

## CMAD's APPROACH TO MOSQUITO CONTROL

The Cache Mosquito Abatement District uses an integrated approach to mosquito control which has been reviewed by experts in the fields of public health, toxicology, and pest management. Surveillance, larvicide, and adulticide along with education and personal protection are emphasized. Adulticide (commonly called fogging) is the activity that gets most of the attention from the public. However, it's the smallest component of the integrated pest management program used by CMAD.

Larvicide (control of mosquito larvae) is by far the largest component of our activities. Technicians are in the field 10 hours a day doing surveillance to determine where mosquito larvae are present. They check standing bodies of water by using a cup on the end of a pole to scoop up water and look for mosquito larvae. If larvae are present, they choose which type of control chemical is appropriate for the area. Larvicide chemicals include *Bti*, a microbial byproduct that specifically targets mosquito larva. By using chemicals targeted specifically towards mosquito larva, CMAD can see a much more efficient kill rate while causing extremely minimal impact on other life forms. Larvicides also stay active longer—up to a month, in fact, while fogging for adults only kills mosquitoes that are active at the time of application. Currently, the District spends nearly threefold more time on larvicide activities than fogging.

CMAD uses surveillance to track the number and species of adult mosquitoes and to identify which areas have mosquitoes carrying the West Nile Virus (WNV). Carbon dioxide traps collect female mosquitoes overnight (only the females feed on mammals). Technicians collect the mosquitoes from the trap chamber (this is called a mosquito pool) and return to the lab to count them and to identify which species are present. In Cache County, the *Culex* species of mosquito carries WNV; if numbers are high and the pool tests positive for WNV, then the District will use Kontrol 30/30 to control the adults in that area.

Fogging (using a truck-mounted pump to spray ultra-small droplets in the air) is and will probably always be part of the CMAD integrated pest management program. Because it is impossible for the District to use larvicide on every little puddle of water (remember, it only takes half a cup of water to be home for hundreds of mosquito larva), we need to be able to quickly knock down high infestations of adult mosquitoes, especially when tests show that mosquitoes in that area are carrying WNV or other diseases.

The EPA (Environmental Protection Agency) and similar agencies both in the U.S. and Canada have estimated that exposure and risks to both adults and children posed by fogging with Kontrol 30-30 are hundreds and even thousands of times below an amount that might pose a health concern. These estimates assume repeated spraying over a period of weeks, and also assume that toddlers would ingest soil and grass in addition to any skin or inhalation exposure.

Kontrol 30-30 is a permethrin, an insecticide in the pyrethroid chemical family. Pyrethroids (also known as synthetic pyrethroids) are man-made insecticides chemically similar to the pyrethrins found in natural pyrethrum. Natural pyrethrins are extracted from the flowers of the chrysanthemum plant, which have long been recognized for their insecticidal activity.

Pyrethroids do not have the extent of adverse effects on non-target organisms that some other insecticide groups have. Pyrethroids are widely used in public health applications because of

their relative safety for humans and other terrestrial vertebrates, high insecticidal potency at low dosages, and rapid knock-down effects. The relatively low application rates and small droplet sizes used in these types of applications result in minimal exposure to people in the treated area.

The District relies on surveillance results and citizen requests/reports of mosquito numbers to determine where and how often to fog at the start of the season (which can be as early May 1 in some areas). By the first or second of June, the District will be fogging on a weekly schedule. The fogging schedule is posted on the District website. The weekly schedule may change around summer holidays or local celebrations so check back on Mondays during the season (June through September). Areas are generally fogged once a week but may be fogged more often due to confirmation of WNV in mosquito pools. Fogging is done for a few hours at night to reduce the chance of targeting pollinators such as bees and because that's when the mosquitoes that carry WNV are active.

How can you help in this effort? Make sure there is no standing water on your property; check toys, swing sets, and gutters that may collect even small amounts of water. If you have larger bodies of still water and would like to be sure they receive larvicide treatment, please contact CMAD and show the technicians where they are.

And always remember to Fight the Bite: wear long sleeves and pants at dusk and dawn when mosquitoes are most active, and apply a mosquito repellent containing DEET or other approved repellent if you will be outdoors during those times.

**How to contact us:**

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Additional Information:

Agency for Toxic Substances and Disease Registry: <https://www.atsdr.cdc.gov/>

National Pesticide Information Center (<http://npic.orst.edu>)

The EXtension TOXicology NETwork (<http://extoxnet.orst.edu>)

EPA (<https://www.epa.gov/mosquitocontrol>)

Utah Department of Health ([http://health.utah.gov/epi/diseases/WNV/educat\\_mat/](http://health.utah.gov/epi/diseases/WNV/educat_mat/))

CMAD (<http://www.cachemosquito.com>)