

INTEGRATED VECTOR MANAGEMENT IS CRITICAL FOR PROTECTING PUBLIC HEALTH

MOSQUITO-BORNE DISEASES KILL OVER ONE MILLION PEOPLE WORLDWIDE EACH YEAR

- According to the U.S. Centers for Disease Control and Prevention, disease cases from infected mosquitoes, ticks, and fleas increased from 27,388 in 2004 to 96,075 in 2016. California is one of the states most affected by mosquito-borne diseases.
- West Nile virus has sickened nearly 7,000 Californians and killed over 300 residents since it was first detected in 2003.
- Invasive mosquitoes, *Aedes aegypti* and *Aedes albopictus*, which are capable of transmitting Zika, dengue, yellow fever, and chikungunya viruses are spreading throughout California.



MOSQUITO CONTROL DISTRICTS PROTECT PEOPLE AGAINST MOSQUITO-TRANSMITTED DISEASES AND ENHANCE QUALITY OF LIFE BY CONTROLLING NUISANCE MOSQUITOES

- The best way to prevent the transmission of mosquito-borne disease is the strategic application of Integrated Vector Management (IVM).
- IVM is a data-driven method for controlling mosquitoes and other disease vectors that utilizes techniques such as:
 - Public education and community outreach
 - Surveillance and risk assessment
 - Promoting effective water management and mosquito-prevention habits
 - Changing the landscape to prevent recurrence of mosquitoes
 - Taking advantage of mosquitoes' natural predators
 - Using chemical control through the application of pesticides
- With the introduction of new mosquito species and increased potential for mosquito-borne diseases in California, mosquito and vector control districts are facing new challenges that are putting a strain on current IVM resources.



INTEGRATED VECTOR MANAGEMENT IS A SHARED RESPONSIBILITY

- By working together to strengthen collaboration, promote community engagement and education, and ensure there are adequate resources and funding for mosquito and vector control districts, California can minimize the risk mosquitoes pose to human health.



INTEGRATED VECTOR MANAGEMENT

Data-driven decision making tool to suppress vector-borne diseases

Ongoing Efforts to Control Mosquitoes

Public Education

Involves outreach and community engagement to encourage the public to protect themselves from mosquito bites and prevent mosquito breeding.

Tactics can include earned media, social media outreach, paid advertisements, youth programs, and attendance at community events.

Surveillance

Mosquito abundance and disease surveillance enables districts to make informed decisions about where to focus resources and what level of intervention is required.

Surveillance data also helps districts evaluate the efficacy of the control measures.

Preventative Practices

Integrates vector management strategies into land use and local and regional planning activities.

Encourages good water management and mosquito-prevention habits.

Benefits: can reduce the need for pesticide applications.

Drawbacks: requires considerable public investment, time, and ongoing support for lasting change.

Situationally Dependent Tools to Control Mosquitoes

Biological Control

Natural approach that uses predators, such as mosquitofish, to reduce mosquito larvae and pupae. May involve other native fish to minimize adverse impacts to aquatic species.

Benefits: potential long-term and recurring control once successfully established.

Drawbacks: may not adequately eliminate mosquito larvae.

Physical Control

Changes a landscape to eliminate current and future mosquito production. May require support of the property owner or use of enforcement authority.

Benefits: complete elimination of mosquito larvae when effective.

Drawbacks: resource costs including specialized equipment and trained employees; inability to physically modify all sources of standing water; can be time intensive.

Chemical Control

Larviciding

Uses pesticides targeted at localized water sources that have mosquito larvae. Eliminates mosquitoes at the larval stage when they do not have the ability to feed on humans or animals and spread diseases.

Benefits: wide variety of products with high efficiency, specificity, and residual control.

Drawbacks: can be labor intensive to identify and target water sources containing mosquito larvae.

Adulticiding

Requires precise timing of insecticides applied in very tiny droplets known as Ultra Low Volume (ULV) application. Sole means of quickly eliminating adult mosquitoes over a large area.

Benefits: reduces transmission of West Nile virus and other mosquito-borne pathogens; minimal public health risks.

Drawbacks: environmental conditions may affect efficacy.

MVCAC

Mosquito and Vector Control Association of California

One Capitol Mall, Suite 800, Sacramento, CA 95814

p (916) 440-0826 e mvccac@mvccac.org w www.mvccac.org

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