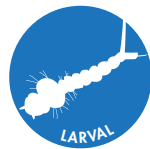




MICROBIAL AND CHEMICAL CONTROL GROUND-BASED APPLICATIONS FAQs

Placer Mosquito and Vector Control District conducts ground-based larvicide and adulticide applications to manage mosquito populations and protect public health in Placer County. Ground-based applications are an important part of our comprehensive integrated vector management program.



LARVICIDE

Why are ground-based larvicide applications used?

In Placer County, ground-based larvicide applications are used to control mosquito larvae in small to medium sized areas including residential areas to prevent them from developing into adult mosquitoes.

What types of larvicides are applied with ground-based equipment? Are they safe?

The District primarily uses Bti, short for *Bacillus thuringiensis* subspecies *israelensis*, in its ground-based larvicide program. Bti is a naturally occurring bacterium found in soil. It produces spores that contain toxins that specifically target and only affect the larvae of mosquitoes, blackflies and fungus gnats. Bti is not toxic to people and some formulations are approved for pest control in organic farming operations. The US Environmental Protection Agency has concluded that Bti does not pose a risk to humans. For more information about Bti visit the EPA's website at www.epa.gov/mosquitocontrol/bti-mosquito-control.

Other larvicides like bacterial materials, insect growth regulators and oils, may also be used depending on the needs of a particular site.

Where are ground-based larvicide applications made in Placer County?

Any area with standing water that can support mosquito development is a potential site for larvicide treatment in Placer County. With the exception of storm drains (catch basins), we inspect standing water for mosquito larvae, and if found, treat the standing water with a larvicide. Ground-based

applications can be made by hand, backpack sprayer, ATV, drone or truck. Storm drains are treated with mosquito larvicide if they hold water.

Wetlands, flooded fallow fields, irrigated pastures and neighborhoods where the invasive *Aedes aegypti* are found are places where ground-based larvicide applications can be effective.

What does a ground-based larvicide application entail?

A specialized sprayer on a truck can deliver low volume liquid larvicide directly to neighborhoods where the invasive *Aedes aegypti* are found. These residential larvicide applications are typically done in the early morning and involve the truck driving at approximately 10 miles per hour down each street in the treatment area. The larvicide material is visible coming out of the sprayer and spraying around 50 feet in the air. The larvicide droplets are designed to settle into standing water around houses, building, backyards and other hidden areas.

When does a ground-based larvicide application take place?

Ground-based larvicide applications are made during the daytime typically in the morning when atmospheric conditions are most favorable based on mosquito biology and adult mosquito surveillance data. Since mosquitoes are constantly laying eggs which turn into larvae, pupae and finally emerging as adult mosquitoes, it takes repeated treatments of larvicide throughout the season to control larvae consistently.



ADULTICIDE

What are ground-based adulticide applications and why are they used?

Ground-based adulticide applications are a variety of application methods including hand-held, ATV and truck mounted ultra-low volume spray equipment. Each sprayer is designed to fit a need and application area size. The purpose of ground-based adulticide applications is to decrease the number of adult mosquitoes in an area to limit mosquito biting and spread of West Nile virus.

Which types of adulticides are applied with ground-based equipment? Are they safe?

For ground-based applications, we commonly use products that contain a botanical insecticide pyrethrin or a synthetic version of pyrethrin plus a synergist like piperonyl butoxide which prevents the mosquito from breaking down the pyrethrin after exposure. All public health insecticides are extensively studied for safety and effectiveness and are applied according to strict regulations and label directions.

Mosquito adulticides are applied as ultra-low volume sprays. ULV sprayers dispense very fine aerosol droplets that stay aloft and kill flying mosquitoes on contact. ULV applications involve small quantities of pesticide active ingredients in relation to the size of the area treated, typically less than two ounces. The CDC states that "Adulticides can be used for public health mosquito control programs without posing risks of concern to the general population or to the environment when applied according to the pesticide label."

Where are ground-based adulticide applications made in Placer County?

Ground-based adulticide applications are made in areas with road access that are upwind of the application area in Placer County. Ground-based applications are effective only when the application can be delivered into the area where adult mosquitoes are active. Sometimes the direction and placement of roads and wind, speed and direction make these applications difficult.

What does a ground-based adulticide application entail?

Ground-based adulticide applications using truck-based equipment are made during adult mosquito activity peaks. While the most favorable time is an hour or so after sunset, we choose to target the early morning peak of mosquito activity typically an hour or so before sunrise to avoid traffic and pedestrians. During a ground-based application, a district truck with ULV sprayer installed in the back, will drive at approximately 10 miles per hour down each street in the treatment area. Applications are typically made only on one side of the street to avoid overapplication. Wind speed, direction and temperature are important factors in a successful ground-based adulticide treatment. If there is not enough or too much wind or the direction changes, a planned application may need to be canceled or rescheduled.

When does a ground-based adulticide application take place?

The decision to make a ground-based adulticide application is based on weekly mosquito surveillance trapping and disease testing. This information helps the District identify where people are most at risk of being bit by mosquitoes that can carry WNV. Ground-based adulticide applications are considered only when we find high abundance of mosquitoes or the amount of WNV infected mosquitoes are creating a public health risk.

Other ground-based adulticide application types:

- Hand-held ULV sprayers
- ATV or UTV mounted ULV sprayers
- Residual sprays

For more information please visit the links below.

www.cdc.gov/westnile/vectorcontrol/ground-based-spraying.html

www.epa.gov/mosquitocontrol/bti-mosquito-control

www.epa.gov/mosquitocontrol/controlling-adult-mosquitoes

www.westnile.ca.gov/news.php?id=99