

# Spraying for Mosquitoes

Sometimes the state and/or local communities ground or aerial spray pesticide to control mosquitoes in a variety of environments such as outdoor residential and recreational areas, commercial urban areas, and rural areas. Mosquitoes are a nuisance that impact quality of life, and they also can carry diseases, such as [Eastern Equine Encephalitis \(EEE\)](#) or [West Nile Virus \(WNV\)](#).

## When is aerial spraying of insecticides considered?

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In situations where there is an elevated risk of human disease, state or local officials may consider the use of an aerial pesticide spray in the evening and overnight hours to reduce the number of infected, adult mosquitoes in the specific areas of elevated risk. Many breeding areas of high concern are not accessible by truck-mounted ground sprayers. It should be noted that although the aerial spraying is considered necessary to reduce human risk, it will not eliminate risk. It is critical that residents protect themselves from mosquito bites by staying indoors during peak mosquito hours, applying insect repellent when outdoors, draining standing water where mosquitoes breed, repairing screens, and protecting animals and pets.

## Why is my location not in the spray area?

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The spray area is designed to target areas that mosquito-borne disease activity originates from. There are several possible reasons why your location may not be in the current spray area, the most common being that you are not located in an area that has been determined to have a risk of mosquito-borne virus amplification sufficient to warrant spraying.

## How is aerial spraying conducted?

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Aerial spraying is conducted by aircraft, beginning in the early evening and continuing up until 4:30 a.m., weather permitting, in areas of concern. Mosquito control professionals apply approved pesticides as an ultra-low volume (ULV) spray. ULV sprayers dispense very fine aerosol droplets that stay aloft and kill adult mosquitoes on contact.

## What pesticide product will be used in the aerial spraying?

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The pesticide used is called Anvil 10+10, a product extensively tested and used in both ground-level and aerial spraying in the U.S. to control mosquitoes. Anvil 10+10 contains two ingredients: Sumithrin and Piperonyl butoxide. Sumithrin is an ingredient similar to the natural components of the chrysanthemum flower which is also found in other pesticide products used indoors, in pet shampoos, and tick control treatments. Sumithrin is rapidly inactivated and

decomposes with exposure to light and air, with a half-life of less than one day in the air and on plants. In soil, it degrades rapidly. Sumithrin has proven to be extremely effective in killing mosquitoes worldwide for more than 20 years. Piperonyl butoxide (PBO) helps Sumithrin kill mosquitoes. The product is registered by the US Environmental Protection Agency (EPA) and in Rhode Island, Connecticut, and Massachusetts for this use.

## **Why is this pesticide being used?**

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Sumithrin has proven to be extremely effective in killing mosquitoes worldwide for over 20 years. The chemical properties for Anvil provide the widest margins of safety for human and environmental health when used properly by certified professionals trained to use mosquito control pesticides.

## **Has this pesticide been used previously in Rhode Island, and elsewhere, to control mosquitos?**

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Yes. It has previously been used in Rhode Island, specifically in Westerly in 1996. It is currently being used in Massachusetts; it was also used in Massachusetts in 2006, 2010, and 2012. Many other states, including New York, New Jersey, Illinois, Delaware, North Carolina, Arkansas, Florida, Alabama, Louisiana, Texas, regularly use it to control mosquitoes.

## **What are the environmental characteristics of this pesticide?**

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Sumithrin is short-lived in the environment. It breaks down rapidly with exposure to air and sunlight. In soil, it degrades rapidly. It does not dissolve easily in water and is broken down by microorganisms in streams and water bodies that receive sunlight. Thus, residues in water are unlikely.

## **Can these targeted ground and aerial sprays with adulticides harm insects or wildlife?**

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The EPA has evaluated these pesticides for their safety and has determined that they do not pose an unreasonable risk to birds or mammals, if used according to the product label directions. Anvil and other similar pesticides are toxic to land-dwelling and water-dwelling invertebrates (e.g., dragonflies, beetles) and to fish. There is less risk to fish in larger ponds than in smaller ones and the risks to large natural water bodies are minimal. However, people may want to cover small ornamental fish ponds in their yard during the night of spraying. These fishponds can be uncovered in the morning after spraying has been completed.

## Is there a risk to drinking water sources?

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No. Aerial spraying is not expected to have any impacts on surface water or drinking water. Surface drinking water sources are mapped and aerial spraying will not occur over these water supply reservoirs. Also, the product is rapidly inactivated and decomposes in sunlight and air, does not dissolve easily in water, and is broken down by microorganisms in streams and water bodies that receive sunlight. Therefore, residues in water would not be expected. Because of these characteristics and the fact that spraying does not occur over drinking water supply reservoirs, exposure through drinking water is not expected.

## Are there precautions I should take if aerial spraying will occur in my area?

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Pesticides are used at very low concentrations to control mosquitoes, and no adverse health risks are expected with its use for mosquito control. Negative health impacts would only be associated with long-term, repeated exposures to a chemical, not a short-term spraying episode. People who may be particularly sensitive to chemicals could possibly experience short-term effects, such as eye, skin, nose or throat irritation or breathing problems. Some pesticide residues may be present on outdoor surfaces after spraying. Studies on other chemicals suggest the amount of pesticide transferred to skin decreases with more time after spraying (and very little transfers 24 hours after spraying). Pesticides break down from surfaces more rapidly when exposed to sunlight and water. Individual chemical sensitivities can vary; therefore, it is always a good idea to eliminate unnecessary exposures to all pesticides. All people, especially children and pregnant women should avoid exposure when practical. Aerial spraying is conducted at night and the active ingredients of the pesticide product used for aerial application for mosquito control generally break down quickly and leave no residue.

## What will be done to minimize environmental impacts?

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- Anvil is applied at very low concentrations to control mosquitoes.
- Spraying will take place at night, when bees are typically in their hives.
- Spraying will only take place during calm periods, with winds less than 10 MPH. This will help prevent the pesticide from drifting beyond targeted areas.
- Spraying will not occur over fish hatcheries, certified organic farms, surface drinking water supplies, and other open water bodies and coastal areas.

## **Are there steps people can choose to take if they are concerned?**

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Steps that can be followed in areas where aerial spraying is scheduled to take place include:

- If possible, remain inside or avoid the area whenever spraying takes place and for about 30 minutes after spraying. That time period will greatly reduce the likelihood of your breathing pesticide in air.
- Close windows and doors, and turn off window air-conditioning units or close their vents to circulate indoor air before spraying begins. Windows and air-conditioner vents can be re-opened about 30 minutes after spraying. Managers of buildings with ventilation systems should shut off intake during spraying.
- If you come in direct contact with a pesticide spray, protect your eyes. If you get Anvil spray in your eyes, immediately rinse them with water. Wash exposed skin. Wash clothes that come in direct contact with spray separately from other laundry.
- Consult your healthcare provider if you think you are experiencing health effects from spraying.

## **Are there extra steps that can be taken to prevent exposure to pesticides and minimize environmental impacts?**

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- If spraying just occurred, minimize your contact with outdoor surfaces and wash skin that has come in contact with these surfaces.
- Although pets kept outdoors during spraying are not expected to experience adverse health effects from the spraying, people may want to bring their pets indoors during spraying to avoid exposure.
- Pick homegrown fruits and vegetables you expect to eat soon before spraying takes place. Rinse homegrown fruits and vegetables (in fact, all produce) thoroughly with water before cooking or eating them.
- Organic home gardeners may want to cover their gardens with a tarp.
- Cover outdoor tables and play equipment before spraying or wash them off with detergent and water after they have been sprayed.
- Bring laundry and small toys inside before spraying begins. Wash with detergent and water if exposed to the pesticide during spraying.)
- People may want to cover small ornamental fish ponds in their yard during the night of spraying. These fishponds can be uncovered in the morning after spraying has been completed.
- Consult your healthcare provider if you think you are experiencing health effects from spraying.

## **Are there any restrictions on consuming fruits and vegetables from home gardens or local farms?**

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No. The EPA has established a tolerance (acceptable level) for the product that allows wide-area mosquito application on food crops, fodder crops, pasture, and grazing areas. The application is not expected to leave a detectable residue on food crops, pastures, or forage crops. Livestock may graze in treated areas following the spraying. As always, consumers should rinse any homegrown or purchased fruits and vegetables with water before preparation or consumption.

## **If I am a beekeeper, should I take special precautions to protect the bees before or after aerial spraying?**

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We do not anticipate negative impacts on honey bee colonies since the aerial spraying will take place at night. If bees are congregating outside the hive box(es), consider applying a cover to the hive entrance or over the entire hive box(es) using a loose, wet cloth (burlap, sheet, etc.) to prevent bees from exiting, thus not allowing for direct contact during the application. If miticides have been applied and there is concern about ventilation during covering, consider adding an additional empty box on top to increase ventilation within the hive during the application. Remove covers and additional boxes placed on hives as soon as possible the morning following application. The product being applied has a very short half-life (one day) and breaks down rapidly in sunlight. Officials have conducted monitoring of honey bee hives during similar past aerial application and has not witnessed any negative effects on honey bees from the use of this product.

## **What if I think that I am experiencing an adverse reaction to pesticide spraying?**

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If you believe you may be experiencing any health effects from pesticides, call your healthcare provider or the Massachusetts and Rhode Island Poison Control Center at 800-222-1222. If symptoms are severe, call 911 for assistance.