Biomist® Adulticide

Biomist is a mosquito control product designed for use in Integrated Mosquito Management programs for nuisance population control and vector-borne disease response. The active ingredient in Biomist is permethrin, a synthetic pyrethroid that mimics the insect-killing (insecticidal) properties of natural substances called pyrethrins, found in chrysanthemum flowers. Biomist also contains piperonyl butoxide (PBO), a chemical synergist that enhances the efficacy of the product's active ingredient against mosquito populations.

When applied as indicated on the label for adult mosquito control, Biomist does not endanger human health. Prior to registering a public health mosquito control product, the EPA evaluates products thoroughly to be sure there is no significant risk to humans, animals and the environment from their responsible use. Biomist and its ingredients have been thoroughly evaluated in rigorous tests required by the EPA, and have been approved for ground and aerial application in outdoor, residential and recreational areas, and other similar areas.

Biomist is applied in an ultra-low volume (ULV) non-thermal aerosol spray, most typically through truck-mounted ULV equipment, and applications are conducted between dusk and dawn when wild mosquito populations are typically most active. ULV equipment converts a liquid mosquito control product into an ultra-fine spray cloud comprised of microscopic droplets that are so small, more than 15 individual droplets could fit on the head of a pin. The small size of the droplets allows them to float through the air for a short period of time so they can come in contact with flying adult mosquitoes. The droplet formulation is designed to penetrate the cuticle of the mosquito, affecting its nervous system, knocking it down and ultimately delivering mortality. ULV applications for mosquito control require a very small amount of product per land acre and low percentages of active ingredient in formulated products to be effective on mosquitoes.

Mosquito control applications using ULV spray equipment and conducted in accordance with label guidelines should not affect healthy colonies of beneficial insects. Mosquito control treatments are most frequently done at night to maximize their effectiveness on wild mosquito populations and minimize exposure to non-target insects like bees, which are typically sheltered in a hive during the time of mosquito control application. Although many insecticides are toxic to non-target pests upon direct exposure in controlled laboratory conditions, field research conducted by Louisiana State University designed to mimic "real world operational conditions" for mosquito control found that ULV treatments with several different mosquito control products did not result in any bee mortality, even at the highest possible application rate and with direct exposure as close as 50 feet from the spray line. A summary article of these research findings is available here.

Clarke advocates that all mosquito control programs maintain open and transparent dialogue with their communities about the practice of mosquito control, with community education being a core pillar of Integrated Mosquito Management practice. With responsible application methods of EPA-registered mosquito control products and open, transparent dialogue with all hobby or commercial apiaries in a district, public health and pollinator interests can be mutually protected.