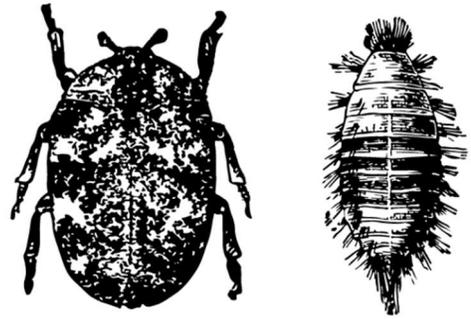
STORED PRODUCTS PESTS

Different species of beetles and moths are found in food establishments from time to time. These pests are brought into the food establishment with contaminated food products such as flour, meal, grain,

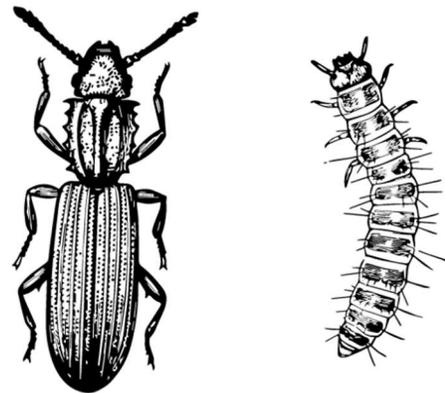
cereals, seeds, beans, nuts, pasta, spices, etc. It does not take long for the pests to become so numerous that other similar foods in the establishment are attacked and contaminated. Foods containing these pests are adulterated and unsuitable for human consumption and usually must be destroyed (some can be converted to animal feed). Once established, control can be difficult and only by careful observation for signs of the insects, destruction of contaminated food products and chemical control can these pests be brought under control.

Three stored-products pests and actual problems associated with them are as follows:

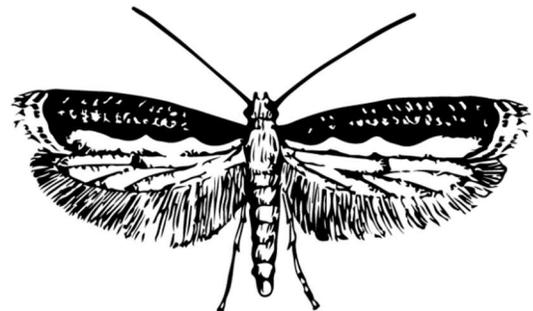
- **Carpet Beetle.** Despite its name, this small beetle attacks a wide array of food products. A Treasure Valley health food store was selling high protein cereal grossly contaminated with cast skins of the larvae of this beetle. An unknowing consumer of the cereal suffered an inflamed throat from the contamination.



- **Saw-toothed Grain Beetle.** Severe infestations of this minute beetle in a Treasure Valley restaurant and a Panhandle bakery resulted in a considerable amount of food being destroyed at both establishments. Infestations of this beetle in markets have originated from the damaged food storage area (morgue) where foods are held for credit.



- **Indian Meal Moth.** A severe infestation of this moth in a Palouse Region market was the result of infested bulk foods.



Because these pests invade a variety of foods, controlling them is difficult once they become well established.

Control generally is successful after a prolonged systematic destruction of infested food products and chemical control.



SUMMARY

- Rodents and some insects are considered **vectors** because they can transmit diseases to humans.
- The House Mouse is the most important rodent vector in Idaho.
- Rodent control consists of sanitation, mouseproofing, trapping and poisoning.
- Flies transmit disease organisms by vomiting and defecating on food and carrying bacteria on their bodies.
- The House Fly, Lesser House Fly, Blow Fly and Fruit Fly are four flies of public health significance in Idaho food establishments.
- Fly control consists of exclusion, proper cleaning, proper waste disposal and chemical control.
- The German Cockroach contributes to most cockroach problems in Idaho.
- Chemical control is almost always necessary to eliminate a cockroach infestation, once established.
- Control of the Carpet Beetle, Saw-toothed Grain Beetle, Indian Meal Moth is generally successful after a systematic destruction of infested food products and chemical control.

Reference: *Idaho Food Code*, Chapters 6 and 7