

**WATER MANAGEMENT**

A basic fact of the mosquito's biology is that they can only develop in still, standing water. Female mosquitoes are unable to lay their eggs in flowing water, because the larvae and pupae are unable to attach their siphon tube to the water's surface to breathe.

If an area is allowed to drain, the potential for a mosquito breeding problem is reduced. CMMCP employs several different methods to achieve this goal. The first method used is to manually clean the area, using hand and power tools. Brush and other obstructions are cleared from the stream bed and from the sides to reduce the likelihood of future problems. This method minimizes the impact to the area, and can be quite effective in reducing the mosquito breeding potential.

In some areas however, heavy machinery is needed to deepen and/or widen the stream channel due to siltation and other problems common to the drainage systems in this area. CMMCP uses a specially designed excavator to reduce the impact to the wetland systems, and allow us to accomplish our goal to maintain adequate water volume. Many factors need consideration when a piece of equipment like this is involved in a wetland area. The Project's ultimate goal is to reduce the mosquito breeding without a significant detrimental effect on the vegetation and wildlife in the area. Original stream channels are followed closely, and the site is maintained as close to the original state as possible.

For more information on our control techniques or on any of the products we use, please call us at 508.393.3055 Monday through Friday from 7:00 AM to 3:30 PM.



Link Belt 1600

**Central Massachusetts Mosquito Control Project**

111 Otis Street Northborough, MA 01532

508.393.3055



**Ken Courtemanche, Superintendent**

**Tim Deschamps, Asst. Superintendent**

**CONTROL & TECHNIQUE FACT SHEET**

This brochure presents specific information on our operation and the techniques we use to reduce the potential for mosquito nuisance. Included in these pages are explanations on the products and methods we employ to ensure proper pesticide applications with a minimal risk to the public.

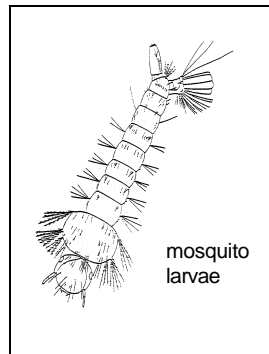


**WORKING FOR YOU SINCE 1974**

## LARVICIDING

The material of choice for larviciding is called **Bti**. Bti stands for *Bacillus thuringiensis israelensis*, a non-reproducing bacterium discovered in the soil of Israel's Negev desert in 1977. When the mosquito larvae eat the Bti spores and crystals, they enter the larvae's stomach and dissolve. These crystals produce a toxin that is fatal to the mosquito but has little or no impact on other aquatic life. Commercial manufactures have produced several different formulations to provide a variety of application methods.

Liquid Bti can be used in hand held

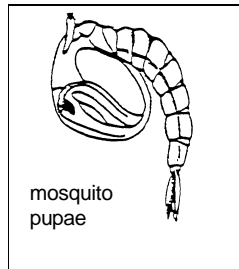


pump cans, back pack sprayers or truck mounted sprayers. One truck mounted sprayer, called a *hydraulic sprayer*, delivers a diluted amount of Bti at a pre-determined

rate, according to label directions and present larval conditions. The Bti is mixed with water to insure uniform coverage. The hydraulic sprayer delivers the mixed solution to the area that has been determined to hold sufficient amounts of larvae to justify an application. This method is used to apply

the Bti in larger areas along roadsides and other accessible areas.

A granular type of Bti can be used in different ways. Aircraft, either fixed wing or helicopter, are used to deliver it to large, widespread areas inaccessible to any truck or hand application because of size or location. It can be broadcast by hand, where the applicator can access areas not available to truck mounted or aerial applications due to a heavy tree cover.



Another product used by CMMCP is called **methoprene**. Methoprene is an insect growth regulator, and is specific to mosquito larvae. When a mosquito larvae is about to pupate, a hormone in the larvae shuts down, allowing it to pupate. The presence of methoprene in the water disrupts this cycle, and interferes with the mosquito's pupation. The mosquito will not hatch into a viable adult. At this time, CMMCP uses methoprene in catch basins only. Storm drains throughout town are checked to see if they are holding water, and if so, methoprene is added to reduce the potential of mosquito annoyance from these areas. All of these applications are conducted during the daytime hours.

## ADULTICIDING

The Central Massachusetts Mosquito Control Project conducts an early evening spray program which runs from approximately Memorial Day to Labor Day. Weather and mosquito populations determine the actual beginning and end of the program. The time of day the applications take place is from early evening to late evening. During this time the mosquito is most active, and spraying at these times allows us to control the mosquito with a minimal risk of exposure to the public.

The type of spraying practiced by CMMCP is called **ULV spraying**. ULV is an abbreviation for *ultra low volume*, a method of spraying which uses a small amount of insecticide to cover large areas. This procedure allows us to control mosquitoes, and to be as environmentally sensitive as possible. The spray machines are mounted on the back of pickup trucks, and the applicator drives the vehicle in the areas to be sprayed. The vehicle operator controls the spray from inside the truck, without the need to completely shut down the spray machine.

The product name of the mosquito adulticide used by CMMCP is called *Scourge®*. It is a combination of two ingredients, **resmethrin** and **piperonyl butoxide**. Resmethrin

is a synthetic pyrethroid, and piperonyl butoxide is a synergist (a chemical which enhances the ability of another), which allows resmethrin to control the mosquitoes at a much lower concentration. *Scourge®* is then mixed with mineral oil, which is used as a diluent. The ratio of mineral oil to *Scourge®* is 4.5:1. It is sprayed from the truck at 3 ounces per minute, at a vehicle speed of 10 mph. This works out to 0.5 oz. of *Scourge®* and oil per acre. The actual amount of resmethrin sprayed over a 1 acre plot is approximately equal to one fifth of a thimble, or about 10-15 drops from an eyedropper, and this presents a minimal risk to humans, pets and non-target species. The active ingredient in *Scourge®* photo-degrades (breaks down in sunlight) in less than 4 hours.

If for any reason a person wishes their property to be **excluded** from mosquito spraying, a registered letter with the name of their property abutters has to be sent to their local Town Clerk every year by March 1<sup>st</sup>, with a copy to our office. The property to be excluded also has to be marked every 50 feet with signs (paper plates) indicating **No Spray**. Or they can call our office to be added to the "No Spray" list as a courtesy. Any questions about our program can be directed to our office at **(508) 393-3055**.