HOUSEHOLD INSECTS AND THEIR CONTROL

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Insects find their way into our homes no matter how careful we are with our housekeeping. Some of these insects damage foods, clothing, rugs, furniture or woodwork. Others carry diseases, and some merely irritate us. Many household insects are controlled easily. To get rid of others, such as termites and carpet beetles, you need considerable persistence and effort. Good housekeeping and thorough sanitation are highly important in aiding in control or preventing infestations of many kinds of household pests.

EQUIPMENT

A small hand sprayer and duster and a brush to treat window and door screens are all the equipment you need to control household insects.

Aerosol bombs are effective for a quick knockdown of flies and mosquitoes, but don't have much effect on insects in protected places.

CRICKETS

Field crickets sometimes enter houses although they rarely become very abundant. Their chirping may annoy you, and they may eat holes in clothing and household fabrics.

Control: Apply a 2 or 3 per cent chlordane or 0.5 per cent dieldrin household spray or a 5 per cent chlordane or DDT dust to floors along baseboards. Blowing the dust into cracks and other hiding places also helps. Repeat applications at 10-day to 2-week intervals as long as crickets are a problem.

CLOTHES MOTHS

The two common species of clothes moths are the webbing clothes moth and the case-making moth. Both feed mainly on wool, fur, hair and feathers. The moths are small, about 1/4 inch long, with a wing-spread of about 1/2 inch. The adult webbing clothes moth is buff colored. The case-making clothes moth is similar except that it has indistinct dark spots on the wings.

Moths do not feed on cotton, linen, silk or rayon or other fabrics of vegetable origin. Only the larvae cause damage since the adult moths do not feed on fabrics.

Control: The first step in control is to locate the source of infestation. It may be fleece lined house slippers, a pair of flannel pants, a wool sweater, a fur piece or lint accumulations. Upholstered furniture also serves as a breeding place for moths. Treat infested material with a 5 per cent stainless kerosene spray or where possible, remove and burn. Washable woolens may be protected by washing or rinsing in water containing EQ-53. This material, which is sold under different trade names, contains DDT. Sun and thoroughly brush or clean clothing before storing it. Spray entire surfaces of closet walls twice a year with 5 per cent DDT in stainless kerosene. You may also protect woolen articles by spraying them with 5 per cent DDT in stainless kerosene.
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Treat clothing to be stored as outlined under carpet beetle on page 114.

HOUSE CENTIPEDES

The house centipede has a worm-like body an inch or more long with a pair of long slender antennae and fifteen pairs of legs. The house centipede runs rapidly, holding its body well elevated above the surface over which it moves. They feed upon cockroaches, flies, spiders and moths. They thrive in damp basements and often find their way to the upper floors.

Control: House centipedes are beneficial; however if you want to control them, spray areas where they have been seen with a 5 per cent DDT or 2 per cent chlordane household spray.

CARPET BEETLES

Several kinds of carpet beetles are found in homes. Only the larvae—elongate-oval in shape with brownish or black bristles—of carpet beetles cause damage by feeding on rugs, feathers, clothing and various foods. Damage from these insects can be distinguished from that of clothes moths by the absence of webbing spun by moths. Cast larval skins also help to identify their work. They attack nylon and fabrics under certain conditions. The larvae of the carpet beetle are brown and their body is covered with hairs. The adults are small, black or mottled brown or white and about 3/16 of an inch long. In the spring, they collect at windows in an effort to get outside and feed on pollen of spiraea, goldenrod and other plants.

Control: The larvae of carpet beetles wander around and may scatter from attic to basement. They live on hair, lint and other materials which accumulate in corners, in cracks in flooring, under radiators and in similar places. Thoroughly clean as many of these places as possible. Discarded fur pieces, rugs, feathers and fleece-lined slippers provide ideal breeding places. Remove such materials and spray infested areas.

Use 2 per cent chlordane or 3 to 5 per cent malathion or 0.5 per cent lindane or dieldrin household sprays in closets, around baseboards, and along edges of rugs or floors. Spray or dust the top surface of rug pads with 5 per cent DDT to help protect rugs. Where possible, occasionally vacuum clean or sweep the undersides of rugs.

You may protect clothing and blankets stored in tight trunks, boxes or closets either by spraying them with 5 per cent DDT in stainless kerosene or by using flake naphthalene or paradichlorobenzene crystals. Use the latter two materials at the rate of 1 pound to each trunk of clothing or blankets. Place flakes or crystals between layers of thin paper at several levels in the trunk. For closets that are kept tightly closed, hang a muslin sack containing 1 pound of either material for each 100 cubic feet of space.

CLOVER MITES

Clover mites are not usually pests in homes, but they occasionally move into houses in large numbers. They cause no damage in homes since they do not feed on man or animal. They can be a definite nuisance, however. They are somewhat oval in shape, usually reddish-brown and about 3/100 of an inch long. Clover mites swarm over outer walls of buildings, particularly those with sunny exposures and make their way indoors through cracks and crevices about windows, doors, foundations and elsewhere. Invasions usually occur in the
spring or fall.

Control: Spray odorless white kerosene directly onto the mites and also in cracks and other areas where they may hide. Sprays containing DDT, chlordane, or pyrethrum in stainless kerosene are also effective. To prevent reentry into homes, spray outside window and door sills as well as the lawn around the house foundation with Kelthane, malathion or Aramite. Follow directions on the container. Sulfur dust may be used instead of Kelthane, malathion, or Aramite. A grass-free strip 18 to 24 inches wide around the dwelling may aid in reducing mite infestations in the home. A variety of flowers, such as zinnias, marigold, salvia, roses, chrysanthemums and petunias, which are not attractive to clover mites, may be planted in the grass-free strip.

MOSQUITOS

Several kinds of mosquitos are pests of man and are found around homes. Some species transmit malaria and others transmit encephalitis to man and horses. All mosquitos breed in water and their eggs will not hatch unless moistened with water. The larvae must have water in order to develop.

Control: The first step in mosquito control is to eliminate as far as possible their breeding areas. Remove from the yard all unneeded cans, pails, jars, tires or other objects which may hold water. Tightly cover containers used for storing water. Keep small streams near your house free from debris or vegetation which slows the flow of water. If possible, drain low areas in which water collects. Permanent ponds or pools which do not provide humans, animals or poultry water for drinking may be sprayed with 5 per cent DDT or 0.5 per cent lindane, or 2 per cent malathion several times during the season. You may also apply kerosene or fuel oil at full strength. Stock ornamental ponds with fish which feed on mosquito larvae. Do not use DDT, oil, or lindane on pools containing fish. A light application of pyrethrum oil solution will not injure fish, however.

Spraying your porch and painting or spraying door and window screens with 5 per cent DDT or 1 per cent lindane in kerosene will prevent most mosquitos from entering homes. You can spray shrubs, trees and lawns with 50 per cent wettable DDT powder at the rate of 1 pound per 25 gallons of water. Several sprays during the season will be necessary. Destroy mosquitos inside the home by spraying with 5 per cent DDT in kerosene. Aerosol bombs containing DDT, malathion or methoxychlor are also very effective and easy to use. For humans, repellants such as Deet (diethyltoluamide), Rutgers 612, and Indalone, will protect humans from mosquito bites for 1 to 5 hours. When using repellants, be sure to follow directions on the label.

FLEAS

Fleas which infest homes usually come from cats and dogs. Adult fleas are small wingless, dark reddish-brown insects, with narrow bodies and legs well-developed for jumping. The small, whitish, hairy, legless larvae feed on dried animal matter. They live in cracks in the floor, under carpets, under porches where pets sleep, or any place where they can obtain food. Lawns also are occasionally infested with fleas.

Control: Thoroughly rub a tablespoonful of 4 or 5 per cent malathion or 1 per cent lindane dust into the fur of dogs. A 0.2 per cent pyrethrum or 1 per cent rotenone dust is
suggested for cats. Sleeping quarters of pets should also be dusted with malathion. Spray basements, unfurnished areas, infested lawns and the bare ground under porches with malathion or diazinon. A 3 per cent malathion or 0.5 per cent diazinon household spray should be applied to floors, baseboards, and rugs in infested rooms. Several treatments a month apart may be necessary where infestations are heavy. Fleas may be controlled outdoors by spraying or dusting infested areas with malathion or diazinon.

SUBTERRANEAN TERMITES

Termites are social insects that live in nests or colonies in the soil. They often destroy woodwork in buildings. Each colony is made up of classes—reproductive, workers, and soldiers. The adults of workers and soldiers are wingless and grayish white. They live within their tunnels in wood and soil. The reproductive adults have brown or black bodies and two pairs of long wings of equal length. Termites can be distinguished from ants by their two pairs of wings of equal length and by their thick waistlines as contrasted to the narrow waistlines of ants.

The winged termites, about 3/8 inch long, swarm in the early spring or fall. Often, this is the first sign that a home is infested. Other signs of termites are the shelter tubes or runways on the surface of foundation walls. Termites may be present, however, even though no shelter tubes are found.

Control: Termites must be close both to the soil with its moisture, in which they live, and wood or wood products on which they feed. They are most likely to infest soil beneath basementless buildings where it is poorly drained and ventilated. First steps in controlling termites is to break permanently their contact with the soil or other sources of moisture such as leaky pipes. Structural changes, replacement of infested wood, mechanical barriers and soil poisons will usually do the job. Every termite infestation is different and requires individual treatment. Termite infestations in slab-on-ground construction often creates a difficult control problem.

Soil treatments with dieldrin, chlordane, aldrin, heptachlor or BHC are effective where the infestation is only in areas along basement walls. One treatment should give protection for five to ten years.

Basementless Houses

For infestations along interior walls of basementless buildings, dig a trench 6 to 8 inches wide and a few inches deep, taking care not to go below the top of the footings. Along exterior walls, dig a trench 6 to 8 inches wide and 15 inches deep. Never dig the trench below the footing, but extend it along the wall 4 or 5 feet in each direction beyond the area of the termite infestation. Dig a trench 6 to 8 inches wide and 12 to 15 inches deep for infestations along the exterior walls of buildings with basements.

Houses With Basements

Where infestations occur along the exterior foundation walls in homes having full basements, dig a trench 6 to 8 inches wide and about 30 inches deep, then make crowbar, pipe or rod holes about an inch in diameter and a foot apart in the bottom of the trench to near the footing. This will give better distribution of the chemical in the soil along the foundation wall. Make sure no wood is in contact with the ground.
Slab-on-Ground Houses

For termite infestations occurring beneath concrete floor slabs on ground, it is suggested that you call a pest control operator. Such types of infestations are often very difficult to control—more so if radiant heat is involved. You may also wish to rely on a pest control operator in other types of construction where the termite infestation is severe and difficult to control.

Insecticides and Their Preparation

**Dielodrin**, 0.5 per cent emulsion. Use 1 gallon of 18 per cent e.c. to 36 gallons of water.

**Chlordane**, 1 per cent emulsion. Use 1 gallon of 72 per cent e.c. to 99 gallons water.

**Aldrin**, 0.5 per cent emulsion. Use 1 gallon of 25 per cent e.c. to 47 gallons water.

**Heptachlor**, 0.5 per cent emulsion. Use 1 gallon of 25 per cent e.c. to 47 gallons water.

**BHC**, 0.8 per cent emulsion. Use 1 gallon of 12 per cent gamma isomer formulation to 15 gallons of water.

Rate of Application

Houses without basements: Apply 2 gallons of the diluted insecticide per 5 linear feet of trench made along the interior foundation walls. Along the exterior foundation walls, apply the insecticide at the same rate for each foot of depth from the surface to the footing. If the trench is 2 feet deep in some places, increase the dosage to 4 gallons per 5 linear feet. Pour or sprinkle some of the insecticide in the bottom of the trench, add soil and more of the solution until the trench has been filled.

Basement houses: For treating along the exterior wall, use the same dosage and apply as suggested for exterior walls of basementless houses. Do not apply insecticide to water soaked or frozen soils.

**DAMP-WOOD TERMITES**

These termites, unlike the subterranean types, enter directly into dampened wood through decayed spots, cracks or holes at swarming time and do not require moist soil in order to exist. They do, however, require considerable moisture for their development and usually attack decaying wood exposed to considerable dampness. Although damp-wood termites usually occur in decaying wood, they may extend their workings into sound wood. They are much larger than the subterranean termite with the nymphs 1/2 inch long and the soldiers 3/4 inches long.

Control: Infested wood in structures should be replaced and conditions which permit excessive moisture should be corrected by adequate drainage or the use of materials other than wood in foundation areas of the home which cannot be protected from excessive exposure to moisture. Cresote impregnated wood should be used for house foundations and other moist areas where wood is likely to be subject to termite attack. Chlordane, either as a dust or spray, applied on and into infestations will aid in control.

**FLIES**

Several different kinds of flies infest homes. Among the
more important are the house fly, fruit fly, stable fly, the lesser house fly, blowflies and cluster fly. Probably 90 per cent of the flies in homes throughout the year are house flies. Most of those found in homes breed in decaying organic matter. The common house fly reproduces rapidly in such matter and may carry diseases to the food of man.

Control: The first step in fly control is sanitation. Garbage should be kept in tight containers and disposed of every few days. Spray garbage cans frequently with DDT, diazinon, or malathion. Breeding areas including decaying plant and animal matter and pet manure should be eliminated. Good window screens and screen doors are also very important. Screens should be sprayed or painted with 5 per cent DDT or 2 per cent chlordane in kerosene and retreated several times during the fly season. Spray favored resting places such as window sills, ceilings, or walls. For a quick knock-down of flies, use space sprays containing pyrethrum or pyrethrum plus methoxychlor. Aerosol bombs are also very effective for this purpose. Vapona strips are also suggested. Use only in accordance with directions on label. If only a few flies are in a room, a fly swatter may be the simplest way of disposing of them.

Cluster flies are parasitic on earthworms and control of the maggots is not practical. To prevent adults from entering the home in the fall, close all openings and cracks through which they enter, such as sash cord channels. Fill all cracks around windows. Paint window sashes and cases with a 5 per cent DDT or 2 per cent chlordane solution. Use aerosols containing pyrethrum or allethrin as needed indoors.

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BED BUGS

The mature bug is a flat, wingless, brown insect between 1/4 and 3/8 of an inch long. Bed bugs feed on piercing the skin and sucking blood. They appear in homes at all seasons of the year, usually hiding during the day and feeding at night.

Bed bugs may be carried into homes in clothing, baggage or second hand furniture. They can migrate from room to room or home to home.

When not feeding, bed bugs hide in the tufts or seams of mattresses, in cracks and crevices of the bedstead, or in upholstered furniture. As they become more numerous, they scatter and hide behind baseboards, window and door casings, pictures or picture moldings, loosened wallpaper, or cracks in plaster.

Control: A 5 per cent DDT or 2 per cent chlordane or 0.5 per cent dieldrin kerosene spray is effective in controlling bed bugs. Spray thoroughly, but lightly the frames and springs of beds, each side and edges of the mattress, and overstuffed furniture. Also spray cracks in floors, around baseboards, behind pictures and other areas where bed bugs may hide. You may have to make several treatments at 30 day intervals for complete control.

COCKROACHES

Cockroaches are among our most disagreeable household insects. Several kinds of cockroaches, including the American, Oriental, German and recently the brown-banded cockroach, are found in homes. The different roaches vary from 3/8 inch to 1 1/2 inches long and from brown to black in color. They are rather flat, fast-running insects which are active at
night and hide during the day. Cockroaches contami­
nate food and often leave a disagreeable odor in food
over which they crawl. They are general feeders and
in addition to most foods, they feed on book bindings,
stamps, paper and even starched clothing.

Control: DDT, chlordane, dieldrin or deodorized mal­
thion are the most effective insecticides for cock­
roach control. You may use 5 per cent DDT or 0.5 per
cent diazinon, 2 or 3 per cent chlordane, 0.5 per cent
dieldrin, or 2 per cent malathion in kerosene sprays.

A 2 per cent dieldrin dust may also be used where you
won’t mind the visible residue. Use a duster to blow
dusts into cracks and crevices. Spray or dust runways,
window and door frames, underneath and behind the
drainboard, around the sink, in cupboards, behind
drawers, around water pipes, behind baseboards and
moldings, in cracks, between walls and any other hiding
places where roaches will come in contact with the in­
secticide. Sodium fluoride dust will also control
cockroaches.

Do not allow any of these materials to get on dishes,
cooking utensils or in food. It may take two or three
weeks to obtain control, and a second treatment may be
required in a month or six weeks.

WASPS, HORNETS, YELLOW JACKETS AND BEES

Wasps, hornets, and yellow jackets often enter attics
or nests around homes during the summer. Bees oc­
casionally nest inside the walls of buildings.

Control: If you can locate the nests of wasps, hornets,
or yellow jackets, thoroughly spray them in the evening

when the insects are all in their nests. Use sprays con­
taining 5 per cent DDT or 2 per cent chlordane or 0.5 per
cent dieldrin in kerosene. Do not use dieldrin or chlordane
for over all spraying of the interior of rooms.

To destroy bees nesting in walls of buildings, inject a
liberal amount of 5 per cent DDT or chlordane dust of spray
through their entrance hole. Do this in the evening after
all the bees have returned to their nest. After the bees
have completely disappeared, close the entrance to the nest.
It is advisable to remove and destroy the honey because of
possible insecticide residue.

ANTS

Several kinds of ants enter homes and infest food supplies.
Carpenter ants occasionally damage house timbers. Some
species of ants prefer sweet foods; other prefer grease and
meats.

Termites are sometimes mistaken for ants, but they do not
have the narrow waists like true ants.

Control: Sprays containing 2 or 3 per cent chlordane in
stainless kerosene may be used effectively in the home.
Spray or paint the solution to cracks in floors or walks,
around sinks, bathtubs and kitchen cupboards.

To control ants outdoors, apply a 5 per cent chlordane, a 2
per cent dieldrin or a 5 per cent heptachlor dust to their
nests and other areas they frequent. Do not apply to food
plants. If you use a spray emulsion of these materials,
follow directions on the label. Use on limited areas only.

Kepone as a 0.125 per cent bait may be placed in nest open­
ings, around foundations and in other areas frequented by
ants. Do not use where Kepone might be accessible to children or pets.

Carpenter ants may be controlled by spraying or dusting chlordane around house foundations and by applying it to lawn areas. Use a dust or wettable powder formulation on lawns. If nests are located within the woodwork of homes, drill small holes into the nesting area and apply a 10 per cent chlordane dust into the holes with a duster. Kepone bait is also suggested.

SPIDERS

Spiders, unlike insects, have four pairs of legs and do not have antennae or feelers. Except the black widow spiders, most spiders found in homes do more good than harm, although they are nuisances when numerous.

The black widow spider is poisonous to man. The female has a rounded shiny black body, usually with an orange or red hourglass design on the underside of the body. The male is much smaller with stripes of white and pale brown along the sides. Black widow spiders build loose irregular webs in spaces under stones and pieces of wood, in dark protected corners of basements, outhouses and garages.

Control: Spray basements, attics and other places where spiders are found with chlordane, dieldrin or lindane household sprays. These materials kill spiders on contact and will continue to kill spiders visiting the treated areas for a month or more. For basements or other areas where you won't mind a visible residue, 3 ounces of 50 per cent chlordane wettable powder or 1 ounce 25 per cent lindane wettable powder per gallon of water may be used. Tightly screened windows and doors help keep spiders from entering homes.

BOX ELDER BUGS

Box elder bugs are about 1/2 inch long, from brown to black with red lines running along the back. The adults spend the winter around buildings and in hollow stumps and other sheltered places. During warm spring days, they gather in large numbers on sunny surfaces of buildings and occasionally enter homes. They cause no damage in the home, but can be a nuisance. They most often appear in large numbers on the trunks and around the bases of box elder trees and maple trees.

Control: Indoors, apply a 5 per cent DDT or 3 per cent chlordane household spray on the insects and to the areas where they appear. Outdoors, they can be controlled by spraying or dusting the walls of buildings and the trunks and around the bases of box elder and maple trees with a heavy application of chlordane, lindane or 0.5 per cent dieldrin.

EARWIGS

The European earwig is more annoying than damaging in the home. Although earwigs can fly, they usually enter homes hidden in flowers, vegetables or newspapers and may crawl under doors or through open windows. Earwigs are various shades of brown and range from 1/2 to 3/4 inches in length.

Control: Earwigs can be destroyed outdoors by spraying or dusting infested areas with DDT or chlordane. Use a 5 per cent dust or spray containing 1 pound of 50 per cent wettable powder in 25 gallons of water. Apply to the entire infested area, giving particular attention to areas around foundations of buildings, fences and walks. Do not water treated areas.
for at least two nights after application. Several treatments during the summer may be necessary. Ear-wig baits may also be used.

SILVERFISH AND FIREBRATS

Silverfish and firebrats are wingless, fast running, scaly insects about 1/2 inch long. Their bodies taper evenly from head to tail and they have a pair of long antennae or feelers on the head with three long filaments which protrude from the tail end.

Silverfish are shiny and silver or pearl gray in color, and prefer warm and damp places, but may be found in almost any part of the home. Firebrats are similar in appearance but are mottled gray. They are most abundant around furnaces and heated water pipes. These insects feed at night on wall paper, book bindings, rayon fabrics and starched clothing.

Control: Spray walls and other areas over which silverfish or firebrats crawl with 5 per cent DDT or 2 per cent chlordane or 2 per cent deodorized malathion or 0.5 per cent dieldrin household sprays. Areas to be treated include the back walls of shelves, baseboards, cupboards, and holes where pipes pass through floors or walls. Do not use these sprays near open flames. Use 5 per cent DDT or chlordane dusts in basements or around open flames. A second treatment may be necessary.

PSOCIDS OR BOOKLICE

Psocids found in homes are tiny soft-bodied, flat, wingless insects about 1/16 of an inch long. They are white or grayish white. Because of their small size and color, they are often not noticed. They occasionally appear in starch, cereals, flour and sugar and may be annoying when they increase to large numbers. Dampness and warmth favor their development, and they are most likely to be found in damp, dark, poorly ventilated rooms.

Control: Dry out areas where you find psocids. They don't thrive where there is furnace heat and are seldom a problem in the winter when buildings are kept warm and dry. Spray exposed woodwork with 5 per cent DDT in kerosene. Do not get spray materials on food or cooking utensils. Destroy infested foods and eliminate dampness in food storage areas wherever possible. Store food in moisture-proof containers.

SPIDER BEETLES

Several kinds of spider beetles occasionally infest homes, but rarely become numerous enough to cause concern. They are about 1/7 of an inch long, reddish to pale brown with or without white markings. They feed on cereals, cereal products, seeds, wool and furs.

Control: Spray basements, walls and other areas over which spider beetles crawl with 5 per cent DDT or 2 per cent chlordane or 0.5 per cent dieldrin household sprays. Infested foods should be destroyed.

THE GOLDEN BUPRESTID

Oval shaped holes appearing in fir, pine, or spruce siding, window casements, flooring or other parts of the home indicate activity of one of the flatheaded borers, the most common of which is the Golden Buprestid. The adult is about 3/4 inch in length, iridescent golden-green or blue-green in color with the outside wings edged with a copper margin. The adult beetle lays its eggs on trees, preferably those that
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are dead or dying, or in cracks of freshly sawn lumber. Most of the infestations in lumber occur before it is manufactured. The mines or tunnels may be from 3 to 15 feet in length and the larva may live in the wood from 15 to 20 years before they transform into a beetle and emerge.

Control: This is a very difficult pest to control in the home because of the long period of time that the larvae remains in the wood, the length of the tunnels, and the fact that infestations are not usually evident until the adult emerges from the wood. Infestations, however, are seldom extensive enough to cause serious structural weakness. Exit holes in flooring or other exposed wood may be filled with plastic wood where advisable and later, if no new emergence occurs, the damaged wood may be replaced.

POWDER POST BEETLES

These wood-boring beetles breed in the wood and reduce it to a powder-like dust which becomes evident as the infestation increases. These insects are usually brought into the home in hardwood lumber used in flooring or finishing. They may also be brought in hardwood furniture or other items of hardwood. Ash, oak, pecan and hickory may become infested in the lumber stock piles and continue their development after the lumber is used in the home.

Control: Usually the area of beetle infestation is limited and a 5 per cent DDT in refined kerosene applied with a small brush to the infested area will provide control. More than one application may be required and best results are obtained where the finish is removed before treatment. Small hardwood articles may be dipped in the DDT preparation. Heating small hardwood articles in an oven at 1300° F. for 1 1/2 hours will also kill the insects. The use of heat, however, may warp the wood, loosen the joints or injure the finish.

OCCASIONAL INSECTS THAT INVADE HOMES

Strawberry root weevils, elm leaf beetles, lady beetles, and several other kinds of insects often invade the home in sufficient numbers to become pests although they cause no damage indoors. Most of these insects usually become a problem in the fall of the year. These insects are apparently seeking a place in which to overwinter.

Control: Applications of 5 per cent chlordane or 2 per cent lindane applied around the foundations of homes and to areas where the insects are able to enter is suggested for outdoor control. Household sprays of DDT or chlordane will aid in controlling them indoors.

INSECTS WHICH DEVELOP IN STORED FOODS

Several kinds of beetles, weevils and moths infest flour, cereals, spices and other dry food products in the home. Such foods are perfect for insect infestation as temperatures are usually ideal and ample food is available.

FLOUR BEETLE

The adult flour beetles are about 1/8 inch long, smooth and reddish-brown. The larvae are about 1/4 inch long with white to yellow bodies and black heads. These insects infest flour, cereal products, and other stored foods. Infestations often develop in food products which are used infrequently and remain on hand for long periods of time.
GRANARY AND RICE WEEVILS

The granary and rice weevils are similar in appearance and habits. The adult weevils are about 1/8 inch long, dark brown, cylindrical, with rather long snouts or beaks. The larvae are white, legless grubs. These insects prefer whole grains, but will also feed on spaghetti, macaroni and similar foods.

DRUG STORE BEETLE

These are small, robust, oval, light brown beetles with head bent down sharply, giving a humped appearance when viewed from the side. It is usually about 1/10 of an inch long. It feeds on drugs, pepper, cereals and other processed foods.

SAW-TOOTHED GRAIN BEETLES

The saw-toothed grain beetle is about 1/8 inch long, dark brown, slender and flat. It has a row of saw-toothed projections along each side of the body section just behind the head. The larvae, which are quite active, are yellowish-white with brown markings about 1/8 inch in length and have well developed legs. This insect feeds on cereals, cereal products, nuts, dried fruits, and other products.

FLOUR AND MEAL MOTHS

The two most common species of flour and meal moths found in homes are the Indian meal moth and the Mediterranean flour moth. The Indian meal moth is pale gray with top two-thirds of the forewings metallic copper colored. The Mediterranean flour moth is gray, has forewings with wavy black lines and dusky white hind wings with darker margins. The larvae of these moths, which are white or pinkish, spin webbing through the food they infest. They eat cereal and cereal products, dried fruits, chocolate, candies, shelled nuts and similar foods.

Control: The first step in controlling insects infesting stored foods is to find the infested material and destroy it. Remove all foods from cupboard shelves, and clean and thoroughly spray the storage area with 5 per cent DDT in kerosene. Do not get spray on food, dishes, or cooking utensils. Food which has been exposed but shows no sign of infestation may be placed in shallow pans and heated in an oven for one-half hour at 140°F. The oven door should be propped open slightly to prevent scorching of food. Uninfested or heat-treated foods should be stored in containers with tight fitting lids until infestations have been eliminated.

* e.c. - emulsifiable concentrate
PRECAUTIONS IN USING INSECTICIDES

This bulletin tells how to control the most common injurious insects normally encountered. The insecticides recommended are based on research by scientists of Washington State University, the USDA and by other agencies. Those selected for you are considered safe to use and to be effective.

In many cases more information can be obtained on descriptions of insects and their damage, life cycles or more detailed information on their control. If your insect problem goes beyond the scope of this discussion, you can get additional help from your County Extension Agent or from the Department of Entomology, Washington State University, Pullman.

Insecticides are poisonous to man and animals. Use them only when needed and handle them with care. Follow the directions and heed all precautions on the labels.

Keep insecticides in closed, well-labeled containers in a dry place. Store them where they will not contaminate food or feed, and where children and animals cannot reach them.

Avoid contact with poison baits or concentrates. If any is spilled on skin or clothing, wash it off the skin and change clothing immediately.

Avoid inhalation of insecticide dusts or mists.

When handling insecticides, wear clean, dry clothing.

Wash your hands and face before eating or smoking and immediately after completing insecticide application.

To protect fish and wildlife, do not contaminate lakes, streams, or ponds with insecticide. Do not clean spraying equipment or dump excess spray material near such water.

Dispose of empty insecticide containers at a sanitary land-fill dump, or bury them at least 18 inches deep in a level, isolated place where they will not contaminate water supplies. If you have trash collection service, wrap small containers in heavy layers of newspapers and place them in the trash can.