

- Only specific Department authorized pesticides are permitted. (Authorized pesticides are listed in the Department's IPM Program document available at your post).
- The pesticide must be appropriate for the pest and specific situation.
- The pesticide must be mixed with water and applied properly in strict accordance with the product label and Department procedures.
- You should be informed of the precautions that should be taken (e.g. advance preparations, removing pets, stowing of food preparation items, vacating the premises), what will need to be done upon reoccupancy (by whom), and what are the warning signs of a possible misapplication.

SOURCES OF HELP

Sources of help on pest control at post include the :

1. POSHO who is typically the FMS or GSO;
2. CLO;
3. Health Unit; and
4. Safety, Health and Environmental Management (SHEM) Committee which is chaired by the DCM.

Also, the Safety, Health and Environmental Management Program [A/FBO/OPS/SAF (SHEM)] is available to provide support as needed. Individuals should submit requests for assistance through the GSO or POSHO. **Concerns about a possible pesticide misapplication (e.g. unusual symptoms, a persistent strong odor) should be reported immediately to the POSHO and to SHEM at (703) 875-4137.**

Booklet prepared by SHEM. Comments are appreciated.

Pest Management In Your Home

**A Guide to Integrated Pest Management of
Common Household Pests for Overseas Families**

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Sources Of Help



for this problem because they are often not handled according to the same strict health standards as food for human consumption. For this reason, pet foods should always be stored elsewhere, preferably in a solid container with a tight-fitting lid. Types of foods that have been problematic in the past should be carefully inspected prior to purchase and frozen prior to storing with other food items.

To protect stored clothing from moth holes, clean the clothes thoroughly before storing since the moths target the food



stains or oil on the clothing. Paradichlorobenzene (PDB) crystals or flakes can be interspersed as the clothing is packed into sealable trunks, boxes, or clothing bags. Alternatively, but less desirable, naphthalene (moth balls) can be used. However, do not mix or use both PDB and naphthalene! Cedar closets and most cedar chests are not very effective!

Pet-Related Pests - Fleas and Ticks

Often flea and tick infestations involve a family pet. Pet owners are responsible for flea and tick control and should come to post prepared with a variety of products, some of which are only available from veterinarians. Pets can be treated directly with special shampoos, collars, a once-a-month pill such as Program™, or a once-a-month spot application such as Advantage™, etc. Program™ and Advantage™ are prescription veterinary products and your veterinarian will likely have appropriate advice about your pet. Even if the products are non-prescription, the safer and highly effective products are rather new in the U.S. and may not be available overseas. Also, don't forget a flea comb since regular pet grooming with one can expose and physically remove fleas and ticks.



Pest Control Basics

Pests that invade your home are attracted by something (generally food, moisture, a good place to live or hide, light, etc.) They are also entering the house somehow; for example, fleas and ticks transported on a pet dog, flies coming through a torn screen or open door, and wood-boring beetles in a new wooden sculpture. Eliminating either or both the attractant and the route of entry will deter a pest invasion.

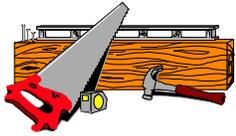


General maintenance of a home and good housekeeping will go a long way to deter pests (or at least make spotting them easier)! Understanding how pests are getting indoors, where they are living, and what's attracting them is extremely helpful for planning a counter offensive. The existing pests need to be attacked where they live or roam by strategically using "self-help" measures such as traps and bait stations. At the same time, the food and water attracting the pest needs to be eliminated or controlled and all likely points of entry into the home need to be blocked to bar newcomers.

Since certain pests tend to be problematic in given regions, your neighbors, Community Liaison Officer (CLO), or Post Occupational Safety and Health Officer (POSHO) may know quite a bit about the local pests that can help you plan an effective defense of your home. Everyone is encouraged to share pest challenges and successful battle plans. At post, the CLO is an ideal repository for this information.

Disclaimer: Mention of trade name products is for illustration purposes and doesn't necessarily constitute endorsement.

Maintenance Items



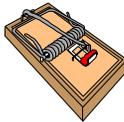
Tasks such as moving a wood pile and minor caulking should not be difficult for most occupants.



Others may require special skills

(e.g. a plumber), tools, extensive repairs (e.g. a new roof), or modification of a service contract (e.g. increased frequency of garbage pick-up). Maintenance items related to pest prevention should be handled as would any maintenance or repair request. Contact your GSO or landlord, as appropriate.

Self-Help Pest Control Products



Self-help products mentioned in this booklet are retail products that should be readily available. If you have difficulty locating appropriate products, contact your GSO or commissary. These products include items such as fly swatters, mouse traps, and household pesticides. These pesticides are intended for residents to use without highly specialized equipment or training, other than careful study of the product label. All self-help pesticides should be EPA-registered and designed for the pest and situation you are targeting. Be aware that products available overseas may be hazardous, adulterated, or could be designed for use by pest control professionals only (e.g. a *Restricted Use Pesticide*), and too dangerous to use yourself. Other countries may not have the controls in place to restrict dangerous materials from sale to the public. Remember that all pesticides are POISONS! Precautionary statements must be read, understood and followed! **As with all hazardous products, self-help products should be (used and) stored in a secure location away from the reach of children.**



Pests in Food and Clothing

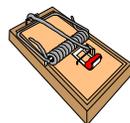
Occasionally, beetles, moths and their worm-like larvae may be discovered in stored food particularly in flour, cereal, crackers, raisins, beans, and dry pet food. Usually the infestation is fairly confined to the food storage area. The first step is to identify all the infested food items and, hopefully, the source of the infestation. The product may have been contaminated before it was bought. Inspect all stored foods and the storage areas for spills and signs of pest activity such as webs and holes in plastic bags. Don't overlook sealed containers! If a pest-contaminated item has been stored for several months, it's very likely that other foods stored nearby are also infested!

All infested foods should be discarded. If an item is possibly infested, it can be segregated from non-infested items and monitored or placed in the freezer. Freezing for a minimum of 24 hours will kill adults and eggs. Of course, the item should be carefully inspected prior to consuming.

All items in the storage area should be removed. The area should be thoroughly cleaned, first with a vacuum and then with detergent and hot water. Note the types of storage containers that were infested. Generally, glass or metal containers seem to be more effective at preventing infiltration.

Such problems may not go away overnight and repeating of the same steps may be necessary. If an infestation reappears within two weeks after the infested food was discarded, chances are some pests were overlooked and the search for infested items should resume. It is also possible that an item replacing a discarded infested item was also infested. If investigation shows that a certain product was the source of the infestation, other suppliers of this item should be sought. Dog food and bird seed are notorious

Traps, such as sticky or mechanical snap traps, can achieve control for minor problems in just a few days. Traps should be placed in accessible areas of activity and nearby dark corners and can be initially left unset to become familiar to the rodents.



It's best to use many traps, for example, 6 traps per area, plus 6 in the kitchen and 2 in the bathroom. Small amounts of peanut butter, candy (e.g. gumdrops) and bacon make attractive bait for the traps. If pets or small children are present, the traps can be placed inside cardboard bait stations. If a trap fails to catch anything after a week, consider relocating the trap. Traps should be checked on a daily basis, and the dead rodents removed promptly. Minimize contact with the carcasses by dropping them directly into a heavy plastic bag. Poison baits such as Maki™ or Talon™ in tamper-proof stations can also be used (contact GSO). Poisoned rodents must also be found and removed promptly particularly if household pets are present that might eat them. (The risk of pet poisoning from eating poisoned rodents is low, however, since multiple poisoned rodents would have to be consumed). Sometimes poisoned rats hide and after they die, unless they are found and disposed of, may produce a disagreeable odor.

Persistence is key with rodent control. The most common reasons why control efforts are unsuccessful are:

- poor bait acceptance;
- insufficient baiting/trapping relative to the size of the rodent population; and
- failure to sufficiently eliminate rodent food sources, nesting sites, and openings.

Common Household Pests

Cockroaches

Good sanitation both in terms of housekeeping (not leaving food scraps and crumbs in the home and thorough cleaning) and proper handling of household wastes is the best way to deter cockroaches. Roaches prefer warm, dark, out-of-sight areas where there's food and water such as beneath appliances, around plumbing leaks and in sewers. Although there are many varieties, roaches are typically flat, fast moving insects that are most active at night and hide during the day. Sizes vary from 1/2 to nearly 2 inches in length and coloring is tan to black. The cockroaches visible in the open are usually only a small fraction (approximately 10%) of the entire population.

If cockroaches are found you should:

- improve sanitation;
- increase frequency of vacuuming and use the crevice attachment to access under baseboards, appliances, and other cracks where roaches hide;
- eliminate moisture problems;
- caulk around pipes and other wall penetrations;
- refrain from eating in non-dining areas;
- clean cabinets thoroughly by vacuuming followed by hot water and detergent;
- reduce clutter;
- remove garbage before nightfall;
- inspect floor drains for empty traps; and
- replace missing drain baskets.



In addition, by following the instructions and placing roach bait stations (e.g. Combat™) in areas where roaches prefer to hide the bait will be most effective. Bait stations come in regular and large sizes to accommodate the variety of roaches. The roach population should decrease within two weeks.



- Use at least 6 bait stations or 4-6 bait trays per 100 square feet of room area - don't skimp!
- Place the bait stations where roaches have been seen or where they tend to hide including near floor drains and other exposed plumbing fixtures, near basement windows and doors, sewers, steam tunnels, and where food is prepared and stored.
- Place stations adjacent to walls and flush in corners.
- Replace trays every 3 months for continual control. As a reminder, record placement date on the stations. Follow disposal directions on the product label.

EPA-registered household crawling insect sprays can also be used but only for crack and crevice treatment. Crack and crevice applications are directed into the junction of walls and floors, between appliances and floors, etc. However, don't use pesticides around the bait stations or roaches will be repelled from the bait station. In severe cases, spray treatment with a residual pesticide such as Department-authorized Dursban Pro™ may be made upon request of the GSO office. Again, the application should be in cracks and crevices.



Mice and Rats

Besides sightings, telltale signs of rodents include droppings; gnawing damage; burrows; runways, tracks, and grease marks along the path between the nest and food source; urine stains; and rodent sounds and odors. These indicators show the severity of the infestation, the food or attractant, and the area(s) of the greatest activity. Understanding these indicators becomes the basis for a good control strategy. Control requires:

1. Barring rodents access into the residence,
2. Controlling food and harborage, as much as possible, and
3. Getting rid of the existing rodents.

Practicing measures 1 and 2 is also good prevention.

A rat can pass through an opening smaller than a dime; mice can pass through even smaller openings. Look indoors and out, including around utility lines and water lines, air conditioning ducts and in walls, floors and foundation. Seal any openings. Also, ensure that the gap between the floor and doors is less than 1/4 inch. Installing door sweeps can correct this.

Mice and rats will eat almost anything including pet droppings and, more appetizing bird seed, garbage and human food. Practice good sanitation (e.g. pick up and store waste in a central location, use garbage cans with tight-fitting lids, have garbage removed frequently) and food storage practices [e.g. store pet food off the floor in rodent-proof containers with good lids (plastic is effective against mice, but metal may be needed for rats)]. Nesting sites include piles of debris, lumber, bricks, firewood and bricks, weeds, and heavy ground covers particularly near the building. Nests should be removed or targeted for trapping.

Mosquitoes

Mosquitoes are managed similar to flies by maintaining intact window screens (mesh no larger than 18 per inch), using insecticide (permethrin or deltamethrin) impregnated bed nets, using contact aerosol sprays, and eliminating or treating standing water outdoors where mosquitoes breed.



Check property and adjacent areas regularly for breeding sites (stagnant water). Even small puddles in a can, dish, or flower pot can be a breeding site. Don't let water accumulate in containers such as barrels, cans, wading pools, etc. Flush out bird baths and wading pools at least once a week. Use Bactimos Briquets™ to kill mosquito larvae in water sources that can not be drained (contact GSO). Keep the grass trimmed short particularly around any water (this works against ticks as well).

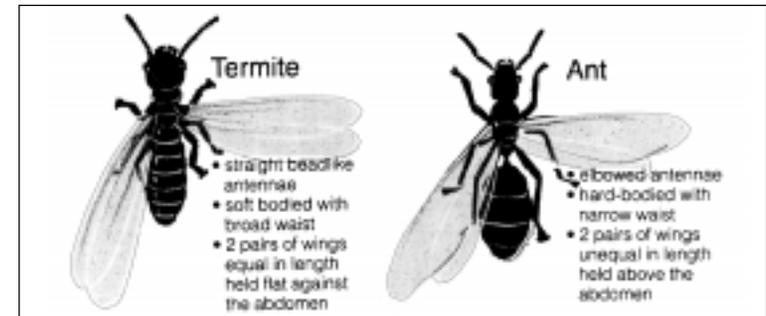


Space sprays (EPA registered for flying insects) can be used outdoors, for example prior to a barbecue. However, spraying should be done during cool periods (early morning or night) because mists are dispersed too quickly to be very effective under high temperatures. Space spraying should only be done when wind velocity is light (5 mph or less or up to 10 mph for mists) and applications should coincide with greatest mosquito activity. If numerous mosquitoes are congregating on exterior walls, a professional treatment of the wall surface can be performed with a residual spray Dursban Pro™. Contact GSO.

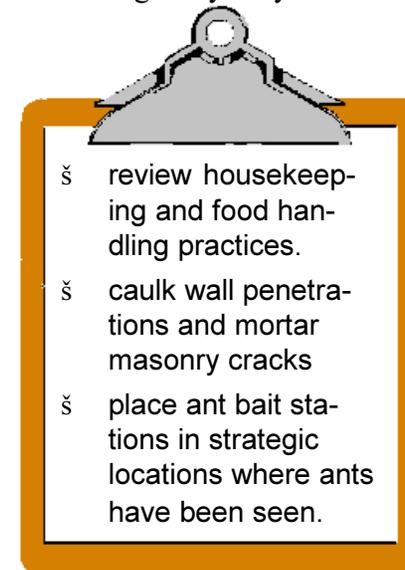
When venturing outdoors in mosquito-ridden areas, wear long pants and long-sleeved shirts, preferably sprayed with a permethrin-containing repellent such as Permanone™. Use of skin creams containing DEET is strongly recommended. Warning: Avoid wearing perfumes since some actually attract mosquitoes. The post Health Unit should be contacted for advice on bed nets, spray insecticide for clothing and skin creams.

Ants

Because there are numerous types of ants and reproductive forms of ants have wings, ant and termites can be confused. The two insects are contrasted below. If you suspect there are termites in your residence, contact your GSO.



Ants entering homes are in search of food to take back to the nest, which is typically outside. Promptly and thoroughly cleaning up crumbs and spilled liquids, especially cooking oils and greases, can help avoid ant infestations. Food containers should be kept covered and food counters should be cleaned regularly. If you find ants in your home:



- Use 3 bait stations (e.g. Maxforce™) in an average size room. More may be necessary for heavy infestations. Bait stations are safe for most locations.
- Place bait stations indoors immediately next to ant trails or close to areas where ants are numerous.

- Do not allow use of residual insecticide sprays (e.g., self-help sprays, or professional treatment with Durban Pro™) near the bait stations since these sprays repel ants and prevent the ants from ingesting the poison in the bait stations.

Good locations for bait stations include in or near wall voids, electrical outlets (if wiring permits), potted plants, waste baskets, garbage cans and sinks. Bait stations also can be attached to vertical surfaces, if desired (depending on locations of the ants.)

After bait stations are initially placed, ant activity may increase around the stations, but don't interfere with the ants since the intent is for them to take poison back to their nest and destroy the queen. If the infestation persists after two weeks, relocate the bait stations or use more. All bait stations should be replaced every 3 months. Follow disposal directions on the product label.

Although other pesticides can be effective against ants, they sometimes cause a colony to split which compounds the problem. So improved housekeeping and effective use of bait stations must be stressed.



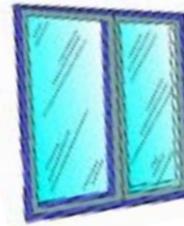
Silverfish and Other Crawling Insects

Silverfish feed on such things as wallpaper, book bindings, or residues in sink overflow drains. Although silverfish may be found in almost any part of the house, damp basements, kitchens and utility rooms are ideal habitats because of the moisture. Silverfish and other crawling insects such as scorpions can be controlled by eliminating moisture and hiding places and using an EPA-registered aerosol spray specifically for these target pests. A nozzle attachment resembling a cocktail straw on many such products helps to direct the spray into cracks and crevices where these pests retreat.



House Flies

Good sanitation should deter flies and good barriers such as windows screens and screen doors will keep most from getting indoors. The few that make it indoors can be killed with fly swatters, fly paper traps, or EPA-registered aerosols for knocking down flying insects on contact. Note that spray must contact the flies to be effective. If window screens are intact and doors are tight-fitting and kept closed, flies should not become a major problem!



Flies breed where garbage, grass clippings, manure, and other forms of decaying plant and animal matter accumulate. These must be controlled to discourage flies. Garbage cans should be covered with tight fitting lids and pet droppings should be disposed of promptly. Grass clippings can be spread as mulch or bagged and discarded. Garbage cans should be cleaned periodically and garbage should be removed from property at least twice a week. Any wet areas around garbage collection sites should be drained. If doors must be opened frequently or left open such as for deliveries, a curtain or automatic door closers could be installed.





Pest Management In Your Home

IPM Overview

In order to minimize the potential for exposure of residents to chemical pesticides, the U.S. Department of State practices *integrated pest management* or IPM which combines the following:

- Measures to prevent pest invasions,
- Methods to control pests while the pest population is small, and
- As a last resort, if the problem becomes severe and can't be controlled other ways, Department-authorized professionally applied pesticides for the specific pest.

IPM emphasizes non-chemical measures which are safest for occupants, effective, and don't lead to resistance from the pest! You, the resident, are on the front line to defend your home from the pest invasion and to protect yourself, your children, your pets, and your property from both pests and unnecessary exposure to pesticides! You play a critical role in IPM and are responsible for practicing pest prevalence reduction and self-help measures. With few exceptions, you also have the right to refuse application of a chemical pesticide in your home.

A variety of pests can invade almost any home. This booklet is intended to equip you with knowledge on how to avoid pest problems and to control pests promptly and effectively if they do invade. This guidance should be helpful regardless of where you live. The general approach to IPM and specific advice to follow on common household pests are described. Precautions are also recommended in the event that a professional pesticide application is necessary.



Houses infested with fleas can be effectively treated with sprays containing insecticides designed to kill adult fleas and an insect growth regulator (e.g. methoprene). These types of products should be effective for months! Outdoors grass, bushes and other



vegetation should also be kept trimmed in areas frequented by people and pets. If, despite exhaustive efforts, fleas and ticks are still a problem, look for other mammal intruders (e.g. rodents, raccoons) that could be importing these pests.

To protect against ticks, people should wear repellents such as Permanone™ clothing spray and DEET cream on the skin when venturing outdoors in tick-infested areas. Contact the Health Unit for advice.



When Professional Pest Control Services are Needed

When self-help efforts don't adequately control a pest problem, professional treatment may be the best course of action. An initial assessment should be conducted to determine where and how best to treat the infestation. Posts often hire local pest control professionals. Although they are typically contracted to apply commercial pesticides, they are experts in dealing with pests and they should be able to provide advice on non-chemical means of control. There are specific requirements pertaining to these types of treatments in the Department's IPM Program that post must follow. The GSO or POSHO should be knowledgeable of these requirements.

Remember, you can deny use of chemical pesticides in your residence! However, when chemical pesticides are to be used: