



School Pesticide Monitor

A Bi-Monthly Bulletin on Pesticides and Alternatives
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Mosquito Management for Summer Vacation

With summer upon us, the bugs are out in full force, which has everyone thinking about managing mosquitoes. Last year, the Centers for Disease Control (CDC) recently concluded that 2012 was the deadliest year for West Nile Virus (WNV) in the United States. "A total of 5,674 cases of West Nile virus disease in people, including 286 deaths, were reported to CDC from 48 states (excluding Alaska and Hawaii)," said the CDC in a statement.

While it is still too early to determine whether this year will be as bad as last year's outbreak (experts

say the largest disease outbreaks is strongly driven by weather patterns characterized by hot wet summers), one thing is certain: There are simple mosquito control techniques that can be performed in your community and backyard that will prevent the spread of WNV and nuisance biting mosquitoes without the use of highly toxic pesticides.

The widespread spraying of toxic pesticides (typically chemicals known as synthetic pyrethroids, organophosphates, or other nervous system poisons) does not provide a long-term sustainable solution to mosquito control. Young children

and those who are particularly at risk from mosquito-borne illnesses, such as pregnant women, the elderly, and those with compromised immune systems are also those most at risk from pesticide exposure. Surely there are better ways to deal with mosquito problems than replacing one hazard with another.

Beyond Pesticides finds that the ideal mosquito management strategy comes from an integrated approach emphasizing education, aggressive removal of standing water sources, larval control, monitoring, and surveillance for both mosquito-borne illness and pesticide-related illness. We'd like to reinforce this point: public education is the key component to successful mosquito management. Spreading the word in your community is critical to addressing mosquito pests at the small and large scale – in your backyard and across your region. To get the word out, communities should utilize all forms of educational tools: the media; websites; posters placed around schools, libraries, post offices, and markets; and, pamphlets distributed to doctors' offices and libraries. Public officials

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BEE Protective for Kids

Pollinators are a vital part of our environment and a barometer for healthy ecosystems. This is why Beyond Pesticides' recently launched the BEE Protective campaign, a national public education effort supporting local action aimed at protecting honey bees and other pollinators from pesticides. BEE Protective includes a variety of educational materials on how to create native pollinator habitat in communities, eliminate bee-toxic chemicals, as well as provides advocacy tools. Though much of the campaign is geared towards adults, we have not forgotten about kids! We are especially pleased to share with you our very special factsheet: *BEE Protective...for kids!* The two-page activity sheet has fun facts and information on birds, bees and other beneficial organisms, as well as fun pictures to color, a pollinator word search and more. Download it today at: <http://bit.ly/KidsBEEprotective>. More information on BEE Protective can be found at www.BEEprotective.org.

Mosquitoes

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should also communicate mosquito prevention methods.

Beyond Pesticides advises communities to adopt a preventive, health-based mosquito management plan, and has several resource publications on the issue, including the Public Health Mosquito Management Strategy: For Decision Makers and Communities.

In your own backyard, avoid repellents containing DEET, as the product is quickly absorbed through the skin and has been linked to a range of health effects, including birth defects and nervous system disruption. Moreover, recent reports show mosquitoes developing a resistance to DEET after one application. After exposure, the mosquito's sense of smell changes, which means it also changes their ability to smell DEET, rendering it not as effective.

A wide range of least-toxic solutions are available in place of harmful products such as DEET and other synthetic-pyrethroid based sprays. The best preventive measure you can take is to avoid being outdoors during the evening hours when mosquitoes are most active, or wear long-sleeved clothing if you do.

However, since this is not ideal for many people, essential oils can be used as repellents. Some of the most effective include cedarwood, soybean oil, oil of lemon eucalyptus, and geraniol (make sure to seek out organic products!). You can also make your own mosquito repellent by combining 10 drops of essential

oils to 2 tablespoons of vegetable oil, and apply a few drops on your skin and/or clothing. Be sure to take some with you if going outside for a prolonged period, and reapply often.

Here are some of the simple solutions you and your community can take to prevent and control mosquitoes:

- **Clean up** – Cut back any overgrown vegetation – mosquitoes use these areas to hide. Ensure waterways are clear of debris; eliminate pooled or stagnant waters from debris, containers, drains, and anywhere that pools water. Watch out for leaky faucets. Mosquitoes can breed in puddles the size of dimes, so keep a keen eye out for stagnant water!

- **Natural Predators** – Use indigenous fish populations, like bluegills or minnows, to eat mosquito larvae in shallow waters and ornamental pools. Copepod crustaceans can also be used to eat mosquito larvae in ditches, pools and other areas of stagnant water. Don't forget about bats either! One bat can consume 1,200 mosquitoes in an hour, and many bats are in trouble from a disease wiping out their population. Help conserve these important mammals while keeping the mosquito population down by installing a bat house!

- **Behavior Modification** – As indicated above, wear long sleeves and long pants/skirts, and use least-toxic mosquito repellent when outdoors. Try to avoid being outside at dusk when mosquitoes are most active.



- **Attentive Monitoring** – Check sources of water for signs of mosquito larvae often.

- **Least-toxic Pesticide Options** – Use *Bacillus thuringiensis israelensis* (Bt), a biological larvicide (“mosquito dunk”) that prevents mosquitoes from developing into breeding, biting adults in standing waters that cannot be drained.

- **Take Action** – Let your local school board, council members, mayor, or state delegates know that safer, more sustainable options exist.

Communities across the country, from Lyndhurst, OH to Marblehead, MA, Nashville, TN and the District of Columbia, have taken these steps towards safe, effective mosquito management. By focusing on a program of prevention through public education, strict monitoring, and control by least-toxic larvicides, mosquito populations and the diseases they carry are minimized.

For more information, including expert positions on mosquito adulticide, fact sheets, media tips, sample public service announcements, sample petitions and opt-out forms, and tips on organizing those in your community, see Beyond Pesticides mosquito management program page, www.beyondpesticides.org/mosquito.