

## **Desplaines Valley Mosquito Abatement District Criteria for initiating contingency adult mosquito control measures**

The District does not conduct routine adult control operations. Adult control is the least effective approach to mosquito control with only localized, temporary benefits. However, adult control is the only *tool* available to use against an adult mosquito population which is involved in a disease transmission cycle. Hence, the District will only implement residential adult control operations as a contingency measure for vector related mosquitoes.

The District considers guidelines established by the Illinois Department of Public Health (IDPH) in their publication entitled AIDPH Surveillance and Response Procedures for Mosquito-borne Arbovirus Emergencies and Center for Disease Control in consideration of residential adult mosquito control operations. Operations will be focused against specific vector populations of *Culex pipiens* and related species in an effort to minimize or break a viral transmission cycle.

The ultra-low volume insecticide aerosol application process as initiated in 1971 is utilized in any adult control operations. All truck mounted equipment utilized by the District is equipped with automatic flow control which directly regulate insecticide application to vehicle speed, thus ensuring accurate application rates. Adult control operations are conducted only when environmental constraints of ambient air temperature between 65-85 degF and wind speeds in the 2-8 mph range are satisfied to optimize effectiveness.

Specific criteria considered are the following:

### ***Primary Triggers***

- a) ***POSITIVE MOSQUITO POOLS*** - Confirmation of viral activity within the adult mosquito population. Our District operates a network of gravid traps to collect adult mosquito samples for subsequent testing of WNV & SLE. These traps are highly selective in collecting *Culex species* mosquitoes having had a blood meal and potential exposure to WNV or SLE. In-house testing using the VecTest process gives immediate results which are further sent to the Illinois Natural History Survey (INHS) for confirmation utilizing alternate tests.
- b) ***Dead Birds*** - Numbers of dead crows/blue jays/raptors and the time of year they are found. Subsequent confirmation by the IDPH of WNV within the dead birds.
- c) ***Time of Season*** - The point in any given mosquito season when *initial* positive bird and mosquito pool samples are confirmed. Positive samples early in the season set the stage for a developed viral amplification/transmission cycle, whereas initial positive samples late in the season would minimize this cycle.
- d) ***Surrounding State Data*** - Viral activity in adjacent states, particularly early in the season, is a precursor to activity in our state.
- e) ***Equine Cases*** - Confirmed equine cases are an indicator that a spillover from the bird population has occurred. Viral activity has amplified and escalated to a level where this occurs.
- f) ***Human Cases*** - Confirmed human cases or fatalities are the ultimate indicator that a spillover from the bird population has occurred, and likely to continue.

### ***Secondary Triggers***

- a) ***Vector Population Level*** - A larger than normal vector population level poses a greater risk for spillover disease transmission to humans. But a low vector population does not imply that disease transmission will be minimal or disappear. Under the circumstances of a high infection rate, spillover transmission *will* occur even with a low vector population.
- b) ***Weather: Rain & Temperature*** - Rainfall can directly affect vector population levels. Water is required for all mosquito development, with rainfall influencing the number of potential breeding sources. Temperature on the other hand can affect *both* vector population levels and the viral amplification/transmission cycle. Above normal temperatures also can increase the viral transmission rate.