

# The Ultimate Buzz Kill

## Mosquito Control



### Biology Lesson

1. All mosquitoes pass through 4 life stages: egg, larva, pupa, and adult.
2. Mosquitoes lay groups of eggs on the surface of water or at the base of vegetation where it floods periodically.
3. Once the eggs hatch the larval stage begins. Larvae or “wigglers” can be seen when they come to the surface of water to breathe. They feed on microorganisms in the water and grow rapidly during warm weather.
4. Pupae are full grown larvae and are often called tumblers due to the way they tumble end over end through the water. They transform into adults after a few days.
5. Adult female mosquitoes are blood feeders and may live for more than a month. They rely on cues such as heat, movement, exhaled carbon dioxide, and body scent to find potential hosts. Adult males do not bite. They live 1 to 2 weeks and feed on nectar and plant juices.

### Integrated Pest Management

#### *Breeding Site Reduction*

Since mosquitoes must live in water for several days, eliminate any standing water near residences.

- ✓ Get rid of old tires, tin cans, buckets, drums, bottles or any water-holding containers.
- ✓ Keep drains, ditches, and culverts free of weeds and trash so the water can drain properly.
- ✓ Change water in birdbaths and plant pots or drip trays at least once a week.
- ✓ Keep grass and shrubbery well trimmed around the house so adult mosquitoes will not hide there.
- ✓ Make sure ornamental ponds have fish that will feed on mosquito larvae.
- ✓ Unused swimming pools should be drained and kept dry during the mosquito season.

#### *Larval Control*

Using mosquito larvicide may be beneficial when it is impractical to eliminate a breeding site. A larvicide controls immature mosquitoes before they can develop into biting adults.

#### **Registered larvicides for application to mosquito breeding sites:**

**[Follow the Label]**

<b>Active Ingredient</b>	<b>Example Trade Name</b>	<b>Remarks</b>
Bacillus thuringiensis israelensis (Bti)	Mosquito Dunks Mosquito Quick Kill Granules	NOT harmful to fish, waterfowl, pets or humans when used according to the label
Methoprene	PreStrike Granules	

#### *Adult Control*

To reduce levels of biting mosquitoes, insecticides can be applied to the lower limbs of shade trees, shrubs, and other shaded areas, such as under decks and along foundations. Aerosols or hose-end sprayers are convenient for such applications. Always read and follow label directions before using any pesticide. Some homeowners may wish to enlist the services of a professional for this service.

**Some insecticides for adult mosquito control on lawns and vegetation:****[Follow the Label]**

Active Ingredient	Example Trade Name	Remarks
Cyfluthrin	Bayer Advanced PowerForce Mosquito Killer	Available in Ready To Use or Concentrate – connects to garden hose
Lambda-cyhalothrin	Spectracide Triazicide	
Permethrin	Ortho Mosquito B Gone Spectracide Mosquito Stop	

**Exclusion**

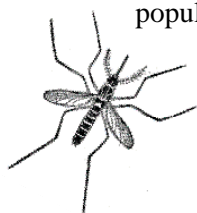
Mosquitoes can be kept out of the home by keeping windows, doors, and porches tightly sealed and insect screens in good repair. Mosquitoes that do enter the home can be eliminated by use of a fly swatter, aerosol foggers and other indoor insecticides.

**Personal Protection from Bites**

Staying indoors at dusk and during evening hours will lessen the chance of being bitten. Long-sleeved shirts and pants will provide protection when outdoors, but bites can still occur through thin clothing and to exposed skin. The most effective repellents contain the active ingredient diethyl toluamide (DEET). Non-DEET repellants (example: Avon Skin-So-Soft with citronella oil) might provide some relief but usually to a lesser degree and for a shorter duration. Make sure to apply repellent to outer clothing as well as on skin to protect yourself from bites.

**Ineffective Control Options**

Many consumer products that claim to attract, repel or kill mosquitoes do not significantly reduce mosquito populations or the incidence of bites, such as:



- Electrocuting devices or “Bug zappers”
- Mosquito traps that use carbon dioxide, warmth, light, and various chemicals as attractants
- Portable electronic devices that use high-frequency ultrasonic sound
- Citronella scented candles

**Mosquitoes and Disease**

The blood feeding habits of adult mosquitoes can occasionally result in life-threatening diseases. The most common mosquito-borne illness is West Nile virus in humans and horses.

Mosquitoes also feed on the blood of animals, including our pets. Dogs are susceptible to canine heartworm, a nematode that can be transmitted by certain mosquitoes. Infected animals may develop severe circulatory problems and display symptoms such as coughing, labored breathing, and loss of vitality. A preventive drug treatment is available through your veterinarian.

**Helpful Websites and Links**

- <http://npic.orst.edu/pest/mosquito.index.html>
- <http://www.health.state.nm.us/>
- <http://www2.ca.uky.edu/entomology/entfacts/ef005.asp>
- <http://www.mosquito.org/control>
- <https://www.michigan.gov/emergingdiseases>