What you should know about Aerial Larval Control

Larval surveillance and control is a critical component of any effective Integrated Vector Management (IVM) program. When mosquitoes are eliminated prior to becoming adults, they cannot pose a nuisance or disease problem. Larval mosquito surveillance and control are the largest and most extensive aspect of the Coachella Valley Mosquito and Vector Control District mosquito control program.

1. **What is the District hoping to achieve by carrying out this operation?**
   The mosquito species the District is targeting, *Aedes aegypti*, is not native to the U.S. and is capable of transmitting viruses including chikungunya, dengue, yellow fever, and Zika. Currently these viruses are not transmitted locally and we want to keep it that way. Local transmission of these viruses can begin if a person returns to the Coachella Valley after traveling to an area where there is active transmission of these viruses. If that person is then bitten by one of these mosquitoes, that mosquito can infect local residents. Once this mosquito species is established, it is very difficult to get rid of. Aerial larval control applications in urban areas, such as Coachella, Indio, and Key West in Florida, have been successful in bringing mosquito populations down quickly.

2. **Why is the District carrying out aerial larval control treatments over an urban area by helicopter?**
   The ultimate goal is to protect the community from mosquito-borne diseases. Aerial control is an important tool for mosquito control. It helps reduce mosquito populations in areas that are hard to reach. A helicopter allows more precise applications because of better speed control and maneuverability. Larger area applications are often carried out by plane. During aerial treatments, a GPS-equipped helicopter applies the larvicide directly to areas of standing water where mosquitoes breed. Vector Control Program staff are present before, during, and immediately following the treatment to monitor the application and answer questions.

3. **What product is used?**
   The product, VectoBac® WDG, is environmentally friendly, approved for application on organic crops, and registered with the U.S. Environmental Protection Agency and the California Department of Pesticide Regulation. The active ingredient in this product is *Bacillus thuringiensis israelensis (Bti)*, a microbe found naturally in soil.
   - Organic Materials Review Institute - http://www.omri.org/omri-lists
   - EPA - https://www.epa.gov/mosquitocontrol/controlling-mosquitoes-larval-stage
   - CDPH - https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/MosquitoControlandPesticides.pdf#search=what%20you%20should%20know%20about%20pesticides
   - Product Manufacturer - https://www.valentbiosciences.com/publichealth/products/vectobac
   - National Pesticide Information Center - http://npic.orst.edu/factsheets/BTgen.pdf

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4. **How does the product work?**
   Bti makes proteins that are toxic to immature mosquitoes (larvae), preventing them from developing into flying adult mosquitoes. This lessens the need to spray for adult mosquitoes.

5. **How safe is this product for me, my family, and my pets?**
   Risk to the general public from the use of Bti is minimal. It has no effect on people, pets, plants, or wildlife at the amounts used for mosquito control. In fact, little to no direct toxicity to non-target insects has been observed with this product. People with pre-existing allergies may want to avoid exposure during and immediately after the application as a best practice.

6. **How can we limit our exposure to the product?**
   Residents may choose to stay indoors during and for 30 minutes following the application as a best practice to reduce exposure.

7. **Is this product going to leave spots on my patio furniture or my car?**
   After going back outside, residents should not see any visual signs of the treatment on their property. Repeated applications in Coachella, Indio, and Florida have shown no problems with spotting or staining on outdoor structures.

8. **How long will Bti last in the environment?**
   Because Bti is a biological agent, it tends to break down quickly in the environment. Its breakdown in water or soil usually occurs quickly after application.

9. **Will this be a one-time thing?**
   The next steps will be to evaluate the impact of the aerial larvicide application prior to finalizing any expanded aerial operations over other areas in the Coachella Valley where we continue to find *Aedes aegypti*. The District will continue to carry out larval and adult control by air and by truck to reduce the invasive *Aedes* mosquito.

10. **Is there anything the community can do to help control these mosquitoes?**
    This is a community problem. The District is urging residents to do their part to eliminate stagnant water around the home. Working together will increase our chances of ridding the mosquito from our community. Removing mosquito breeding sources is the best long term solution to reduce mosquito breeding on your property and the risk of disease transmission in your neighborhood.
    - Dump and drain standing water around your property weekly.
    - Regularly scrub clean containers. *Aedes aegypti* can lay eggs in as little as a teaspoon of water and eggs can survive dry conditions for months.
    - Check gutters and drains for water.
    - Call the District if bitten by mosquitoes during the day or to report black-and-white striped mosquitoes.