

1970 Insecticide Recommendations

EXTENSION DIVISION
VIRGINIA POLYTECHNIC INSTITUTE

INSECT PESTS OF RECREATION AREAS

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MOSQUITOES

If mosquitoes are a problem in the area, the first thing to do is FIND AND ELIMINATE THEIR BREEDING PLACES, WHERE POSSIBLE. Mosquito eggs cannot hatch unless they are in water. Look for standing water on the premises; eliminate it if possible and practical. Follow all steps necessary to prevent breeding of mosquitoes.

*TO KILL THE LARVAE:

BIOTHION (Abate): Apply biotion emulsion concentrate (1 gal. contains 4 lbs. of biotion) at the rate of 0.5 to 1.5 fluid ounces per acre (0.016 lbs. to 0.048 lbs. actual per acre) in sufficient water for good coverage. Apply as a light spray to the surface of ponds, marshes, swamps and tidal areas and to the ground around the edges of ponds and lakes that fluctuate in water level.

Repeat when necessary. Use the higher rate on areas known to have phosphate-resistant mosquitoes.

CAUTION: Do not treat areas where food or feed crops are grown.

Avoid contact with skin or eyes, avoid breathing vapor or spray mist, wash thoroughly after handling. In case of contact, flush skin or eyes with plenty of water. See the "Keys to Proper Use of Pesticides."

OR

MALATHION: Use a ready-prepared 2% malathion spray at the rate of 1 oz. to 100 sq. ft. of water surface, in the manner described for biotion spray.

CAUTION: Same as for biotion.

*TO KILL THE ADULTS OUTDOORS:

MALATHION: Use a ready-prepared 2% or 3% residual malathion oil solution household spray. Apply a coarse spray, using a power sprayer or a hand-operated, compressed-air type sprayer, to the foundations and under-parts of buildings, around buildings, or tents, between piled objects, and in similar places where mosquitoes hide during the day. (Spray to point of run-off.)

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

Do not spray an emulsion or oil solution on vegetation; it will burn the foliage.

Repeat the spray treatment in 1 week to 10 days, if needed.

SAFETY PRECAUTIONS: See "Keys to Proper Use of Pesticides."

***TO KILL ADULTS IN DWELLINGS, INCLUDING TENTS:**

MALATHION: Use a ready-prepared 2% or 3% residual malathion household spray in the manner described for malathion residual sprays, or apply a 2% or a 3% non-residual malathion space spray or aerosol according to label directions.

SAFETY PRECAUTIONS: Do not allow children or pets near the treated surfaces until the spray has dried. Do not breathe the fumes of aerosols or other space sprays. See "Keys to Proper Use of Pesticides."

REPELLENTS: Repellents for application to humans include diethyltoluamide (Deet, Off, and others), ethyl hexanediol, (6-12) dimethyl phthalate (DMP), and dimethyl carbate (Dimelone). These repellents are sold alone and in various combinations. They may be sprayed on the outer clothing or spread on exposed parts of the body. Care must be taken to keep them away from the eyes, nostrils, and lips. Some of these repellents may be injurious to plastics (such as plastic watch crystals), nail polish, and certain painted or varnished surfaces.

Repellents protect humans from mosquito bites for 1 to 5 hours; the time depends on the amount of sweating and rubbing of the skin, and the abundance of mosquitoes. It is important to cover evenly the area of skin that is to be protected; mosquitoes will quickly find and bite untreated spots. For this reason, many persons prefer the pressurized spray cans of repellent; they tend to give more uniform coverage but are slightly more expensive.

When picnicing, hunting, fishing, hiking, or camping, most people find that repellents are the best protection from mosquito bites.

SAFETY PRECAUTIONS: See "Keys to Proper Use of Pesticides."

HOUSE FLIES

SANITATION: House flies breed in places where garbage or other organic matter accumulates. Clean up these places. Use only garbage cans equipped with tight-fitting lids. Dispose of garbage and accumulations of organic matter everyday in summer. Promptly dispose of droppings of pets. Do not allow food to stand and attract flies.

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

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MALATHION: Use a ready-prepared 2% or 3% malathion household spray.

With an ordinary household spray gun, apply the spray around windows and doors and other surfaces frequented by flies. Repeat as often as needed to maintain control.

Malathion is available also in 2% to 5% aerosol bombs. Spray into air in areas where flies are present.

OR

DICHLORVOS (Vapona): This chemical is available as a 0.5% aerosol bomb. Apply in the manner described above for malathion.

Dichlorvos is available also in resin strips. Use these according to label directions.

SAFETY PRECAUTIONS: Be sure the container label states the insecticide is for flying insects. Do not allow children or pets near treated surfaces until the spray has dried. See "Keys to Proper Use of Pesticides."

ANTS

DIAZINON: Use a ready-prepared 0.5% diazinon household spray. Paint or spray baseboards, lower parts of window frames and around doors, supports, posts, pillars, pipes, and any surfaces which ants might use as runways into the buildings. Use an ordinary household spray gun. Apply spray into cracks in baseboards, walls, floors, and around sinks, bathtubs, toilets, electrical outlets, and kitchen cupboards.

A household dust form of diazinon is not available at this time, for this purpose.

OR

MALATHION: Use a ready-prepared 2% or 3% malathion household spray and, in out-of-sight areas, a ready-prepared 2% or 3% malathion dust. Apply the same way as for diazinon household sprays.

SAFETY PRECAUTIONS: Do not allow children or pets near treated surfaces until spray has dried. See "Keys to Proper Use of Pesticides."

FLEAS *

MALATHION: Use a ready-prepared 2% or 3% malathion household spray and, in out-of-sight areas, 4% or 5% ready-prepared malathion dust.

Fleas can be controlled in the building by a combination of good housekeeping and the use of insecticides. Thoroughly clean infested rooms with a vacuum cleaner. Clean carpets, rugs, upholstered furniture, and other items which might harbor flea eggs, larvae, or pupae. Then apply an insecticide.

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

With an ordinary household spray gun, apply the spray to floor and baseboards, to walls to a height of 1', and to cracks in the floor. Spray lightly the rugs, carpets, furniture, and places in the building or tent where pets sleep. Thoroughly dust rugs and carpets, and the sleeping quarters of pets.

Repeat the spray and dust treatment as needed.

CHIGGERS *

Chiggers, sometimes called red bugs, make up a family of mites. Many species are found in recreation areas. Two of these commonly attack man.

Chigger bites cause intense itching and small, reddish welts on the skin. You may notice these symptoms in the summer after walking in the woods or fields. The symptoms may be your own way of knowing that you have been in an infested place, because chiggers are so small that most persons cannot see them without a magnifying glass.

You can use a repellent to prevent attacks by chiggers if you go in an area known to be infested. If you get in an infested area without knowing it, you can reduce itching by bathing and by applying an antiseptic and a local anesthetic to the welts. You can get rid of an infestation by spraying or dusting the infested area with an insecticide.

NOTE: Information on this subject was abstracted from USDA Leaflet No. 403, CHIGGERS, HOW TO FIGHT THEM.

REPELLENTS: Before going into a place where chiggers may be present, protect yourself against them by using a repellent.

Several highly effective repellents are available. They do more than repel. Chiggers that attempt to crawl over clothing or skin areas treated with the materials are killed.

The following repellents are effective against chiggers--diethyltoluamide (Deet, Off, and others), dimethyl phthalate (DMP), dimethyl carbate (Dimelone), and ethyl hexanediol (6-12). They are also effective against mosquitoes and some other insects. Go to a drug store, hardware store, or any other store where insecticides are sold. Ask for any one of the repellents by name. You may be offered a product that contains two or more of the repellents. Such a product is acceptable. The repellents are effective individually or in combination.

Apply the repellent to clothing by rubbing it on, by applying it directly from the bottle, or by spraying it on. Rayon and some other manmade fabrics may be harmed by the repellent; nylon, cotton, and wool will not be harmed.

Apply the repellent lightly, with the fingers, to the arms or legs if they are not covered by clothing.

Treat socks or stockings after you put them on. Apply a ring of repellent just above your shoe tops. Treat all the way around the upper edges of the hose. Cotton and wool socks absorb repellent better than other materials and are preferred for wearing in chigger-infested places.

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

In treating other clothing, apply the repellent along the edges of all openings, inside and outside. Besides treating openings that are buttoned, zippered, or otherwise fastened, treat such openings as the following:

In trousers and slacks--cuffs and waistband.

In shirts and blouses--cuffs (or armholes) and neckband.

In skirts--hem and waistband.

In dresses--Neckline and skirt hem; cuffs, sleeve hems, or armholes.

To rub a repellent on clothing, pour about a dozen drops in the palm of one hand, rub the hands together, then rub lightly the parts of the clothing to be treated.

To apply it directly from the bottle, press the bottle opening against the clothing and move it over the parts to be treated.

To spray a repellent on clothing, use an ordinary hand sprayer--the kind used in homes for applying fly sprays.

Do not saturate the cloth with repellent. If a garment is moist with repellent along all openings--inside and outside--it has been adequately treated.

If the infested place is one in which the vegetation is low, if you intend merely to walk in it, and if you are wearing trousers or slacks, you need only apply repellent to the cuffs of the trousers or slacks and to socks or stockings.

SAFETY PRECAUTIONS: Do not treat underwear with a repellent. Treated underwear may irritate the skin.

Do not apply a repellent to stockings or other clothing that contains rayon. Repellents are damaging to some kinds of rayon and to some other manmade fibers; nylon is not damaged.

Do not let repellents touch painted surfaces or objects made of plastic materials, such as fountain pens, fishing rods, watch crystals, or frames of eyeglasses.

WOOD TICKS *

The term "wood ticks" is applied to several species of ticks so similar in appearance and habits that few persons can tell one from another.

Wood ticks feed on the blood of animals, and may bite people. Their bites are painful, and some of them carry diseases. They cause economic losses among farm animals and are serious pests of dogs.

The ticks infest wooded or bushy areas and grassy fields. They are often found in recreational areas and lawns, and are sometimes found in homes in small numbers. They are an annoyance and a health hazard to farmers, woodsmen, and military personnel; to campers, picnickers, vacationers, hunters, and hikers; and to persons who live in rural and suburban areas.

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

You can control wood ticks by applying insecticides. You can protect yourself by applying a repellent to your clothing before entering an infested area.

REPELLENTS: The mosquito repellents dimethyl phthalate and ethylhexanediol, applied as clothing impregnants, will provide some protection against wood ticks. If you wear socks, shirt, and trousers impregnated with one of these materials, you can expect about 75% protection from ticks.

Better protection can be obtained with another repellent, (Indalone, Dihydropyrone and Butopyronoxyl), but it is not widely available.

Use the selected repellent in a solution or an emulsion. A 5% solution or emulsion will provide an effective deposit on ordinary cotton, khaki, denim, or light wool clothing. About 3 pints of solution or emulsion will impregnate an outfit of socks, shirt, and trousers.

You can make a 5% solution by mixing a repellent with acetone or a dry-cleaning solvent at the rate of 1 oz. of repellent to 1 pint of acetone or solvent.

You can make a 5% emulsion by mixing 1 oz. of repellent with 1 pint of water and 2 oz. of an emulsifier such as Tween 80 or Triton X-100 or 1 oz. of laundry soap.

Dissolve the emulsifier or soap in the water and add the repellent slowly while stirring the mixture vigorously. (Synthetic household detergents are not suitable for making emulsions but most laundry soaps are satisfactory.)

Dip the clothing into the repellent mixture or pour the mixture over the clothing. Then wring out the clothing by hand. Let it dry thoroughly before wearing it. The repellent will remain effective for about a week unless the clothing gets wet. Wash and re-treat clothing at weekly intervals.

SAFETY PRECAUTIONS: Do not treat rayon and nylon fabrics with repellent solutions or emulsions. Nylon is nonabsorbent and will not retain enough repellent to be effective. Rayon may be damaged by the repellents.

Note: Information on this subject was abstracted from USDA Leaflet No. 387, WOOD TICKS, HOW TO CONTROL THEM.

SPRAYS OR DUSTS: To control ticks in buildings, including tents, mainly the brown dog tick, apply a residual spray. Both malathion and diazinon are label-approved for this purpose. (Dusts can be used, but they are harder to apply and are unsightly in exposed places.)

Household spray formulations come in different strengths and are ready to use when purchased.

Apply with a hand sprayer. Treat the areas around baseboards, door and window mouldings, under furniture, and around the edges of rugs and in all cracks.

For several days the residue left by the spray kills ticks that come in contact with it. One application is usually sufficient, but if ticks are numerous after the second or third week, repeat the treatment.

SAFETY PRECAUTIONS: Handle insecticides with care. Most of them are likely to poison people and animals if they are handled carelessly. See "Keys to Proper Use of Pesticides."

WASPS

Hornets, yellow jackets, Polistes, mud daubers, and the cicada killer--all are wasps: a group of beneficial insects that attack and destroy harmful insects found around homes and in gardens.

But wasps can attack people as well as insects. Hornets, yellow jackets, and Polistes may sting you if you go near their nests. Mud daubers and cicada killers usually will not sting unless you touch them or get them caught in your clothes.

If wasps build their nests too close to your house or in bushes where children play, you should destroy the nests.

When a wasp stings, it injects a venomous fluid under the skin. The venom causes painful swelling that may last several days. In some people, a wasp sting can result in severe illness or death.

If the victim has a history of hay fever or asthma or other allergy, call a doctor immediately. Occasionally, reactions may be severe or even fatal. An allergy specialist may advise hyposensitization for persons allergic to stings. If the victim has no allergy and has mild reaction to a wasp sting, follow instructions in a first-aid manual.

Aerosols containing pyrethrum and other insecticides approved for household purposes will give effective knock-down control of wasps in buildings and tents. Apply according to the manufacturer's directions.

SAFETY PRECAUTIONS: See "Keys to Proper Use of Pesticides."

SPIDERS

Most species of spiders in the United States are harmless to humans. They destroy many injurious household insects, and are therefore beneficial.

A dangerous species that must be controlled is the black widow spider. The female of this species is about 1/2 inch long and shiny black. The front and back parts of the body are globular; the legs are long and slender. It usually has a red, orange, or brownish yellow mark shaped like an hourglass on the underside, but sometimes this marking is of a different shape or is absent.

Black widow spiders seldom appear in main living quarters of homes, but often are found in basements, in basement window wells, beneath lawn benches or porches, and in garages, tool sheds, old lumber piles, trash piles, sand boxes, and outdoor toilets.

Remove loose brick, wood, tile, or trash from around the areas where spiders may live or hide. Use a stick or broom to knock down webs, spiders, and egg sacs; crush them underfoot.

MALATHION: In buildings and tents, use a ready-prepared 2% or 3% malathion household spray or a ready-prepared 4% or 5% malathion dust in the manner described on the label.

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

CAUTION: Do not spray spiders over head. A spider hit by the spray may drop straight down and still be capable of biting for some time.

SAFETY PRECAUTIONS: See "Keys to Proper Use of Pesticides."

NO-SEE-UMS, PUNKIES, SAND FLIES, BLACK FLIES, AND DEER FLIES

These insects are very annoying to vacationers in recreation areas. They usually bite in early morning and early evening. They are attracted to lights and may become a nuisance in buildings and tents in camping and fishing areas.

Use repellents discussed under MOSQUITOES, in this publication.

* Insecticides other than those recommended here, have label approval for use in control of this pest; use them according to label directions.

Trade and brand names are used only for the purpose of information and the Virginia Cooperative Extension Service does not guarantee nor warrant the standard of the product, nor does it imply approval of the product to the exclusion of others which may also be suitable.

KEYS TO PROPER USE OF PESTICIDES

1. Read the label on each pesticide container before each use. Follow instructions to the letter; heed all cautions and warnings, and note precautions about residues.
2. Keep pesticides in the containers in which you bought them. Put them where children or animals cannot get to them, preferably under lock and away from food, feed, seed, or other material that may become harmful if contaminated.
3. Dispose of empty containers in the manner specified on the label. If disposal instructions are not printed on the label, burn the containers where smoke will not be a hazard, or bury them at least 18" deep in a place where water supplies will not be contaminated.

SEE YOUR DOCTOR IF SYMPTOMS OF ILLNESS OCCUR DURING OR AFTER USE OF PESTICIDES.