PLACER MOSQUITO & VECTOR CONTROL DISTRICT

MICROBIAL AND CHEMICAL CONTROL

AERIAL APPLICATIONS FAQS

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

LARVICIDE

Why are aerial larvicide applications used?

In Placer County, aerial larvicide applications are used to control mosquito larvae in large flooded agricultural areas to prevent them from developing into adult mosquitoes.

What types of larvicides are applied aerially? Are they safe?

The District primarily uses Bti, short for *Bacillus thuringiensis* subspecies *israelensis,* in its aerial 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.

Where are aerial larvicide applications made in Placer County?

In Placer County, rice agriculture, located west of Roseville and Lincoln, contributes the largest amount of flooded agriculture. Wetlands, flooded fallow fields, cornfields and irrigation water ponds are places where aerial larvicide applications can be effective.

What does an aerial larvicide application entail?

Single-engine agricultural airplanes (crop dusters) apply a granular or low volume liquid larvicide directly to flood irrigated fields (rice, wetlands, corn, etc). Aircraft can be observed making multiple very low altitude passes, usually less than 30 feet above the ground, back and forth over fields. Spray is turned on only when over water. Aerial larvicide applications are indistinguishable from other aerial agricultural applications of pesticides, fertilizer or seed.

When does an aerial larvicide application take place?

Aerial 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, the District plans larvicide treatments to flooded agricultural fields generally from June through August or early September. The specific dates for applications can vary due to weather, availability of aircraft, irrigation schedule, and other factors. 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.

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ADULTICIDE

Why are aerial larvicide applications used?

Aerial adulticide applications are used to decrease the number of adult mosquitoes to limit mosquito biting and spread of West Nile Virus.

Which types of adulticides are applied aerially? Are they safe?

The District uses different EPA-registered mosquito adulticides in rotation to help reduce the potential for insecticide resistance. One commonly used product contains the active ingredient naled and another contains a mixture of botanical insecticide pyrethrin plus piperonyl butoxide (PBO) which is a synergist 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 aerial adulticide applications made in Placer County?

Application target areas may be agricultural areas or urban areas or a combination depending on the risk of transmission of WNV to people. Historically WNV incidence in mosquitoes and human cases have been west of Auburn, with the nearly all aerial adulticide applications having been made in western Placer County Lincoln and Roseville. Specially equipped aircraft are able to use wind speed and direction readings as its flying to calculate where it needs to fly in order for the adulticide application to hit pre-determined target areas. If it is very windy, the aircraft may fly as much as a mile away upwind of the target area. When this happens, the areas directly under the aircraft are not being sprayed, instead the spray cloud is being pushed by the wind into the target area. The District does regular field assessments and testing to confirm adulticide applications are accurate and effective.

What does an aerial adulticide application entail?

Aerial adulticide applications are made using specially equipped (typically twin-engine) aircraft that fly at approximately 300 feet above the ground. Pilots are specially trained and certified to operate at night, and to conduct adult mosquito control operations. Aerial adulticide applications are conducted shortly after sunset and may extend to near midnight. This timing is critical to match adulticide treatments to when adult mosquitoes are most active.

When does an aerial adulticide application take place?

The decision to make an aerial 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 bitten by mosquitoes that can carry WNV. Aerial adulticide applications are used only when the amount of WNV infected mosquitoes are creating a health risk to the public.

For more information please visit the links below.

www.cdc.gov/westnile/vectorcontrol/aerial-spraying.html

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

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

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