The EPA Process

The Environmental Protection Agency (EPA) considers both the toxicity of a product and its potential exposures, as part of the regulation process to ensure a pesticide’s proper use does not pose unreasonable risks to human health or the environment.

As part of its pesticide evaluation process the EPA considers numerous factors such as:

- Hazard identification
- Dose-Response relationships
- Exposure assessments
- Single dose short term exposures
- Repeated exposures over an intermediate timeframe (30-90 days)
- Repeated long-term exposure over an estimated life span.

The EPA recognizes that a risk assessment process can have variability among organisms and considers worst-case scenarios with a 10-fold safety factor figured into its process.

When a pesticide is approved through the risk assessment process it is assigned to a specific “toxicity category”. The toxicity categories range from:

- Category I – Highly Toxic (DANGER label)
- Category II – Moderately Toxic (WARNING label)
- Category III – Slightly Toxic (CAUTION label)
- Category IV – Practically Non-toxic (CAUTION label)

All of the products used in adult mosquito control are CAUTION label pesticides.

Additional References

There are hundreds of scientific, peer-reviewed, published studies that have confirmed the low risk to humans, the environment, and non-target organisms from properly used adult mosquito control products. Below is a sample listing of a few of those studies.


Contact Us

Toledo Area Sanitary District
5015 Stickney Avenue
Toledo, Ohio 43612
Office - 419.726.7891 Fax – 419.726.7721
www.tasd-mosquitoes.org

Adult Mosquito Control & Risk Assessment

“The real measurable risk of West Nile Virus far outweighs the predicted risk of these chemicals, but that doesn’t mean the perception of risk isn’t there.”

~ Arthur Craigmill, Ph.D.

Retired Director of the University of California Davis Sierra Foothill Research and Extension Center and Co-founder of the Extension Toxicology Network
“Risk” can be defined as the probability or likelihood of suffering harm or damage. When used in reference to adult mosquito control operations, or “spraying”, it is generally meant to describe the possibility of the products being used having a negative impact on human health, the environment, or non-target organisms.

“Risk” is assessed and estimated by considering the following equation:

\[
\text{RISK} = \text{EXPOSURE} \times \text{TOXICITY}
\]

What this equation means is that the risk of suffering harm is directly dependent upon the “exposure” to the product in question and the inherent “toxicity” of that product.

It takes BOTH, exposure and toxicity to create any risk. The more toxic the chemical, the less exposure needed to cause a negative impact. The less toxic a chemical, the more exposure is needed to cause an impact.

Risk assessment, at its core, attempts to quantify and consider the toxicity of a product and the potential exposure through its normal use to determine if there is a measurable risk of potential harm occurring.

The Toledo Area Sanitary District utilizes adult mosquito control products (adulticides) through nighttime “fogging” and daytime “mistng”. This is part of an Integrated Mosquito Management (IMM) plan designed to control mosquitoes throughout their development and particularly in the adult flying stage, where they are capable of spreading diseases such as West Nile Virus, LaCrosse Encephalitis, Eastern Equine Encephalitis, Chikungunya Virus, Dengue Fever, and dog heartworm.

Other entities and agencies have also recognized the importance of adult mosquito control operations and have acknowledged the benefits far outweigh the risks:

“Properly applied these products do not negatively affect human health or the environment.”
— Centers for Disease Control (CDC), West Nile Virus in the United States: Guidelines for Surveillance, Prevention, and Control

“Adulticides can be used for public health mosquito control programs without posing risks of concern to the general population or the environment when applied according to the pesticide label.”
— Environmental Protection Agency (EPA), www.epa.gov/mosquitocontrol/controlling-adult-mosquitoes

“Adult mosquito control will reduce the abundance of infected biting adult mosquitoes below threshold levels in order to prevent human cases and break the enzritic transmission cycles.”
— Ohio Arbovirus Task Force, Plan for Surveillance, Prevention, and Control of West Nile Virus and other Arboviruses in Ohio

The Toledo Area Sanitary District uses only EPA registered and approved adult mosquito control products that are applied by trained employees who are individually licensed by the Ohio Department of Agriculture.

The products are applied using Ultra-Low Volume (ULV) technology that dispenses droplets into the air that are 8-30 microns in size, meaning about 150 drops can fit across the head of a pin. ULV technology allows for a very small amount of adulticide to be used to be effective in killing mosquitoes, thus reducing exposure to humans and non-target organisms. The specific products used by T.A.S.D. are applied at a rate of less than ½ ounce per acre, or about 2 ½ teaspoons per acre.

Examples of additional measures implemented by T.A.S.D. to minimize risk associated with the use of pesticides include:
- Ongoing continuing employee training & education
- Routine maintenance and calibration of application equipment
- Testing of new products as they become available

The Toledo Area Sanitary District utilizes adult mosquito control sprays in the manner for which they are intended: as a supplement to a well rounded complete IMM control program that minimizes risk and seeks to keep Lucas County residents healthy, comfortable, and safe.