



Zika Virus and Mosquito Control

What does the Maryland Department of Agriculture have to do with Zika?

Both species of *Aedes* mosquitoes that can carry the Zika virus occur in Maryland. The Mosquito Control Program is the responsibility of the Maryland Department of Agriculture. A major focus of the program is to prevent diseases that are spread by mosquitoes. The Maryland Department of Agriculture is working closely with the Maryland Department of Health and Mental Hygiene and local health departments on Zika preparedness and response.

Do all Mosquitoes carry the Zika Virus?

No. Zika virus is transmitted to people primarily through the bite of an infected *Aedes* species mosquito (*Ae. aegypti* and *Ae. albopictus*). Both species of these container breeding mosquitoes occur in Maryland. Marsh and flood water mosquitoes are not known to transmit Zika.

Will pesticides be used to prevent Zika?

Yes, in most cases. A few infected mosquitoes can produce large outbreaks and put people at risk of becoming sick. According to the U.S. Centers for Disease Control and Prevention (CDC), mosquito management is a critical part of Zika prevention and response. See *Interim CDC Recommendations for Zika Vector Control in the Continental United States*, <http://www.cdc.gov/zika/public-health-partners/vector-control-us.html>

How will you control mosquitoes?

The Maryland Department of Agriculture uses a science-based integrated mosquito management approach in conducting our program. This includes surveillance, source reduction, biological control for mosquito larvae and, when necessary, pesticide applications for adult mosquitoes.

If there is a high risk of Zika virus transmission due to suspect mosquito activity or a human case of Zika then the department, in cooperation with state and local health officials, will spray for adult mosquitoes within 24-48 hours in a prescribed area of concern to kill any adult mosquitoes that may be carrying the virus. Then, generally within 24-48 hours, inspectors will go door-to-door in the area to inspect properties for mosquito breeding sites and conduct residual spraying that will reduce adult mosquito populations during the infectious period. Unscheduled spraying is posted on the department's Mosquito Control webpage and on the @MdMosquito Twitter account. The Zika response team will strive to provide notice in advance of spraying, but due to the urgent nature of a human health threat this is not always possible.



Aedes aegypti

Are these pesticides harmful?

The U.S. Environmental Protection Agency (EPA) has determined that the pesticide products that our department uses for adult mosquito control will present no unacceptable level of risk to the health of humans, domestic animals, wildlife or the environment when used according to approved label instructions. All ground-based products used for adult mosquito control by the department bear the signal word "Caution" which is the lowest toxicity rating for which the EPA requires a signal word.

- For information about the products that the department uses for mosquito control, visit: http://mda.maryland.gov/plants-pests/Pages/insecticides_for_mosquito_control_M_D.aspx
- For more information on precautions that may be taken during mosquito spraying, visit the National Pesticide Information Center website: <http://npic.orst.edu/capro/mosqspray.html>.
- Anyone who suspects that they have a pesticide-related illness or reaction should contact their physician or the Maryland Poison Center, <http://www.mdpoison.com/> or call 1-800-222-1222.
- **Always call 911 in case of a human health emergency.**

What about Pollinators?

The EPA approved labels for pesticides used for adult mosquito control include pollinator protective restrictions that must be followed except in cases of dire health emergencies. The Maryland Department of Agriculture conducts adult mosquito knock-down spraying after sunset and before sunrise when pollinators generally are not active. We will apply residual barrier sprays only to plants where pollinators are not foraging whenever possible.

**** The Maryland Department of Agriculture and Department of Health and Mental Hygiene are asking everyone to survey their property and eliminate container-mosquito breeding sites, take appropriate precautions to avoid being bitten by mosquitoes, and SPREAD THE WORD ABOUT ZIKA PREVENTION ****



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Can I help to fight Zika in Maryland?

Yes! Zika virus is transmitted to people primarily through the bite of an infected *Aedes* species mosquito. They prefer to bite people, live near people, and lay eggs in and near standing water created by people - e.g. buckets, bowls, toys, animal dishes, flower pots, corrugated drain pipes, clogged gutters, etc. Eliminate standing water in containers in your yard and encourage everyone you know to do the same.

Please cooperate with state and local officials who may be in your neighborhood. We are there to work with communities to protect public health!

FOR MORE INFORMATION ON ZIKA VIRUS AND PREVENTION TIPS:

Maryland Department of Agriculture, Mosquito Control

http://mda.maryland.gov/plantspests/Pages/mosquito_control.aspx

Maryland Department of Agriculture, Zika Prevention

<http://mda.maryland.gov/zika>

Maryland Department of Health and Mental Hygiene, Zika Virus Information

<http://phpa.dhmh.maryland.gov/pages/zika.aspx>

U.S. Centers for Disease Control and Prevention, Zika Virus

www.cdc.gov/zika/

How can I avoid mosquito bites at home?

Avoid being outside during times when mosquitoes are flying, early and late in the day. Wear loose fitting clothing with long sleeves and pants. Use yellow "bug lights" outside at night; they don't attract mosquitoes like a regular incandescent, CFL, or LED bulb. Also, mosquitoes are relatively weak fliers, so placing a large fan on your deck will help. Citronella candles have a mild repellent effect, but do not offer significantly more protection than other candles producing smoke. Use repellents when necessary.

Do bats and purple martins reduce mosquito populations?

Bats and purple martins are magnificent creatures and we encourage their conservation for many reasons, but mosquito control probably isn't one of them. Bats eat more mosquitoes than purple martins, and large, concentrated populations of mosquitoes could provide adequate nutrition for bats in the absence of alternative food. However, a moth provides much more nutritional value per capture than a mosquito. Purple martins and freshwater mosquitoes rarely ever cross paths, and

studies show that the purple martin's diet is diverse and just a tiny fraction of it is mosquitoes. So for nature lovers who want to put up bat or purple martin houses, it can't hurt, but don't count on these species to be a significant part of the solution to your mosquito problem.

What repellents should I use and how should I use them?

The CDC recommends using Environmental Protection Agency (EPA) registered insect repellents with one of the following active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus, or para-menthane-diol. Choosing an EPA-registered repellent ensures the EPA has evaluated the product for effectiveness. When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breast-feeding women.

- Always follow the product label instructions
- Reapply insect repellent as directed.
- Do not spray repellent on the skin under clothing
- If you are also using sunscreen, apply it before applying insect repellent.

To protect your child from mosquito bites:

- Do not use insect repellent on babies younger than 2 months old.
- Do not use products containing oil of lemon eucalyptus or para-menthane-diol on children younger than 3 years old.
- Dress your child in clothing that covers arms and legs. Cover crib, stroller, and baby carrier with mosquito netting.
- Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
- Adults: Spray insect repellent onto your hands and then apply to the child's face.

Treat clothing and gear with permethrin or purchase permethrin-treated items.

- Treated clothing remains protective after multiple washings. See product information to learn how long the protection will last.
- If treating items yourself, follow the product instructions carefully.
- Do NOT use permethrin products directly on skin. They are intended to treat clothing.

Do black light insect electrocution devices, like Bug Zappers, work?

No, they actually do more harm than good. Not only are these devices ineffective for mosquito control, but they are estimated to kill billions of harmless insects each year, reducing food for birds and beneficial insects that prey on other insect pests.