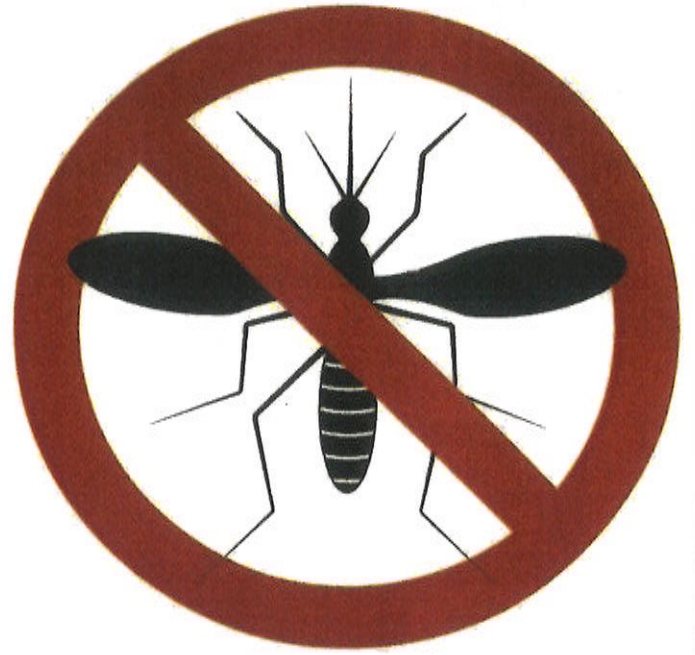


**FIGHT
THE BITE**



**ALL YOU NEED
TO KNOW ABOUT
MOSQUITOS IN
ONE PLACE**

Mercer County Conservation District Mosquito Control Program in Conjunction with
the Pennsylvania Department of Environmental Protection

For More Information Visit:

<https://www.dep.pa.gov/Business/ProgramIntegration/Pages/VectorManagement.aspx>

What State and Local Mosquito Control Programs Do

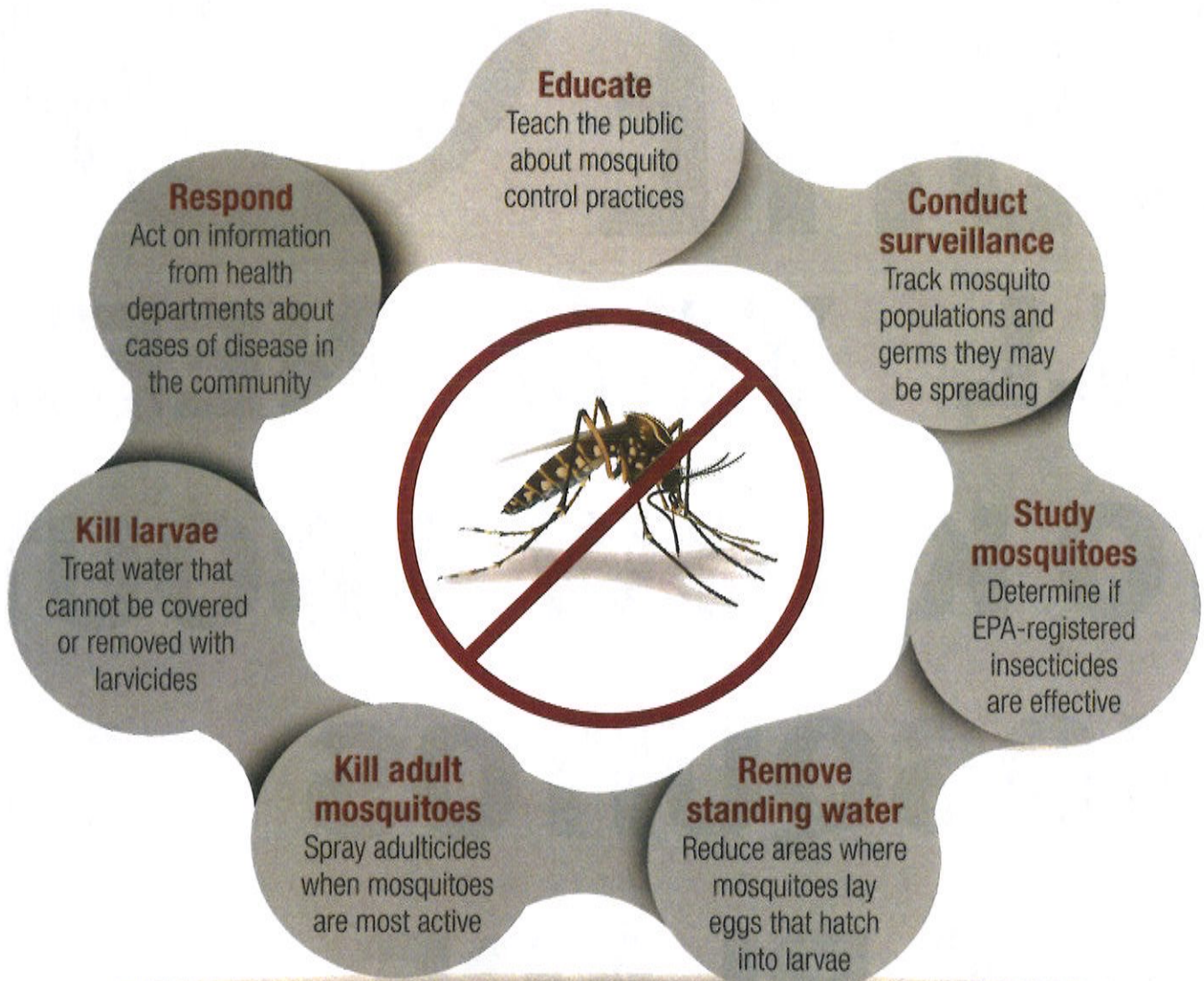


Why is local mosquito control important?

Some mosquitoes can spread germs. Other mosquitoes bother people, but don't spread germs. Mosquito control activities reduce all types of mosquitoes.

Who conducts mosquito control?

Mosquito control districts or state and local government departments work to control mosquitoes.



Mosquito Control: You Have Options.

Learn more: www.cdc.gov/mosquitoes



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

MOSQUITO BITE PREVENTION

HOW TO PROTECT AGAINST MOSQUITO BITES



Mosquitoes bite during the day and night. They live indoors and outdoors. Protect your family from mosquito bites. Use insect repellent, wear long-sleeved shirts and pants, and take steps to control mosquitoes indoors and outdoors.

Use insect repellent

- Use Environmental Protection Agency (EPA)-registered insect repellents with one of the following active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone.
- Always follow product label instructions.
- Reapply insect repellent as directed.
 - » Do not spray repellent on the skin under clothing.
 - » If you are also using sunscreen, apply sunscreen first and insect repellent second.
- The effectiveness of non-EPA registered insect repellents, including some natural repellents, is not known.



Wear long-sleeved shirts, pants Treat clothes and gear

- Wear long-sleeved shirts and pants.
- Treat items such as boots, pants, socks, and tents with permethrin or buy permethrin-treated clothing and gear.
 - » Permethrin is an insecticide that kills or repels mosquitoes.
 - » Permethrin-treated clothing will protect you after multiple washings. See product information to find out how long the protection will last.
 - » If treating items yourself, follow the product instructions.
- Do not use permethrin products directly on skin.



EPA-registered active ingredients

Higher percentages of active ingredient provide longer protection

DEET

Picaridin (known as KBR and icaridin outside the US)

IR3535

Oil of lemon eucalyptus (OLE)

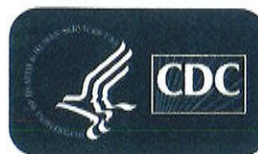
Para-menthane-diol (PMD)

2-undecanone



Find the insect repellent that's right for you by using [EPA's search tool](#).

The EPA's search tool is available at: www.epa.gov/insect-repellents/find-insect-repellent-right-you

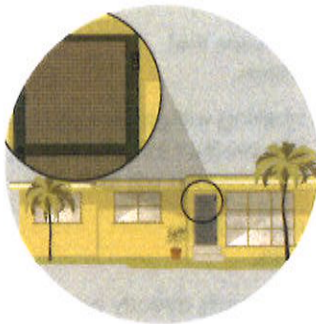


U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

MOSQUITO BITE PREVENTION

Protect babies and children

- Always follow instructions when applying insect repellent to children.
- Do not use insect repellent on babies younger than 2 months old.
 - » Instead dress your child in clothing that covers arms and legs.
 - » Cover strollers and baby carriers with mosquito netting.
- Do not use products containing oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD) on children younger than 3 years old.
- Do not apply insect repellent onto a child's hands, eyes, mouth, cuts or irritated skin.
 - » Adults: spray insect repellent onto your hands and then apply to a child's face.



Control mosquitoes indoors

- Keep windows and doors shut and use air conditioning if possible.
- Use, install, or repair window and door screens.
- **Once a week**, empty or throw out any items that hold water like vases and flowerpot saucers.
- Use an indoor insect fogger or indoor insect spray to kill mosquitoes and treat areas where they rest. These products work immediately, but may need to be reapplied. Always follow label instructions.

Control mosquitoes outdoors

- **Once a week**, empty or throw out any items that hold water like vases and flowerpot saucers.
- Tightly cover water storage containers (buckets, rain barrels, etc.)
- For containers without lids, use mesh with holes smaller than an adult mosquito.
- Use larvicides to treat large containers of water that will not be used for drinking and cannot be covered or dumped out.
- Use an outdoor insect spray in dark humid areas where mosquitoes rest, like under patio furniture or in the carpet or garage. Always follow label instructions.
- If you have a septic tank, repair cracks or gaps. Cover vent or plumbing pipe openings using mesh with holes smaller than an adult mosquito.



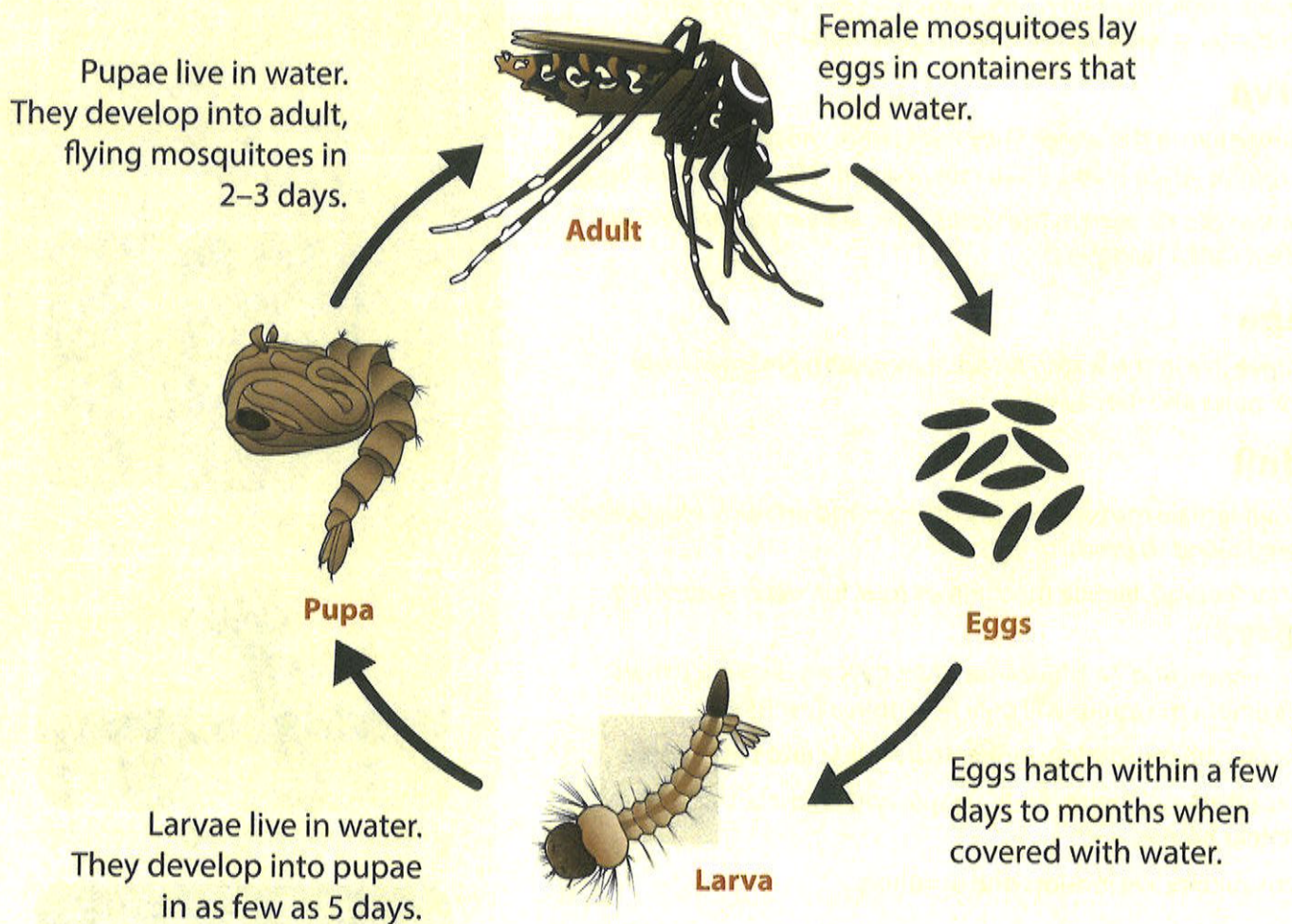
Learn more: www.cdc.gov/mosquitoes

Mosquito Life Cycle



Aedes aegypti and *Ae. albopictus*

It takes about 7–10 days for an egg to develop into an adult mosquito.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Life stages of *Ae. aegypti* and *Ae. albopictus* mosquitoes

Eggs

- Adult, female mosquitoes lay eggs on the inner walls of containers with water above the waterline.
- Eggs stick to container walls like glue. They can survive drying out for up to 8 months. Mosquito eggs can even survive a winter in the southern United States.
- Mosquitoes only need a small amount of water to lay eggs. Bowls, cups, fountains, tires, barrels, vases, and any other container storing water make a great "nursery."

Larva

- Larvae live in the water. They hatch from mosquito eggs. This happens when water (from rain or a sprinkler) covers the eggs.
- Larvae can be seen in the water. They are very active and are often called "wigglers."

Pupa

- Pupae live in the water. An adult mosquito emerges from the pupa and flies away.

Adult

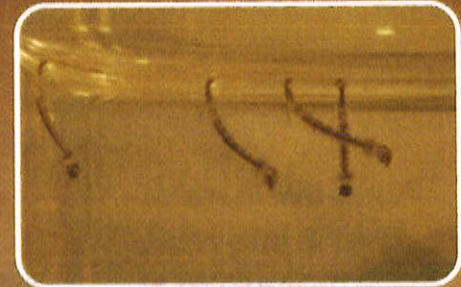
- Adult female mosquitoes bite people and animals. Mosquitoes need blood to produce eggs.
- After feeding, female mosquitoes look for water sources to lay eggs.
- *Ae. aegypti* and *Ae. albopictus* don't fly long distances. In its lifetime, a mosquito will only fly within a few blocks.
- *Ae. aegypti* mosquitoes prefer to live near and bite people.
- Because *Ae. albopictus* bite people and animals, they can live in or near homes.
- Mosquitoes live indoors and outdoors.

For more information on diseases spread by mosquitoes:

- www.cdc.gov/chikungunya
- www.cdc.gov/dengue
- www.cdc.gov/Zika



Eggs look like black dirt.



Larvae in the water.



Pupae in the water.



An adult mosquito emerges from a pupa.



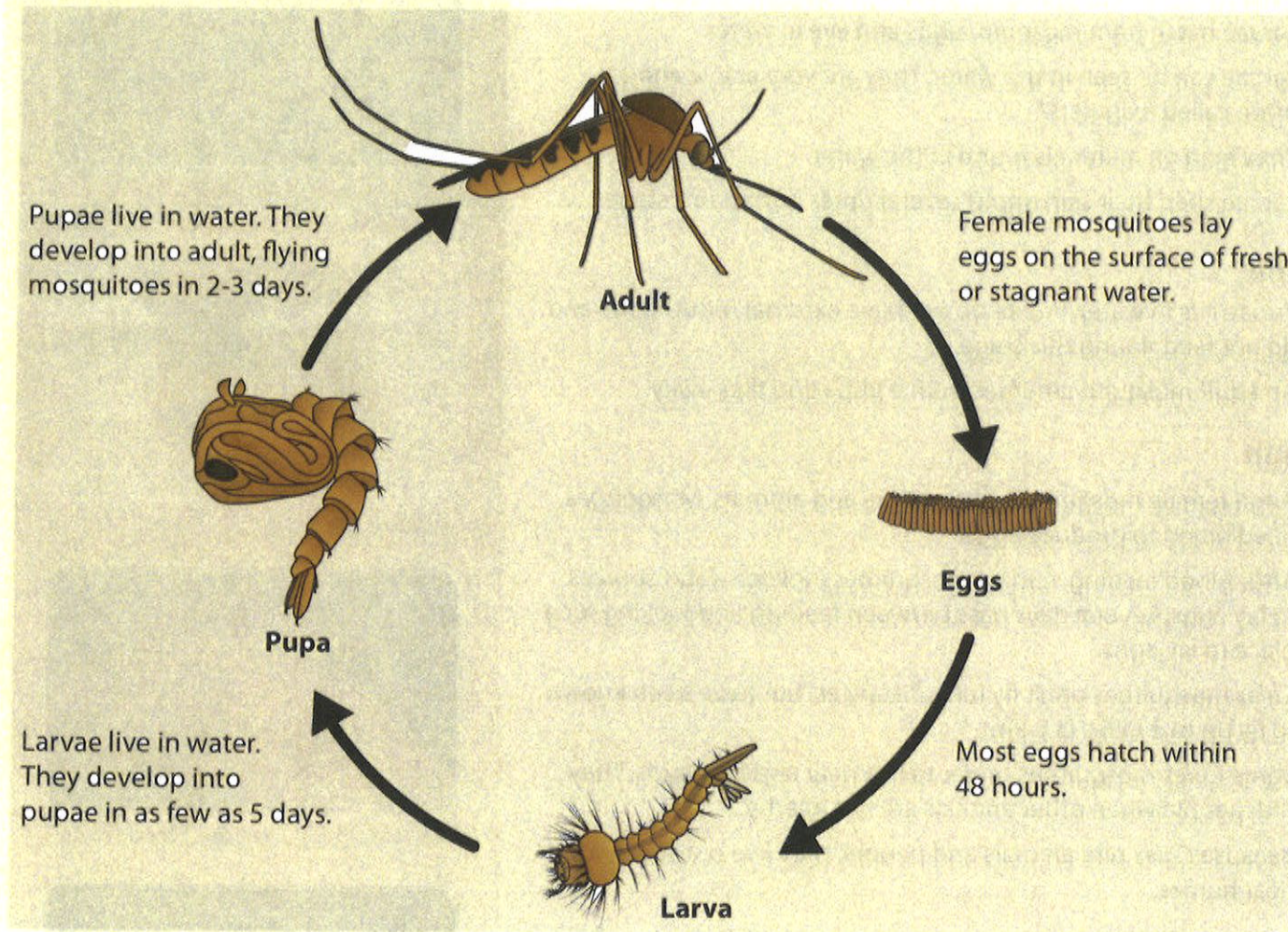
An adult mosquito bites a person.

Mosquito Life Cycle



Culex pipiens, *Cx. quinquefasciatus*, and *Cx. tarsalis*

It takes about 7–10 days for an egg to develop into an adult mosquito.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Life stages of *Culex* species mosquitoes

Eggs

- Adult, female mosquitoes lay eggs on the surface of fresh or stagnant water. Water sources can include barrels, horse troughs, ornamental ponds, unmaintained swimming pools, puddles, creeks, ditches, and marshy areas.
- A female *Culex* mosquito lays eggs one at a time. Eggs stick together to form a raft of 100 to 300 eggs. The raft floats on the water.

Larva

- Larvae hatch from mosquito eggs and live in water.
- Larvae can be seen in the water. They are very active and are often called "wigglers."
- They feed on materials found in the water.
- Larvae shed their skin (molt) several times during this stage.

Pupa

- Pupae live in water. Pupae do not have external mouthparts and do not feed during this stage.
- An adult mosquito emerges from a pupa and flies away.

Adult

- Adult female mosquitoes bite people and animals. Mosquitoes need blood to produce eggs.
- After blood feeding, female mosquitoes look for water sources to lay eggs. Several days pass between feeding and looking for a place to lay eggs.
- *Culex* mosquitoes don't fly long distances, but have been known to fly up to 2 miles (3.2 km).
- Some *Culex* mosquitoes prefer to live near and bite birds. They bite people when other animals are not nearby.
- Because *Culex* bite animals and people, they live outdoors or near homes.

For more information on diseases spread by mosquitoes:

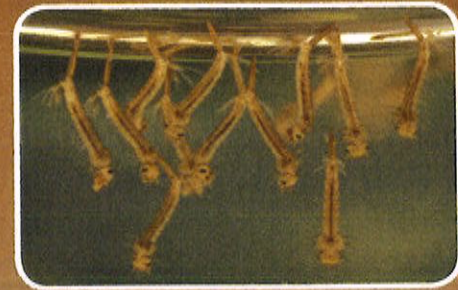
- www.cdc.gov/westnile
- www.cdc.gov/easternequineencephalitis
- www.cdc.gov/sle

For more information on mosquitoes:

- www.cdc.gov/mosquitoes



Eggs stick together to form a raft.



Larvae in the water.



Pupae in the water.



Female mosquito **before** a blood meal.



Female mosquito **after** a blood meal.

MOSQUITO CONTROL DURING AN OUTBREAK






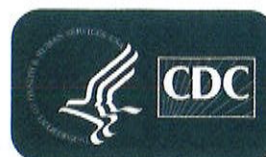
Why it's Important to Kill Mosquitoes NOW



When infected adult mosquitoes are spreading a virus to people, acting quickly can stop further spread and prevent more people from getting sick. By using multiple mosquito control methods at the same time, people and communities can help stop an outbreak.

Local government departments and mosquito control districts take the lead for large-scale mosquito control activities to immediately kill infected mosquitoes. You can also take steps to help protect yourself, your family, and your community.

MOSQUITO CONTROL ACTIVITY	WHY ACTIVITY IS IMPORTANT	WHAT LOCAL GOVERNMENT DEPARTMENTS OR MOSQUITO CONTROL DISTRICTS CAN DO	WHAT YOU AND PEST CONTROL PROFESSIONALS CAN DO
 <p>Use a product that kills adult mosquitoes.</p>	<p>Adulticides are the only way to immediately kill infected adult mosquitoes and stop the spread of viruses.</p>	<p>Depending on the size of the area, use backpack sprayers, trucks, or airplanes to apply adulticides.</p>	<p>Apply adulticides according to label instructions to kill mosquitoes inside and outside homes.</p>
 <p>Prevent mosquitoes from laying eggs and eggs from hatching</p>	<p>Mosquitoes lay eggs in or near water. Eggs can develop into adults in about a week.</p>	<p>Collect and dispose of abandoned tires and roadside trash. Clean up and maintain public spaces like parks and greenways.</p>	<p>Once a week, empty and scrub, turn over, cover, or throw away items that hold water like tires, buckets, planters, toys, pools, birdbaths, flower pot saucers, and trash containers.</p>
 <p>Use larvicides to stop young mosquitoes from becoming adults</p>	<p>Larvicides kill young mosquitoes in water that will not be used for drinking and cannot be dumped.</p>	<p>Treat standing water or storage containers in public places. Treat standing water on private property as part of a neighborhood cleanup or mosquito control campaign.</p>	<p>Apply larvicides according to label instructions to fountains, septic tanks, and pool covers that hold water. Do not treat water that will be used for drinking.</p>



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Mosquito Control:

What You Need to Know About Larvicides



Larvicides are a type of insecticide used to control mosquitoes indoors and outdoors around your home. They work by killing mosquito larvae and pupae before they can grow into biting adults. When used according to product label instructions, larvicides do not harm people, pets, or the environment.

Select a larvicide

Larvicides come in many forms:

- Liquids
- Granules
- Tablets
- Briquettes
- Pellets
- Bits

Apply larvicides where mosquitoes lay eggs

Use larvicides where mosquitoes lay eggs to help reduce the number of mosquitoes in an area.

Mosquitoes lay eggs in items that hold water:

- Buckets and rain barrels
- Fountains
- Gutters or downspouts
- Non-chlorinated swimming pools
- Pool covers that collect water
- Tires
- Tree holes

Treat standing water

Use larvicides to treat standing water that:

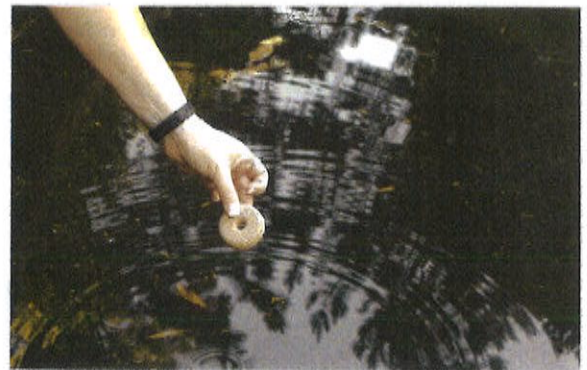
- Will not be used for drinking
- Cannot be covered, dumped or removed

When using larvicides

Follow the instructions on the label. Do not apply more than directed or reapply more often than instructed.

Prefer to hire a pest control professional?

Hire a pest control professional to treat your yard and outdoor areas. The National Pest Management Association offers tips on [finding a pest control professional](#).



A dunk is placed in a fountain to kill young mosquitoes.

Information on insecticides and health:

- ♦ The Environmental Protection Agency oversees the registration of insecticides.
- ♦ The [National Pesticide Information Center \(NPIC\)](#) provides information online or through a toll-free number, 1-800-858-7378.

Mosquito Control: You Have Options.

Learn more: www.cdc.gov/mosquitoes



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Mosquito Control: What You Need to Know About Adulticides



An adulticide is a type of insecticide used to kill adult mosquitoes. Adulticides may be applied by a mosquito control program, a licensed pest control professional, or as a do-it-yourself application. Adulticides can be used outdoors. Some adulticides kill adult mosquitoes immediately and some continue to kill mosquitoes over longer periods of time. When used according to product label instructions, adulticides do not harm people, pets, or the environment.

Select an adulticide

Mosquito adulticides come in different forms:

- Coils
- Foggers
- Sprays or aerosols

Apply adulticides where mosquitoes rest

Outdoors, mosquitoes rest under plants, in dense brush or tall grasses, and the undersides of leaves on trees and bushes. They can also rest under the eaves on buildings, under decks and porches, and in moist, shady areas.



An adulticide is sprayed to kill adult mosquitoes.

When using adulticides

- Always follow the product label instructions.
- Do not apply more product than recommended or reapply more often than stated on product label instructions.
- Do not apply outside directly to fruits and vegetables in your garden or inside near food.
- Do not apply to plants in bloom or to plants that bees, butterflies, and other pollinators visit.
- Keep people and pets out of the area you treat until the product has dried, usually about an hour. Remember to follow label instructions.

Information on insecticides and health:

- ♦ The Environmental Protection Agency oversees the registration of insecticides.
- ♦ The [National Pesticide Information Center \(NPIC\)](#) provides information online or through a toll-free number, 1-800-858-7378.

Prefer to hire a pest control professional?

Hire a pest control professional to treat your yard and outdoor areas. The National Pest Management Association offers tips on [finding a pest control professional](#).

Mosquito Control: You Have Options.

Learn more: www.cdc.gov/mosquitoes



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Mosquito Control:

What You Need to Know About Truck Spraying



Mosquito control districts or local government departments track both nuisance mosquitoes and mosquitoes that can spread viruses. Spraying larvicides and adulticides from a truck, according to label instructions, is one way to kill mosquito larvae or adult mosquitoes in an area. This is especially important when people in the community are getting sick from mosquito bites.

Truck spraying is used to:

- Control and reduce the number of mosquitoes that can spread viruses.
- Reduce your chances of getting infected with viruses.

What are mosquito control trucks spraying?

Mosquito control trucks may spray adulticide or larvicide. Very small amounts of adulticide are sprayed into the air to kill flying mosquitoes (adults). Larvicide is applied directly to the water where mosquitoes have been detected. This type of application is also useful to kill mosquito larvae living in places that are difficult to reach.

When does spraying occur?

Adulticiding: Spraying occurs when mosquitoes are most active. Generally, local government agencies or mosquito control districts announce the dates and times of spraying in the local newspaper, on district websites and social media, by telephone, or through door-to-door notices.

Larviciding: Applications are typically done during the day so that the driver can easily locate bodies of water where mosquito larvae have been detected.

How often do communities spray?

After spraying, mosquito control districts or local government departments will track mosquito populations and treat an area again as necessary to reduce the chances of people getting bitten by mosquitoes.

Is the spray harmful to people, pets, animals, or the environment?

No, when done correctly, truck spraying will not harm people, pets, animals, or the environment.

What should I do during or after spraying?

Spraying is safe when applied by a licensed vector control professional who follows label instructions. If you prefer to stay inside and close windows and doors you can, but it is not necessary. The spray does not harm pets, but you may choose to bring them inside when spraying occurs. Contact your doctor or healthcare provider if you have any concerns following spraying.



Photo courtesy of Ed Freytag, City of New Orleans Mosquito & Termite Control Board

Mosquito control truck spraying insecticide into the air



A truck with a different type of sprayer on the back.

Information on insecticides and health:

- ♦ The Environmental Protection Agency oversees the registration of insecticides.
- ♦ The [National Pesticide Information Center \(NPIC\)](#) provides information online or through a toll-free number, 1-800-858-7378.

Mosquito Control: You Have Options.

Learn more: www.cdc.gov/mosquitoes



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention