# Fact sheet: Arbovirus pesticide treatment through aerial treatment

- Eastern Equine Encephalitis (EEE) is a rare but serious disease caused by a virus spread through infected mosquitoes to animals and people. In the United States, approximately 5-10 human cases of EEE are reported annually. It is one of the most severe mosquito-borne diseases in the United States.

- In humans, signs of EEE include the sudden onset of fever, chills, and body and joint aches. EEE infection can also develop into severe encephalitis, resulting in headache, disorientation, tremors, seizures, and paralysis. Permanent brain damage, coma, and death may also occur in some cases. A person cannot get EEE directly from another person or from an animal such as a horse or deer.

- Aerial treatment can quickly reduce the number of mosquitoes in a large geographical area, helping reduce the risk of exposure to arboviruses—like EEE. Aerial treatment has been successfully used in the United States for decades to reduce mosquito populations.

- In a public health emergency, licensed and certified mosquito control professionals will apply EPA-registered insecticides as an ultra-low volume (ULV) spray from a twin-engine plane flying approximately 300 feet above the ground. The ULV sprayers dispense very fine aerosol droplets. The droplets, which are smaller than the head of a pin, drift through the air to kill adult mosquitoes on contact. The application equipment is designed and calibrated to ensure the sprayed material dissipates quickly to reduce the chance of exposure to non-target organisms. Residents will likely not even notice the treatment when it occurs.

- Aerial treatment will take place in areas where there is a concentration of EEE cases in humans and animals. On the day of the treatment, the application will begin after dusk and will continue through the night or until weather conditions are no longer favorable for application. Mosquito control is weather-dependent. Wind speeds, temperature, and precipitation on the ground and in the air may affect treatment.

- The product being applied is Merus 3.0. It is an EPA-registered, botanical-based adult mosquito insecticide containing five percent pyrethrins, which are naturally found in chrysanthemum flowers. Pyrethrins are commonly used to control mosquitoes, fleas, flies, moths, ants, and many other pests and have been registered for use in insecticides since the 1950s. Merus 3.0 has been reviewed and found suitable for organic production by the Organic Materials Review Institute (OMRI), and it can be used on and around organic crops and gardens.

  OMRI certificate: https://www.omri.org/mfg/cmc/certificate/10513

Michigan Department of Agriculture & Rural Development

- Merus 3.0 is registered with the EPA and is labeled for public health use over residential areas. When used according to label directions, no short-term or long-term risks to human health are expected during or after application, and no special actions are necessary before or during applications. If you are concerned or have known sensitivities, you can reduce your exposure by:
  - Remaining inside during the hours spraying will occur.
  - Closing windows and doors and turning off air conditioners and window fans that bring outdoor air inside.
  - Bringing outdoor items (laundry, outdoor furniture, and children's toys) inside or covering them if possible.
  - Covering swimming pools.
  - Keeping pets indoors.

- When used according to label directions, no adverse health effects are expected from being outside during or after the spraying occurs. Some actions to take if you are concerned include:
  - Washing your skin with soap and water.
  - Laundering your clothes with detergent and water.
  - Rinsing your eyes with water.
  - Consulting your health care provider if you are concerned about your health.

- Merus 3.0 will break down over time, ranging from hours in the air to days in the soil. No special action needs to be taken the morning after spraying; however, if you are concerned about items that may have residue on them from the treatment, you could:
  - Rinse home-grown vegetables and fruits before cooking or eating.
  - Wash outdoor surfaces and objects with soap and water.

- Because Merus 3.0 breaks down quickly in the environment and all drinking water reservoirs will be excluded from the spray area, these applications will not adversely impact surface, ground, or drinking water.

- Although aerial mosquito control efforts are not expected to cause adverse reactions in people, if you believe you may be experiencing adverse health effects, you should call your health care provider or the Michigan Poison Control Center at 800-222-1222. If symptoms are severe, call 911 for assistance.