



Household Pest Control

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The information contained in this fact sheet will assist the homeowner in controlling infestations of insects. The first important step in the process of insect control is to identify the insect that is present so that the proper control procedure will be used. OSU county extension directors, area and state extension specialists in Entomology, and pesticide dealers can help identify the pest for the homeowner, or the pest may be sent to the OSU Entomology Department for identification.

The homeowner can usually control light infestations of pests in the house by carefully following directions on the pesticide container and by doing a thorough job of application. Sanitation and good housekeeping are possibly the most important aspects in controlling or preventing pests, but even well-kept homes sometimes become infested.

Certain pests found outside may be eliminated before they enter the home. (For information on control of pests outdoors, refer to OSU Extension Fact Sheet EPP-7306). However, some insects live entirely within the home, where they must be controlled by applying spray, dust, bait, or aerosol pesticides to areas where they are most frequently found. If the infestation is severe and widespread, it is advisable to employ the services of a pest control firm, which has pesticides and application equipment not generally available to homeowners.

Equipment for Applying Insecticides

The following is a list of some of the more common types of pesticide application equipment on the market.

Small continuous or intermittent hand sprayers — Effective, for applying space sprays in the home (to kill flies and mosquitoes). Not effective for applying residual sprays. These sprayers usually have a 1-to 2-pint capacity, and the spray is discharged as a fine mist.

Compressed-air sprayers — An excellent all-purpose sprayer for home use if equipped with atomizers. These are suitable for applying solutions to cracks and crevices, and around baseboards for various pests found in and around the home.

Aerosol bombs — The insecticide is contained under pressure in a metal cylinder, and when the valve is opened the spray is released as a fine mist. The aerosols are useful for applying fine mist back into cracks and crevices and for use as space sprays.

Garden hose attachments — Where sufficient water pressure is available, these spray attachments are useful for applying insecticides outside the home.

Dusters — Small puff dusters are available for inside the home, and many types of hand dusters are available for applying dusts to control garden, ornamental, and lawn insects.

Formulations of Insecticides

When purchasing commercially formulated, ready-to-use pesticides, select one designed for the specific problem you are trying to solve. Some of the more common pesticides that may be used by the homeowner are Diazinon, Malathion, Dursban, and Sevin. Most of the alternatives to the ready-to-use sprays are available in four forms: oil solutions, emulsifiable concentrates, wettable powders, and dusts. *One should read the label before purchasing and using a pesticide to avoid mistakes or misuse.*

Oil Solutions (OS) — Many of the household sprays are formulated as oil solutions. When applying one of these solutions, care should be used since oil base sprays may be injurious to asphalt tile and rubberized backing on carpets. They also may soften and discolor linoleums and plastic materials. If in doubt about spraying such surfaces, test the material in a small, inconspicuous place before treating a large area.

Emulsifiable Concentrates (EC) or (E) or Emulsifiable liquid (EL) — These are liquid concentrates containing insecticides plus an emulsifier that allows the concentrate to be mixed with water for use as a spray. Read the label thoroughly because most of these chemicals are formulated for use outside the home.

Wettable Powders (WP or W) — These are powders containing concentrated insecticides, usually expressed in percentages, that must be mixed with water before use. Sprays prepared from wettable powders require frequent agitation to maintain a uniform mixture. Wettable powder sprays are generally recommended for use outside the home.

Dusts (D) — These are ready-to-use mixtures of toxicant and a "filler or carrier" such as talc or clay. Dust formulations may be used inside the home but leave unsightly residues.

Measurements and Conversions

1 tablespoon = 1/2 ounce = 3 teaspoons
1 cup = 8 ounces = 16 tablespoons

Safety Tips

- Read and follow all directions on the container label.
- Avoid repeated or prolonged contact of insecticides with the skin and prolonged inhalation of spray mist.
- Do not spray oil solutions near an open flame (pilot lights).
- Do not risk contaminating food by treating near food, dishes, or cooking and eating utensils.
- Dispose of empty pesticide containers, and do not puncture or incinerate aerosol or pressurized spray cans.
- Store insecticides in the labeled original containers, in a dry place where they cannot contaminate foodstuffs and where children and pets do not have access to them.
- After using pesticides, always wash your hands and face and any other exposed body areas.
- For further information on handling, mixing, and applying pesticides, consult your area or state extension entomologists, visit your local county extension director, and/or refer to OSU Extension Fact Sheet EPP-7450 for information on safe use of pesticides.

NOTE: See comments on Diazinon at end of Tables.

Prevention and Control Hints



Before applying insecticides for pest control, the homeowner can help insure better control by doing the following:

1. Clean out areas that make good homes for the pest.
2. Clean up areas that collect grease, food scraps, or other spillage which might provide a food source.
3. Eliminate excessive storage boxes from the attic and garage, and clean up foliage or other hiding places from around the outside foundation of the house.
4. If grain or flour pests are present, locate the infested material. Go through all cereal boxes, flour, beans, dry pet food, and spice containers until the infestation source is located. Dispose of the infested material, then a light application of pesticide
5. Carefully check newly purchased dried foods for insect infestations, and store foods in tightly sealed glass, plastic or metal containers rather than in sacks, bags or boxes.

NOTE on ultrasonic electronic or sound control devices: To date, these devices have not been proven to be effective or practical.

HOUSEHOLD PEST CONTROL SUGGESTIONS

I. Pests of Food or Food Products

<i>Pest</i>	<i>Comments</i>	<i>Control</i>
ANTS  (1/6 - 1/2")	Many species can be found in the home. Ants feed on any kind of food material in the home, including sweets and greasy foods. Eliminate food materials attracting ants into the home. Follow good sanitary practices, and give particular attention to drain boards, window sills, door thresholds, and cracks and crevices. Ant control in many instances is difficult, and commercial pest control service may be required to eliminate the infestation.	For complete control, it is essential to locate and treat the entrance point. <i>Chemicals (inside)</i> —Combat or MaxForce ant baits, or Diazinon 0.5% aerosol or ready-to-use spray, or Dursban 0.5 or 0.78% ready-to-use spray. <i>Chemicals (outside)</i> —Diazinon 2% granules at the rate of 8 oz. per 3 gal of water, chlorpyrifos (Dursban) 5% ED at 1 tbs per gal of water. Properly labeled ant baits may provide some control, for example, one containing Baygon, boric acid, or hydramethylnon (Combat).
COCKROACHES (roaches or waterbugs)  (1/4 - 1 1/2")	Roaches leave their hiding places at night and feed on foodstuffs as well as starchy materials such as book bindings. During the day, roaches congregate in dark places such as in kitchen cabinets, under sinks, around plumbing fixtures, in closets, under baseboards, and around bathroom fixtures. American and Oriental roaches often hide during the day beneath buildings or in dark, damp areas.	Cockroaches require adequate food, water, and shelter to survive. Making food and moisture inaccessible to these insects through good sanitation and excluding them by structural repairs are important steps in control. <i>Chemicals (inside)</i> —Diazinon 0.5% aerosol or ready-to-use spray, Dursban 0.5% aerosol or ready-to-use spray, silica gel powder, or products containing boric acid that are labeled for roach control. Also, products containing hydroprene (Gencor/Gentrol or Combat/Max-Force bait station with growth regulator) work well. Roach sticky traps can help with control and as indicators of roach problems. NOTE: Use precautions to keep chemicals out of food and spices and off dishes or eating utensils.

PANTRY PESTS



Mealworm
(length 3/4")



Drug Store Beetles
(length 1/10")



Saw-Toothed
Grain Beetle
(length 1/10")



Cigarette Beetle
(length 1/10")



Confused Flour Beetle
(length 1/7")



Indian Meal Moth
(wing span 3/4")



Bean Weevil
(length 1/8")

These insects feed on cereal, dry pet food, pepper, spices, nuts, dried fruit, grits and other items found in the home, such as dried flower arrangements and the stuffing of furniture and toys.

Remove and destroy infested material, or if salvageable, you can heat-treat infested material in the oven in a shallow container at 130° to 150°F for 1/2 hour, then store in sealed containers. Storage of excess susceptible foods in a refrigerator, freezer or air-tight container will help reduce spread of these pests. Also, freezing infested items for 7 to 10 days should kill stored food pests.

Chemicals—Pyrethrins 0.1% to 0.25% (as properly labeled aerosol bombs and some may contain Piperonyl Butoxide) or Diazinon 0.5% ready-to-use spray or aerosol, and Dursban 0.5% ready-to-use spray. Avoid treating food materials or eating utensils.

II. Pests Attacking Fabrics and Structures

CARPENTER ANTS



(1/4 - 3/4")

These ants have a habit of constructing nests in decaying wood. They do not feed upon the wood in which they build their nests, but they may weaken structures. Sometimes, carpenter ants will enter a home from outside (e.g., trees or their branches contacting the roof or side of the house).

Generally, the best control will be achieved if the nest is located and treated.

Chemicals (Inside)—Diazinon 0.5% ready-to-use spray or aerosol. Baygon 1% aerosol or ready-to-use spray.

Chemicals (Outside)—Properly labeled Dursban or Diazinon products applied per label directions.

CARPENTER BEES (sometimes referred to as wood bees)



(3/4 - 1")

These bees burrow into wood, forming a series of chambers. Continued activity by a large population of the bees may weaken structural timbers.

NOTE: See Fact Sheet EPP-7317 for more detailed information about carpenter, honey and other species of bees.

Direct sprays or dusts of approved chemicals at and into the galleries. Spray or dust after dark, then, about 24 hours after treatment, plug holes with corks, cotton, or other similar material.

Chemicals—Sevin 50% WP (mixed as a spray), Sevin 5% dust, or Resmethrin/Pyrethrins, in voids where bees are nesting.

CARPET BEETLES



(1/7 - 1/4")

Larvae feed on stored foods, rugs, upholstery, clothes, stuffed toys, and furs. Adults primarily feed on pollen and do not damage household goods.

NOTE: Before applying any insecticide on a carpet, read the product label carefully for comments or warning on potential staining.

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CLOTHES MOTH



(1/2")

These moths cause damage in the larval stage by feeding upon wool, mohair, fur, and similar products.

Good housekeeping and thorough cleaning of garments helps keep down infestation.

Chemicals—Use Diazinon, Methoxychlor, or Pyrethrin sprays per label directions or PDB/naphthalene balls, flakes, or crystals (1 lb of material per 100 cu ft of space in closets or containers). For protection of stored garments and fabrics, store in air tight containers.

POWDER POST

BETTER



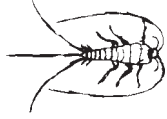
(1/5 - 1/4")

These beetles primarily feed on hardwoods and only attack sapwood. Their presence may be indicated by small piles of fine sawdust or the discovery of winding galleries in the wood.

For extremely heavy infestations, employ a pest control operator.

Chemicals—Products containing Lindane or Dursban that are labeled for indoor use (use according to label directions).

SILVERFISH

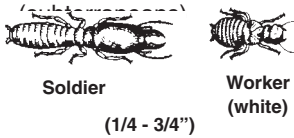


Mealworm
(length 3/4")

Silverfish feed upon most any vegetable food with high starch, protein, or sugar content (e.g., book bindings, cereals, wallpaper, starched clothes or curtains, and paste).

Treat floors of closets, storerooms, water tank closets, basements, attics, and cracks and crevices around baseboards and window frames.
Chemicals—Diazinon 0.5% aerosol or ready-to-use spray, silica gel powders, Dursban 0.5% or 0.78% ready-to-use spray, or bendiocarb (Ficam) 1% dust. Frequently, the attic needs to be dusted. You should consider having a professional pest control operator dust the attic.

TERMITES

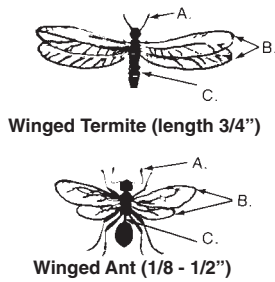


Soldier
(1/4 - 3/4")
Worker
(white)

Frequently, the first sign of termites is the sudden swarm of winged reproductives. Workers range from the subterranean colony and construct earthen tunnels along foundation walls through which they travel to above ground structures.

Insecticides properly applied to the soil form a barrier to prevent termite movement from the soil into structural timbers. Slab floor construction is difficult to treat without special equipment and techniques. It is highly recommended that a pest control firm be used for termite control.
Chemicals—Some of the products being used by pest control companies are: Biflex, Demon TC, Dagnet FT, Dursban TC, Equity, Ficam, Prelude, Premise and Prevail. Also Borate products like Timbor & Borcare are used by some companies. The newest control strategies involve Pest Control firms installing bait stations, e.g. the Sentricon System and First Line GT. Dursban 12.6% EC (e.g., OrthoKlor® and Greenlight's Termite and Insect Killer have homeowner use labels.

DIFFERENTIATING TERMITES FROM ANTS:
A. Termites' antennae are straight, not elbowed or bent.
B. Termites' wings are equal in size and shape.
C. Termites' (black body) mid-body is not constricted (pinched).
Note differences by comparing termite winged forms/reproductives with the winged ant drawing.



Winged Termite (length 3/4")
Winged Ant (1/8 - 1/2")

III. Pests that Bite or Sting and Nuisance/Annoyance Pests

BED BUGS



(1/7 - 1/3")

In this day and time, these are rarely encountered; however, bed bugs feed on blood of man and animals. They feed mostly at night and can persist for long periods without food.

Spray springs, slats, and bed frames and cracks and crevices of woodwork.
Chemicals—Products containing Pyrethrins, Allethrin, and Resmethrin used per label directions.

BOXELDER BUG



(1/2")

These are occasional pests in the fall and spring. During summer, they are often found on maple, ash, boxelder, golden rain tree, and fruit trees. As cool weather approaches, they migrate into buildings to overwinter. They reappear in the spring as it warms up. They do not attack people, pets, or clothing, but occasionally they do feed on some house plants. These insects can be extremely difficult to control, and repeated applications are commonly needed.

Chemicals (inside)—Vacuum thoroughly and treat thresholds, window sills, and cracks and crevices with Diazinon 0.5% aerosol or ready-to-use spray, or Dursban 0.5% spray.
Chemicals (outside)—Spray tree trunks, foundations, walks, patio, and eaves with Sevin (2-4 tbs of 50% WP), or Diazinon 25% EC. See OSU Extension Fact Sheet EPP-7306.

CENTIPEDES

or
MILLIPEDES



(1/3")



(1/2 - 2")

Centipedes feed on insects and other arthropods. Millipedes feed on decaying vegetation and roots and leaves of plants growing in damp soil.

Chemicals (inside)—Treat door thresholds, baseboards, and cracks and crevices with Diazinon ready-to-use spray.
Chemicals (outside)—Spray all potential entry sites and areas where pests are present with Sevin (2 tbs of 50% WP per gal of water) or Dursban or Diazinon spray according to label directions. Also, remove excessive mulch, compost, and piles of debris. See Fact Sheet EPP-7316 for more information.

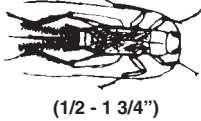
CONENOSE BUG
(kissing or assassin bug)



Many species of bugs can inflict painful bites, and one group (Triatominae) feeds exclusively on the blood of man and other animals. They feed at night. Individual bugs can simply be picked up with a vacuum, then sweeper bag's contents destroyed.

Treat cracks and crevices throughout the house, and underside and springs of furniture with a properly labeled spray or aerosol, or employ a professional pest control operator. Destroy trash piles, and birds' and animals' nests.

CRICKETS



Crickets are frequently attracted to lights and may enter the home during the summer and early fall. They may destroy plants, eat holes in paper, rubber, and garments made of cotton, linen, wool, or fur. Adult crickets are very often difficult to kill.

Treat doors, thresholds, baseboards, and cracks and crevices where crickets can hide.
Chemicals—Diazinon 0.5% aerosol, and Dursban 0.5% ready-to-use spray. Also, properly labeled products that contain Baygon can be used.

DRAIN FLIES
(sewer or moth flies)



Drain flies are small, long-legged, hairy, moth-like flies. Wings are usually held roof-like over the body. These flies frequently develop in the gelatinous material or muck lining portions of a drain pipe beneath sinks.

Clean gelatinous film from drains and sinks and flush with boiling water. A lye solution applied down drains will help kill larvae.
Chemicals—Aerosol space sprays containing Pyrethrin or Resmethrin will control the adults.

FLEAS



Fleas usually enter the home on dogs, cats, rats, and other animals. Flea larvae develop on organic matter, animal wastes, and debris in the soil, and in animal quarters and other areas frequented by pets. Before applying an insecticide on carpet, read the product label carefully for comments on potential staining. Vacuum carpets thoroughly prior to treatment, and dispose of vacuumings in sealed garbage container.

Pets need to be treated. It is best to consult a veterinarian regarding chemicals to use on pets, as some breeds are sensitive to pesticides.
Chemicals—Pyrethrins and Dursban may be used to treat lawns and dog quarters (outside only). Pyrethrins plus synergist can be used inside (see label for use), also sprays or bombs containing Resmethrin, Methoprene (Precor), or Dursban are effective. NOTE: For heavy flea infestations in the home or yard, it is suggested you employ a pest control operator.

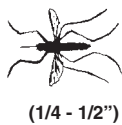
HOUSE FLIES



These flies can carry or spread disease organisms from material on which they feed, walk, or breed.

Practice good sanitation around the home. Remove all rotting material. For adults, aerosol bombs labeled for fly control are effective.
Chemicals (inside)—Pyrethrins 0.03 to 0.25% plus synergist; commercial fly baits, Diazinon 0.5% ready-to-use spray or aerosol, and Baygon 1% aerosol.

MOSQUITOES
(also gnats and midges)



Only females bite, and immature stages of mosquitoes cannot develop without water in which to live. Eliminating standing water outside will help reduce mosquito problems. Repellents containing DEET (e.g., OFF, Metadelphene, Delphene, Deepwoods, or Cutters) or ethyl hexanedial (Rutgers 612) are effective. NOTE: See OSU Extension Facts No. 7012 for more information on mosquito control.

For adults, spray screens and shrubs, and spray around doors. Use space sprays (aerosols) inside (e.g., those containing Resmethrins, Pyrethroids or synthetic Pyrethroids) or sprays labeled for mosquito, gnat, or midge control.
Chemicals (outside)—Diazinon as 5% aerosols or properly labeled Resmethrins or Pyrethroid products.

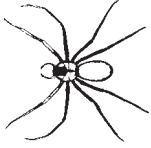
SCORPIONS



Scorpions are mainly active at night and hide during the day under boxes and boards or within walls of buildings. Increase in scorpion activity is often noted when there is a change of weather. The scorpions found in Oklahoma are not considered dangerously poisonous; however, if stung, one may want to consult a physician. NOTE: See OSU Extension Fact Sheet EPP-7303 for more information.

Chemicals (outside)—Clean up cluttered areas of accumulations of old lumber, boxes, rags, bricks, etc. (Diazinon, 3 oz of 25% EC per gal of water or Dursban 12.6% EC per label directions).
Chemicals (inside)—Clean up cluttered areas in closets, basements, attics, enclosed porches, etc. Treat baseboards, moldings, and cracks or crevices [aerosol or ready-to-use containing 0.5% Diazinon or 1% Baygon].
NOTE: If treatment is needed underneath the house or in the attic, you may want to employ a pest control operator.

SPIDERS



(1/2 - 1 1/2")

To date, the black widow and brown recluse spiders are the species whose bite is most dangerous to man.

However, the bite from other species of spiders may affect small children and hypersensitive individuals. Spiders are mainly beneficial in that they feed upon insects.

NOTE: Brown recluse or fiddleback spiders can be very difficult to control. For large infestations of this spider, you should consider having a pest control firm treat the home (especially the attic and crawl spaces).

Clean up trash and debris under and around the house and in cluttered areas in attics, closets and basements. Inside—spray around windows, baseboards, door facings, closets, around heat and air ducts, paying particular attention to cracks and crevices.

Chemicals—Diazinon 0.5% aerosol or ready-to-use spray or 8 oz of 25% EC in 3 gal of water, Diazinon dust, Baygon 1% aerosol or ready-to-use spray or Dursban 0.5% ready-to-use spray, aerosols containing Resmethrin.

TICKS



(1/2 - 1 3/4")

Treat pets' sleeping quarters, and replace old bedding with clean, untreated bedding. NOTE: "Seed Tick" is a term for the six-legged or larval stage of tick growth. Refer to OSU Extension Fact Sheet EPP-7001 for specific information on ticks.

Dogs need to be treated, and you may want to consult a veterinarian or purchase a material labeled for tick control on dogs (e.g., properly labeled Lindane, Sevin, or Malathion products). Also, you may need to treat the yard and surrounding area. For heavy infestations, you may want to employ a pest control operator for inside and outside tick control.

Chemicals (inside)—Diazinon 0.5% aerosol or ready-to-use spray can be applied to baseboards and other cracks and crevices for control of brown dog ticks. *Chemicals (outside)*—Diazinon (5 to 6 tbs of 25% EC in 1 gal of water), or chlorpyrifos (Dursban) 5% EC at 1 tbs per gal of water.

WASPS



(1/2 - 1 3/4")

Paper wasps emerge during first warm days of spring. They build their single comb, paper-like nests under leaves or in sheltered areas such as sheds, barns, or garages. NOTE: Researchers have reported that insect repellents have not been proven effective against paper wasps. Commercial yellowjacket traps may be helpful when put in place before picnics or outdoor activities. See OSU Extension Fact Sheet EPP-7305 for further information.

Apply chemical directly to nest at night. Remove nest when no activity is observed. For underground nests, apply chemical and close opening with dirt.

Chemicals—Use ready-to-use aerosols that are labeled for wasps or hornets (e.g., those with active ingredients such as Pyrethrins or Diazinon 0.5% ready-to-use spray or aerosol, Dursban aerosols, or Resmethrin spray. The aerosols labeled as wasp freeze or jet spray work well.

NOTE: Some cities in the state are detecting Diazinon in their waste water treatment plants. It is coming from the sanitary sewers. This could be due to improper disposal by homeowners pouring unused product down sinks and toilets. **Never** pour any pesticide down a drain or storm sewer. Proper disposal is important to you and to the environment.

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- It is administered by the land-grant university as designated by the state legislature through an Extension director.
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- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

The pesticide information presented in this publication was current with federal and state regulations at the time of printing. The user is responsible for determining that the intended use is consistent with the label of the product being used. Use pesticides safely. Read and follow label directions. The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

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