
Fruitland Township
White River Light Station Museum

Fruitland Township E-News

4545 Nestrom Rd
Whitehall, MI 49461
Phone: (231) 766-3208
Fax: (231) 766-3027

www.fruitlandtwp.org

July 6, 2021

MUSKEGON COUNTY ROAD COMMISSION

Report on Road Work/Construction
For the week of July 6 - 9, 2021

**The following are proposed work schedules, which are subject to change due to weather conditions and/or other unexpected circumstances.*

1. **River Road** – from M-120 (Holton Road) to Holton Duck Lake Road in Dalton, Muskegon, and Cedar Creek Townships: ***Chip Sealing***

2. **Lake Street** – from Middle Lake Road to Duff Road in Dalton Township: ***Chip Sealing***

3. **Crocker Road** – from M-120 (Holton Road) to Ewing Road in Cedar Creek Township: ***Chip Sealing***

4. **Holton Whitehall Road** – from Russell Road to Blue Lake Road in Blue Lake and Holton Townships: ***Crack Sealing***

5. **Quarterline Road** – from Hile Road to Airline Road in Fruitport Township: ***Dura Patching***

6. **Various Roads** – in Blue Lake and Holton Townships: ***Mowing***

7. **Simonelli Road** – from Berquist Road to White Lake Drive in Fruitland Township: ***Cross Tile Replacement***

8. **Memorial Drive** – from Weber Road to Scenic Drive in Laketon Township: ***Road is closed to through traffic for water main extension is by the Muskegon County Department of Public Works (under permit). Please follow signed detour route of Weber Road to Fenner Road to Scenic Drive. Work is anticipated to be completed by October 1st, 2021.***

9. **Countywide** – ***Michigan Pavement Marking will be continuing the pavement marking program***.

MUSKEGON COUNTY GYPSY MOTH SUPPRESSION PROGRAM

Fact Sheet – *Bacillus thuringiensis kurstaki (*Btk)

What is Btk?

Bacillus thuringiensis kurstaki (B.t.k.) is used for gypsy moth control. B.t.k. is a naturally occurring bacteria found in soil. An inactive, or spore, form of the bacteria is approved by the Environmental Protection Agency for use as a pesticide to control gypsy moth. It is commonly used by organic gardeners to control pests, and is approved for use on more than 200 food and grain crops in the United States.

B.t.k. is harmful to moths and butterflies only at their caterpillar stage of development. Spores are activated in the stomachs of caterpillars that eat vegetation sprayed with B.t.k. causing the catepillars to die in 7 to 10 days.

The commercial B.t.k. spray used by the Department of Agriculture is called Foray®. In addition to B.t.k.,the product also contains ingredients to make it stick to plant leaves, and has residues of food crops and preservatives that are approved for use on food. When diluted for ground application, the spray is 99% water.

Concerns with the use of Btk

B.t.k. is not considered toxic for people, animals, birds, fish, and other insects such as bees and ladybugs. Also, it does not harm water supplies. Despite widespread use, B.t.k. has not been shown to cause infections in persons exposed through aerosol spraying either in the general population, children, or people with immune system disorders.

A small number of persons have reported symptoms including skin rash, irritation of the eyes, nose and throat, and hay fever-like symptoms after exposure to B.t.k. It is not known whether exposure to B.t.k. was responsible for the symptoms; however it is possible that these symptoms might be related to allergic reactions or irritation to a component of the pesticide spray.

Precautions

Even though B.t.k. has an excellent safety record, as a precaution, we recommend that people in the spray area take the following steps to minimize their exposure:

- Remain indoors for at last 30 minutes after the spray application. It's a good idea to keep family pets inside too.
- Children should wait until moisture from the spray and dew has dried on grass and shrubs before they play outside and they should wash their hands after playing outside. Gardeners should follow the same precautions.
- If you come in contact with the wet spray, wash the affected skin with soap and water. If wet materials should get into the eyes, flush them with water for 15 minutes.

Persons who are more susceptible to infections or respiratory irritation should pay particular attention to the precautions above. This includes people with an underlying illness such as

leukemia, AIDS or other immune system deficiency, people receiving radiation or chemotherapy treatment, and people with asthma, emphysema or allergic sensitivities.

People with concerns related to exposure to B.t.k., their health, or their immune system should contact their health care provider for advice.

Call Muskegon County DPW at 231.724.6525 or email at ribbensro@co.muskegon.mi.us for further information.

MUSKEGON COUNTY GYPSY MOTH PROGRAM
AERIAL SPRAYING FACT SHEET

How are areas scheduled for aerial spraying determined?

In the fall, field work begins to determine what areas are infested with the gypsy moth and to what extent they are infested. This is a tedious process that involves investigating tens of thousands of acres throughout the County. A good indicator as to where to begin is noting the number of calls from residents and mapping their location. But this is only the first step. Staff must then attempt to inspect the County for any areas that may have an infestation and then complete an "egg mass
survey". This survey is a method of counting the number of egg masses in an area to determine the severity of an infestation (or lack thereof) in a given area. Based on these survey results, "spray blocks" are created.

What is involved in the "egg mass survey"?

The egg mass survey is a method of determining the number of egg masses in a given area and mathematically projecting the number of egg masses in a greater area. For example, a 1/40th acre survey is completed. The number of egg masses found in this area can then be used to calculate how many egg masses are likely to be in a 40 acre area. In general, a survey must be completed for every 40 acres sprayed.

Another function of the egg mass survey is to determine the relative health of the gypsy moth population by closely examining the egg masses. Size of the egg masses indicates a great deal as to next year's population. Small egg masses (dime to nickel size) indicate an unhealthy population that
will likely "collapse" before it does much damage. These "stressed" populations will likely die of a naturally occurring virus.

Quarter-sized egg masses are considered to indicate healthy but maturing populations. Finally, egg masses that are larger than a quarter and very firm to the touch indicate a very healthy and building population. Remember, in a given area, all three types of the egg masses will be present. It is part of
the survey to determine if the majority of the egg masses fit into any of these categories.

Why not just spray the whole County?

After decades of fighting the gypsy moth throughout the United States and Michigan, it became apparent that there is no feasible way to eliminate the gypsy moth, but only suppress their population and slow their spread. In light of this, spraying is only done in areas that have significant populations of gypsy moth and are in areas where there are residences.

When is the aerial spraying completed?

Timing is everything when it comes to effective control of the gypsy moth from aerial spraying. Caterpillars must be around 3/4 inches in length, actively feeding on the foliage (leaves), and weather conditions must be favorable. Favorable weather effects spraying conditions, but also the behavior of the gypsy moth caterpillar. If the weather is very cool, the caterpillars will be feeding very slowly or not at all. Since the spray being used needs to be eaten to be effective, extremely cool weather must be avoided when spraying even if all other conditions are just right.

Favorable spraying conditions for aerial application include very low winds (under 10 mph), moderate humidity (over 50%) and clear viewing. Low clouds, fog, or the threat of rain can slow or stop spraying operations. To get all of the physical and weather conditions at an optimum at the same time is nearly impossible, so judgment must be used to get the best conditions available to complete aerial spraying. Fighting "mother nature" sometimes is very frustrating.

Another factor in spraying is the size of the caterpillar. Many residents call to report that the caterpillars have hatched and may be frustrated that spraying doesn't begin immediately. Again, timing is everything. Caterpillars must not be too small or they will not ingest a lethal dose of Bt. If too big, they can not ingest enough Btk to be lethal. Compounding things is that some caterpillars may be small, some large, some just right.
The trick is to time spraying for when the vast majority are at the right life stage to be most affected by the spray. This is one more of the many factors that are considered when choosing spray dates.

What if it rains after spraying?

Particularly worrisome to many residents is the presence of rain after spraying, whether it is a few hours after or a few days after. Concern rises as to if the spray will continue to be effective. Btk is particularly "rain-fast", or resistant to washing off in precipitation. After spraying, if Btk is allowed to dry completely (depending on humidity, from 10 minutes to 1 hour), it is not very susceptible to being washed off in light and
moderate rains. However, if rain does occur within a relatively short time after spraying, new techniques are now available to determine if the spray has been washed off and/or how much is still on the leaves. This will determine the need for any re-spraying.

What materials are used in the spraying operation and how do they work?

The material typically used in gypsy moth suppression is called Btk (Bacillus thuringiensis sp.

kurstaki). Btk is a naturally occurring bacterium found on leaves and in soil. Btk is then "cultured" to
create large batches to be used in spraying operations. The active ingredient in Btk is a crystal protein and the resting spore of Btk. When the caterpillars eat the leaves sprayed with Btk, the crystal dissolves and releases the protein that damages their stomachs. Caterpillars then become sick and they stop eating. Within two or three days, bacteria enter the caterpillar's blood and eventually kill them.

Is Btk dangerous to humans, pets, and other wildlife?

Btk, unlike synthetic chemical insecticides, is very safe. Chemical insecticides are usually considered to be "broad spectrum", meaning they can kill a wide variety of "bugs" and can usually "persist" (last a long time) long after they are sprayed. Btk, however, is very specific to Lepidoptera (butterfly and moth species) larva (caterpillars). Also, because the gypsy moth hatches so early in the season, it is usually the only Lepidoptera species feeding when Btk is sprayed, thus, it
is considered fairly "target-specific". Btk remains active for three to five days depending on weather conditions. Rainfall is not a serious threat to the effectiveness of Btk as it is very difficult to "wash" off. However, it can sometimes seem that rainfall effects its effectiveness because caterpillars tend to not feed when leaves are very wet. Sunlight is the main way Btk is degraded. Cloudy weather will allow the Btk to stay active longer and sunny conditions will degrade the Btk more rapidly. Again,
"mother nature" is impossible to control.

Btk is not harmful to pets, other wildlife or humans. In fact, Btk is used in organic gardening operations.

Will Btk kill ALL gypsy moth caterpillars?

NO!! Btk is between 50% and 75% effective in killing gypsy moth caterpillars. It is not the intent of the spraying program to completely eliminate the caterpillars (which is impossible) but to reduce the numbers of caterpillars to a level that is "tolerable" for people (remembering that tolerable sometimes
means zero) and will adequately protect trees from significant defoliation.

What if I was sprayed and I still see damage to my trees? Are they going to die?

Even with spraying, some areas will have extremely high populations of gypsy moth larva. In these cases, even with 50% to 75% kill rates, the sheer number of caterpillars allows for a large number to survive.

Trees, however, are not usually permanently damaged. Deciduous trees (ones that loose their leaves in the fall) can withstand significant defoliation for two or three years in a row without significant damage. In most cases, the trees will simply re-leaf later in the summer. Proper watering and fertilizing will help your trees survive being defoliated. Some trees will be weakened by the defoliation and die, however, this is usually only in old or diseased trees that would likely die in the near future anyway. The gypsy moth is one of nature's ways of thinning out sick and diseased trees and is a naturally occurring population control method like fire, wind storms and other pests.

Attached is some information from our last suppression effort in 2009 and a great website that gives more interesting information about the gypsy moth life cycle, etc.

https://www.canr.msu.edu/ipm/Invasive_species/Gypsy-Moth/index