

APPENDIX G: MOSQUITO ABATEMENT

FEMA may provide reimbursement for mosquito abatement measures at the written request of the State, Territorial, Tribal, or local public health officials after FEMA consults with the Centers for Disease Control and Prevention (CDC), based on:

- Evidence of:
 - Higher levels of disease transmitting mosquitoes in the disaster area following the event;
 - A significant number of disease-carrying mosquitoes in the area due to the increase in event-related standing water; or
 - The potential for disease transmission and human exposure to disease carrying mosquitoes based on the detection of arboviral diseases in sentinel organisms (poultry, wild birds, mosquito pools) in the impacted area prior to the storm event, discovered during surveillance as part of mosquito abatement activities, or reported human cases in which transmission occurred prior to the storm event.
- A determination that a significant increase in the mosquito population and/or the change of biting mosquito species poses a threat to emergency workers who are required to work out-of-doors, thereby significantly hampering response and recovery efforts.

Such evidence may include an abnormal rise in landing rates or trap counts, significant changes in species composition or estimate of infection rates, when compared to pre-disaster surveillance results.

- Verification from medical facilities within the affected area that an increase in the general public's exposure to mosquitoes has directly resulted in secondary infections, especially among those with weakened immune systems such as the elderly, the very young, or the sick.

This may occur when increased numbers of residents in disaster areas with extended power outages are forced to open buildings for air circulation.

Where possible, a determination of the need for vector control measures should be based on surveillance data provided by local agencies, or on surveillance conducted as a component of the



Terminology

An **arbovirus** is a virus utilizing arthropods as vectors and is transmitted via their feeding to a definitive host.

The **landing rate**, expressed as number of mosquitoes landing per minute, is used as an adult mosquito surveillance measure utilizing human volunteers as bait.

Methoprene Briquettes are formulated with methoprene (compound that mimics the action of an insect growth-regulating hormone and prevents the normal maturation of insect larvae) growth inhibitor and a timed-release carrier that resembles a charcoal briquette.

A **sentinel organism** is an organism, usually fowl, purposely exposed to mosquito bites outdoors to monitor pathogen transmission by mosquitoes.

Seroconversion is the development of detectable antibodies in the blood of a sentinel organism directed against an infectious agent.

Trap count is the number of female mosquitoes captured in a trap receptacle each night the traps are set.

emergency response. Similarly, termination of control efforts should be based on mosquito density and disease transmission monitoring, and on the degree of exposure to mosquitoes of residents and responders. Information useful in determining the need for emergency mosquito control measures includes:

- The local jurisdiction's mosquito population density estimates pre- and post-disaster, including information about species composition
- Arbovirus transmission activity indices, including information about the location of surveillance activities; indices may consist of:
 - Infection rates in mosquitoes
 - Seroconversion in sentinel chickens
 - Equine case
 - Human cases
- The amount and type of flooding (e.g., saltwater/freshwater, coastal/inland)
- The extent and location of damage to housing
- The extent, location, and anticipated duration of power interruption
- The anticipated extent and duration of cleanup and recovery operations
- A description of the type of mosquito management required (e.g., aerial or ground-based adulticide applications, larvicide applications), and duration of application to reduce the threat and the areas where the interventions are needed

To be eligible for Public Assistance (PA) funding, insecticide formulations must be among those approved and registered by the U.S. Environmental Protection Agency for use in urban areas for mosquito control, and must be applied according to label directions and precautions by appropriately trained and certified applicators. Furthermore, mosquito abatement measures must comply with all Federal, State, Territorial, and local laws, ordinances, and regulations concerning vector control. Mosquito abatement measures include, but are not limited to the following:

- Adulticiding – The ground or aerial spraying of insecticides to kill adult mosquitoes
- Larviciding – The application of chemicals, including methoprene briquettes, by ground or air to kill mosquito larvae or pupae
- Breeding habitat removal or alteration – The modification of potential breeding habitat to make it unsuitable for mosquito breeding or to facilitate larval control, including:
 - Draining or removing standing water in close proximity to homes, schools, sheltering facilities, and businesses
 - Increased dewatering through the pumping of existing drainage systems
 - Dissemination of information (e.g., inserting flyers with resident's water bills, public service announcements, newspaper campaigns) to direct residents to remove the mosquito breeding habitat