http://www.epa.gov/pesticides/health/mosquitoes/mosquito.htm
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Pesticides: Mosquito Control

Methods of Mosquito Control

Este Web page está disponible en español

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Controlling mosquitoes, and exposure to diseases they may carry, can be done by chemical and non-chemical methods. Your first line of defense begins at home.

On this page:

Questions on Pesticides?

- Centro Nacional de Información sobre Pesticidas: (NPIC, según/por sus siglas en inglés) 1-800-858-7378 1-800-858-7378 EXIT Disclaimer

Resources

- How to Use Insect Repellents Safely
- Outdoor residential misting systems
- Ask a question

What you can do to control mosquitoes around the home

1. Remove their habitat (where they live and breed)
   - Eliminate standing water in rain gutters, old tires, buckets, plastic covers, toys, or any other container where mosquitoes can breed.
   - Empty and change the water in bird baths, fountains, wading pools, rain barrels, and potted plant trays at least once a week to destroy potential mosquito habitats.
   - Drain or fill temporary pools of water with dirt.
   - Keep swimming pool water treated and circulating.

2. Prevent your exposure to mosquitoes
   - Use EPA-registered mosquito repellents when necessary and follow label directions and precautions closely.
   - Use head nets, long sleeves and long pants if you venture into areas with high mosquito populations, such as salt marshes.
   - If there is a mosquito-borne disease warning in effect, stay inside during the evening when mosquitoes are active.
   - Make sure window and door screens are "bug tight."
   - Replace your outdoor lights with yellow "bug" lights which tend to attract less mosquitoes than ordinary lights. The yellow lights are NOT repellents, however.

Neighborhoods are occasionally sprayed to prevent disease and nuisance caused by large mosquito numbers. If you have any questions about mosquitoes and their control, contact your local mosquito control district or health department.

Methods used by federal, state and local agencies in mosquito control.

Surveillance as First Step in Mosquito Control

The first step in mosquito control is surveillance. State or local mosquito specialists conduct surveillance for diseases harbored by domestic and nonnative birds, including sentinel chickens (used as virus transmission indicators), and mosquitoes. State and local mosquito control authorities also conduct surveillance for larval habitats by using maps and aerial photographs, and by evaluating larval populations. Other techniques include various light traps, biting counts, and

analysis of reports from the public.

Mosquito control programs also put high priority on trying to prevent a large population of adult mosquitoes from developing so that additional controls may not be necessary. Since mosquitoes must have water to breed, methods of prevention may include:

- controlling water levels in lakes, marshes, ditches, or other mosquito breeding sites;
- eliminating small breeding sites if possible;
- stocking bodies of water with fish species that feed on larvae.

Both chemical and biological measures may be employed to kill immature mosquitoes during larval stages.

Chemical or Biological Measures to Control Mosquitoes

Controlling mosquitoes at the larval stage

Larvicides target larvae in the breeding habitat before they can mature into adult mosquitoes and disperse. Larvicides include:

Bacterial Insecticides

- Bacillus thuringiensis israelensis
- Bacillus sphaericus

Insect Growth Inhibitor

- Methoprene

Organophosphate Insecticide

- Temephos

Other Materials

- Mineral oils
- Monomolecular films

Oils and films disperse as a thin layer on the surface of the water which cause larvae and pupae to drown. Liquid larvicide products are applied directly to water using backpack sprayers and truck or aircraft-mounted sprayers. Tablet, pellet, granular, and briquet formulations of larvicides are also applied by mosquito controllers to breeding areas.

Controlling Adult Mosquitoes

Adult mosquito control may be undertaken to combat an outbreak of mosquito-borne disease or a very heavy nuisance infestation of mosquitoes in a community. Pesticides registered for this use are known as adulticides and are applied either by aircraft or on the ground employing truck-mounted sprayers. State and local agencies commonly use the organophosphate insecticides malathion and naled and the synthetic pyrethroid insecticides permethrin, resmethrin, and sumithrin for adult mosquito control.

Mosquito adulticides are applied as ultra-low volume (ULV) sprays. ULV sprayers dispense very fine aerosol droplets that stay aloft and kill flying mosquitoes on contact. ULV applications involve small quantities of pesticide active ingredient in relation to the

size of the area treated, typically less than 3 ounces per acre, which minimizes exposure and risks to people and the environment.

Adulticides can be used for public health mosquito control programs without posing unreasonable risks to the general population or to the environment when applied according to the pesticide label. For more information on pesticides commonly-used in public health mosquito control programs, see the specific fact sheets mentioned below.

- Malathion for Mosquito Control
- Larvicides for Mosquito Control
- Naled for Mosquito Control
- Permethrin, Resmethrin, Sumithrin (Synthetic Pyrethroids) for Mosquito Control

Where to Get More Information About Mosquito Control

For more information about mosquito control in your area, contact your state or local health department. Other resources for information on public health, disease control, and mosquito control include the following:

Centers for Disease Control and Prevention (CDC)
Tel: 970-221-6400
Fax: 970-221-6476
E-mail: dvbid@cdc.gov
Web site: http://www.cdc.gov EXIT Disclaimer

National Pesticide Information Center (NPIC)
Tel: 1-800-858-7378
E-mail: npic@ace.orst.edu
Web site: http://npic.orst.edu/ EXIT Disclaimer
West Nile Virus Resource Guide: http://npic.orst.edu/wnv/ EXIT Disclaimer

American Mosquito Control Association (AMCA)
Joseph M. Conlon, Technical Advisor
Tel/Fax: (904) 215-3008
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