Aerial Mosquito Control to Reduce Risk of Eastern Equine Encephalitis (EEE)

Summer 2019
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What is Eastern equine encephalitis (EEE)?

Eastern equine encephalitis (EEE) is a rare but serious disease caused by a virus that can affect people of all ages. EEE is generally spread to humans through the bite of a mosquito infected with the virus. EEE can cause severe illness and possibly lead to death in any age group; however, people under age 15 are at particular risk. EEE does not occur every year, but based on mosquito sampling, a high risk of occurrence of human cases currently exists.

When is aerial spraying of insecticides considered?

Truck-mounted ground spraying is already taking place in some communities in Massachusetts. In situations where there is a high risk of human disease, the state's response plan recommends consideration of 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 high risk. Many breeding areas of high concern are not accessible by truck-mounted ground sprayers.

How is aerial spraying conducted?

Aerial spraying is conducted by aircraft in areas of concern beginning in the early evening up until 4:30am the next morning.

What pesticide product would be used in the aerial spraying?

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 over 20 years. Piperonyl butoxide (PBO) serves to increase the ability of Sumithrin to kill mosquitoes. The product is registered by EPA and in Massachusetts for this use. It was used in

previous aerial applications for mosquito control (2006, 2010, 2012). It is also used by some of the Mosquito Control Projects for ground applications.

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

No special precautions are recommended; however, residents can reduce exposure by staying indoors during spraying. 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.

Although 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 from dusk to dawn, applying insect repellent when outdoors, draining standing water where mosquitoes breed, and repairing screens in doors and windows. Residents should also take steps to protect their pets from mosquito bites.

Are there any health impacts associated with exposure to Anvil 10+10?

There are no health risks expected during or after spraying. There is no evidence that aerial spraying of Anvil 10+10 will exacerbate certain health conditions, such as asthma or chemical sensitivity.

Can these targeted ground and aerial sprays harm other insects or wildlife?

Aerial spraying will be conducted in the nighttime hours, when fish are less likely to be at the surface feeding and honeybees are most likely to be in their hives. Owners should cover small ornamental fishponds during the night of spraying. These fishponds can be uncovered in the morning after spraying has been completed.

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

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.

To report signs of acute honey bee mortality defined as larger than normal quantities of dead or dying bees at the entrance or inside hives post application, contact the Apiary Program Message Line ASAP by calling 617-626-1801

Is there a risk to drinking water sources?

No. Aerial spraying is not expected to have any impacts on surface water or drinking water.

Who do I contact to learn more about aerial spraying in my area?

Your local health department will be aware of any plans for aerial spraying. Updates will be provided via local media outlets, social media, and other channels.

For questions about aerial spraying, contact MDAR Crop and Pest Services at (617) 626-1700. For the most updated information on EEE risk and aerial spraying, contact the DPH Division of Epidemiology (617) 983-6800 or visit the DPH website at www.mass.gov/guides/aerial-mosquito-control-summer-2019 for updated mosquito results, maps and incidence of positive mosquito samples.

For general information on mosquito control, contact the State Reclamation and Mosquito Control Board within MDAR at (617) 626-1723.