

**City of Fenton, MI**  
**Mosquito Management**  
**Community Outreach Program 2020**

APM Mosquito Control (APM) performs the mosquito control program for The City of Fenton. The City of Fenton Mosquito Management program was implemented by APM in 1990. The program consists of all phases of an Integrated Mosquito Management strategy against mosquitoes in the city.

1. Adult mosquito monitoring
2. Breeding site inspections and larviciding.
3. ULV Adulticide applications.
4. Perimeter Barrier Adulticide applications.

Detailed information about the program is available at the city offices. In an effort to notify residents within the city for community Larviciding and ULV adulticide applications APM and City of Fenton utilize the following methods:

1. Public notice in newspaper. A notice appears in the local paper explaining spring larviciding and seasonal adulticiding. Also lets anyone interested in further information to contact APM or city.
2. The city posts information about mosquito program at the city offices, as well as on their website, [www.cityoffenton.org](http://www.cityoffenton.org)
3. The city frequently posts current information regarding mosquito management program on the local cable television channel 19.
4. A brochure about the mosquito control program is available at the city hall. The Brochure explains how the program works and gives any resident the opportunity to not participate. See Brochure included with this correspondence.
5. A Call/Shut-off notification list is maintained as part of the city program. Before ULV adulticide applications take place APM will call any residents that request to remind them and inform them that a community mosquito control application will be happening that evening, weather permitting. Residents may also request that the ULV adulticide be shut off in front of and or upwind of their area.

These areas are marked by an Orange fluorescent stake and noted on ULV adulticide operational maps.

6. Mosquito control is often a topic of discussion at city meetings and residents are always encouraged at meetings to find out more about their local mosquito control program. APM holds open house events for residents at the request of the city council. These events introduce the personnel assigned to service the area, provides an overview of the program and demonstration of equipment used and information on materials used to provide mosquito control.
7. Information (sample labels & SDS) on insecticides used in program are available upon request by calling APM at (810) 766-9423 or (877) 276-4714 and are available at the City of Fenton offices and the APM website at [www.advancedmosquito.com](http://www.advancedmosquito.com)

The contact person that can respond to public questions is Chuck Mullins at APM Mosquito Control.

***City of Fenton  
301 South Leroy Street  
Fenton, MI 48430  
(810) 629-2261***

***APM MOSQUITO CONTROL  
21240 34 Mile Rd  
Armada, MI 48005  
(810) 766-9423  
Toll Free (877) 276-4714***

***[www.advancedmosquito.com](http://www.advancedmosquito.com)***

## **City of Fenton Mosquito Control Program 2020**

The City of Fenton has contracted APM Mosquito Control (APM) to provide this service for 2020. APM Mosquito Control's administration office is located in Armada, Michigan. APM was established in 1986 and has over 30 years of experience in integrated mosquito management. APM specializes in municipal and community-wide mosquito management programs.

This information is being provided to the community as insight to APM's approach for an effective integrated mosquito control program for City of Fenton property owners and residents. This information also explains how property owners and residents can assist in this plan.

### **INTEGRATED MOSQUITO MANAGEMENT**

This is a process, consisting of the balanced use of environmentally compatible and economically feasible products, to reduce mosquito populations to a tolerable level. APM develops and implements comprehensive integrated mosquito control programs. The basis of every APM control program is biological larval control. All potential mosquito larval habitats are surveyed, cataloged and mapped. Routine larval surveys are then scheduled to determine where larvae are developing and what actions need to be taken to control them. Adult mosquito populations are also sampled using a network of light traps. These surveillance activities allow APM to plan and implement larval and adult mosquito control applications in a manner consistent with Integrated Mosquito Management (IMM) protocols.

The primary objective of IMM is to prevent the development of mosquito larvae by using biological methods, thus minimizing the need to "fog" for adult mosquitoes. The use of ULV (ultra-low volume) fogging gives good but only temporary results under acceptable weather conditions and is not generally cost effective as a sole means of control. Biological larval control methods take advantage of natural enemies to reduce mosquito populations.

**Bti** (*Bacillus thuringiensis var. israeliensis*) is a naturally occurring spore and crystal forming soil bacteria. Bti's active ingredient has been shown to be toxic only to mosquitoes, black flies and closely related species, with no toxic effects on other aquatic organisms. A Bti application in late April to lowland/woodland areas will be the initial step of the City of Fenton integrated mosquito control program. Mosquito control activities are limited to specific political boundaries, but unfortunately adult mosquitoes don't obey lines on a map. Thus any program that hopes to have effective control must contend with local larval development and invading migratory adults.

Nature has provided no successful alternative to chemical insecticides for controlling adult mosquitoes. The application of ULV insecticides using modern technology and equipment can effectively reduce adult mosquitoes utilizing extremely small amounts of insecticide. Kontrol 4+4 or Biomist 4+4 is applied via truck and or off road vehicle-mounted equipment. Biomist 4+4 and Kontrol 4+4 are man-made permethrin based insecticides. These products offer excellent effectiveness against adult mosquitoes, low mammalian toxicity, low odor, and rapid biodegradability.

## THE MOSQUITO STORY

Mosquitoes (Order Diptera, Family Culicidae) are some of the most adaptable and successful insects on earth and are found in some extraordinary places. Virtually any natural or man-made collection of water can support mosquito production. Mosquitoes can be distinguished easily from other flies by the fact that they have both a long, piercing proboscis and scales on the veins of their wings. About 55 species are found in Michigan. Only a few of these are important as carriers of disease, but many others are significant nuisances. The two most common mosquito species found in Michigan are *Aedes vexans* and *Culex pipiens*. *Aedes vexans* are known as the floodwater mosquito because it lays its eggs on dry-ground in flood prone areas. *Culex pipiens* is an important disease vector, known to spread St. Louis Encephalitis, West Nile Virus and other encephalitis diseases.

## THE MOSQUITO LIFE CYCLE

All mosquito species have two things in common: they must have water for their early stages; and they all undergo the same four-stage life cycle — egg, larva, pupa and adult.

Mosquito eggs are laid individually or in clusters and are deposited either on the water surface or in flood prone areas. Most mosquitoes exist over winter in the egg stage. If eggs are laid out of water, embryos may lay dormant for several years. Once the egg hatches, the larval stage begins. The larvae of most mosquito species hang suspended at the water surface using an air tube to breathe. The larvae feed on aquatic organisms near the surface. As a defense mechanism, the larvae can dive deeper into the water by swimming in a characteristic "S" motion. Larvae grow quickly and outgrow their exterior covering. Larvae molt four times. Larval stages last between 5 and 14 days depending on temperature and food availability. No feeding occurs in the pupal stage that lasts from 1 ½ to 4 days, after which the pupal skin splits along the back allowing the newly formed adult to slowly emerge and rest on the water surface. Male mosquitoes will emerge first and linger near the breeding site waiting for the females. Mating occurs quickly after emergence due to high mortality. As much as 30% of the adult population can die per day. The female compensates for this by laying large numbers of eggs, usually about 300. Males live about 7 days and feed on plant nectars. Females live about 6 weeks and must take a blood meal to nourish her eggs. She uses carbon dioxide, exhaled chemicals, and temperature patterns to locate her victims. The average female's flight range is between 1 and 10 miles, but some species have been shown to travel up to 40 miles. After each blood meal the female will oviposit her eggs, completing the life cycle. Several ovipositions per female are possible.

## MOSQUITOES AND PUBLIC HEALTH

Mosquitoes can spread disease only when they bite. During feeding, the female pierces her victim's skin with her proboscis, injects her saliva which contains an anti-coagulant and then sucks the victim's blood in. If the victim's blood contains disease-causing organisms, the mosquito ingests them too. These organisms are then maintained within the mosquito and eventually may be injected into another victim. In this way a mosquito can spread disease from animal to animal, animal to man. In the U. S. there are about six mosquito-borne viruses that are capable of causing acute infections of the central nervous system. Most often this type of infection causes brain and central nervous system inflammation or encephalitis. The

most common types found in our area are West Nile Virus (WNV), St. Louis Encephalitis (SLE) and Eastern Equine Encephalitis (EEE). The only common parasite transmitted by mosquitoes is Dog Heart worm. Transmission of Dog Heart worm occurs only through the bite of an infected mosquito and involves a complicated transmission cycle. Mosquitoes and other insects do not transmit HIV or cause AIDS.

### **Controlling Mosquitoes**

- Standing water means mosquitoes. Any standing, stagnant water that remains for 7 to 10 days after a rain can, and usually will, produce mosquitoes.
- Empty all water holding containers in your yard on a regular basis, at least once a week. Tires, children's wading pools, rain barrels, eave troughs, buckets, plant pots, birdbaths, and stored boats are common examples of mosquito breeding sites around the yard.
- Leaves and other debris should be removed from eaves troughs and down spouts.
- Ditches and retention basins must be kept free of vegetation and debris to promote rapid drainage.
- Pond edges should be kept clean of cattails and other aquatic vegetation. This is where mosquito larvae develop and mature.
- To reduce the number of adult mosquitoes in your yard, keep your yard mowed as short as is practical.
- Keep all ornamental shrubs and bushes trimmed and pruned to allow airflow and light to penetrate. This is where adult mosquitoes hide during the day
- Good housekeeping is encouraged. Screens on windows and doors should be well maintained to prevent mosquitoes from entering homes or structures as mosquitoes seek out cooler and shaded areas for resting.

### **HOW THE PROGRAM WILL WORK**

Initial spring larvicide application of bti to Lowland/woodland wet areas during mid-April to mid-May.

The mapping, inspecting, and larviciding of mosquito breeding sites in City of Fenton along with the development of historical data. This is an ongoing process throughout the mosquito season.

The placing of New Jersey Light Traps for monitoring adult mosquito population. Traps will operate from June 1<sup>st</sup> until September 15.

A bi-weekly nighttime ULV application of Kontrol 4+4, Biomist 3+15 or Biomist 4+4, from a truck mounted and or ATV mounted sprayer. This will be provided when light trap counts exceed 20 females or resident reports of increased adult populations are present.

### **Description of materials being used for mosquito abatement**

1. Vectobac G (.2% bacillus thuringiensis israelensis) 5 lb/acre
2. Vectolex FG (7.5 % bacillus sphaericus) 5 lb/acre
3. Tempo 10WP (10% Cyfluthrin) .05% - 0.1% solution
4. Biomist 4+4 (4% permethrin, 4% technical piperonyl butoxide) 1.5 oz/acre

5. Kontrol 4+4 (4.6% permethrin, 4.6 % technical piperonyl butoxide)

## PUBLIC NOTICE

Public notice announcing the mosquito control program will be published in the Tri County Times. We request that all property owners who are renting or leasing their properties to notify their tenants either by passing this information to them or advising them that this information is available at the City of Fenton Hall located at 301 Leroy St. Fenton, Michigan.

Those who believe that their mosquito population is excessive are to Contact APM via their toll free number for an onsite inspection and additional treatment if the need is necessary and weather conditions permit. **APM's toll free number is 1-877-276-4714.**

**Notice: Property owners and residents who do not wish to be treated by this method of mosquito control are to fill out the following form and submit it to City of Fenton, 301 Leroy St., Fenton, MI 48430. These properties will be identified as non-treatment areas. The Mosquito control contractor for 2020 is: APM Mosquito Control, 21240 34 Mile Rd. Armada Michigan 48005. Their toll free number is 1-877 276-4714. (810) 766-9423.**

The property owners or residents of the City of Fenton who prefer that their properties **NOT** be treated for Mosquito control are to Notify City of Fenton and or APM as soon as possible using this form with the required information filled out. These notices will be forwarded to APM Mosquito Control so they can place an orange stake to mark and exclude your property from being treated. Those residents that would like to be notified before ULV adulticide applications should contact APM toll free 877-276-4714, to be placed on the call notification list.

---

**This is a letter of objection.** The property owners or residents of Caseville Township who prefer that their properties **NOT** be treated for Mosquito control are to **notify APM (810) 766-9423** as soon as possible so we can create a buffer and exclude your property from being treated. Residents may also use this form with the required information filled out and mail to APM Mosquito Control, 285 E. Howard Rd., Beaverton, MI 48612

We, the following, **DO NOT** want our property treated for mosquito control in 2020.

Name \_\_\_\_\_

Property address \_\_\_\_\_

Phone Number \_\_\_\_\_

**Submit this letter to: City of Fenton, 301 Leroy St. Fenton, MI, 48430 or to APM, 21240 34 Mile Rd., Armada MI 48005**