



Environmental Health

Mosquito Control Program

The Summit County Public Health (SCPH) Mosquito Control Program began in 1976 due to cases of St. Louis encephalitis caused by mosquitoes in 1975 within Summit County.

The program consists of 10 to 13 personnel. Typically three seasonal staff persons perform surveillance activities, six seasonal staff persons perform larval treatments and inspections, one ULV Applicator (for evening spraying) and one program coordinator are employed per season. SCPH promotes our seasonal job with local universities such as: Kent State University and Akron University to hire students for the mosquito control season. However, everyone is encouraged to apply if they think they will be a good fit.

SCPH's mosquito control program is a human disease prevention based program. Mosquitoes that cause disease to humans are targeted and tested for control. Mosquitoes that don't cause human disease are considered nuisance mosquitoes are targeted only under unusual circumstances.

Program Goals are to reduce the number of disease-carrying and pest mosquitoes in a cost effective and environmentally responsible manner. To educate the public on methods of cultural practices that will reduce the number of mosquito breeding sites and methods to reduce the feeding activities of mosquitoes. To have the ability to monitor mosquito populations in Summit County for mosquito-borne diseases and determine population levels for pest species.

The Summit County Public Health Mosquito Control Program consists of the following components:

- Mosquito Control Education and Information
- Mosquito Surveillance Program
- Mosquito Larviciding Program
- Mosquito Adulticiding Program

Mosquito Education

Summit County Public Health (SCPH) provides information to the public on matters such as mosquito ecology, vector-borne disease information, proper cultural practices for mosquito larva reduction, and mosquito control methods used by the Mosquito Control Program. To obtain this information call SCPH Mosquito Control at (330) 926-5669 Monday through Friday from 8am to 4pm. SCPH maintains a mosquito evening spray line which residents can call at 330-926-5667. The phone line is updated every Friday or when spraying is cancelled due to inclement weather.

Use an Integrated Mosquito Management program for Best Management Practices

"Successful Integrated Mosquito Management (IMM) utilizes a combination of control strategies, including surveillance, source reduction, larviciding, adulticiding (only when necessary), biological control and education for Best Management Practices (BPM). Adulticiding alone is ineffective in controlling mosquito populations because it is difficult to get the adulticide to the inaccessible habitat of the adults. Mosquito larvae are left to continue their development and they quickly replace the adults. In fact, mosquitoes can build up a resistance if they are overused.

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Aside from the ineffectiveness, pesticides can have long term ecological, environmental and health impacts. The EPA encourages non-chemical mosquito control measures; therefore, in an IMM approach to mosquito control, adulticides play only a small part in overall mosquito control.”
– West Virginia Department of Health and Human Recourses, Bureau for Public Health, June 2002

Mosquito Control Methods

Cultural/Source reduction – involves practices which prevent water from standing for more than four days, such as repairing ditches to prevent seepage, clearing ditches of vegetation to promote rapid flow, and improving drainage channels in irrigated fields.

Biological Control – a naturally occurring bacteria called Bti, which is toxic only to mosquito and black fly larvae, and is not toxic to beneficial insects. A native plains fish can be used to control mosquito larvae in areas where there is standing water for long periods of time, such as wetlands and ponds.

Chemical Control – involves the application of pesticides to reduce the number of mosquitoes in an area. Pesticides can be used to control mosquitoes in various stages of their life cycle. Larvicides are used the most as they are the most efficient in controlling populations. Adulticides are used as a last resort, and only when nuisance threshold values have been exceeded or when mosquito-borne diseases are found.

Mosquito Surveillance Program

What is mosquito surveillance?

Surveillance is the foundation on which any mosquito control program should be based. Surveillance identifies locations where mosquito populations are building, so targeted control measures can be implemented before a problem exists. Larval surveillance is done by sampling a wide variety of habitats. Surveillance of adults targets mosquitoes which are no longer in the larval habitat. Traps for adult mosquitoes include CDC light traps which may be baited with carbon dioxide. These traps are used to capture mosquitoes looking for a blood meal. Gravid traps are frequently used to sample Culex mosquitoes ready to lay eggs. Surveillance is also used to determine the mosquito species in a given area, allowing us to recognize the species that can carry disease. Nuisance mosquito calls from the public can serve as places to start mosquito surveillance.

Surveillance program objective

The object of this program is to collect mosquito specimens for mosquito related encephalitis testing. Thousands of Culex specimens per year are submitted from SCPH and are tested for West Nile Virus and St. Louis encephalitis. These mosquitoes are collected using gravid traps. SCPH has 181 trap sites in the county and over 500 traps are set per season. In certain instances CDC light traps are used to monitor population levels of pest mosquitoes.

Mosquito Larviciding Program

What is larviciding?

Larviciding is the adding of chemical or other product to a water source to kill mosquito larvae and pupae. Controlling the larva is more effective than adulticiding. Chemicals available include Insect Growth Regulators (IGR's), which prevent the larvae from completing their development. Chemical control of larvae should only be carried out by trained personnel or at their instruction. Several “biological” larvicides (bacteria registered as pesticides), which are safe and easy to use, are available as control agents. These include Bacillus thuringiensis, Bacillus israelensis, and Bacillus sphaericus which are available commercially.

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Larviciding program

The purpose of the program is to reduce the number of mosquito larva by treating breeding sites from May through September. Presently there are over 1300 sites totaling over 600 acres within Summit County that are inspected, each receiving treatment up to 3 times during the summer. For a list of what larvicides are applied and the Material Safety and Data Sheets (MSDS) for these insecticides are available upon request by contacting SCPH Mosquito Control program.

Mosquito Adulticiding Program

What is the goal of our Adulticiding Program?

The goal of this program is to reduce the number of adult disease carrying and pest mosquitoes by evening spraying of residential areas with ultra low-volume (ULV) mist spray equipment. For questions on what SCPH is currently using as the adulticide insecticide please contact the program.

Factors that determine Adulticide Spraying

Adulticiding is the last line of defense in the control of mosquitoes. Other methods of mosquito control such as source reduction and aggressive larviciding should be considered first. Using the system of integrated pest management, the decision of when and where to spray is based on our mosquito surveillance program. **SCPH does not have a regular predetermined spray schedule.**

SCPH sets out at least 21 traps per night in our county to determine the location of areas of disease and mosquito activity. Factors that may result in a ULV mosquito control application include:

- Mosquitoes testing positive for WNV that were caught in mosquito traps
- A spike in the number of Culex species (carriers of WNV) caught in mosquito traps
- A large spike in pest mosquitoes determined by trap counts

Factors that affect ULV evening spraying for adult mosquitoes:

- Environmental conditions must be optimal with wind speed, rain and temperature as major factors
- A spray droplet must directly hit the mosquito to kill it
- Swaths are effective for about 150 feet on each side of the machine, depending the weather
- Spray lasts from 5 to 20 minutes depending on wind speed/weather conditions and droplet size
- These factors make ULV evening spraying the least effective way to control mosquito populations.

How efficient are Mosquito Adulticides?

In a joint statement on mosquito spraying, the CDC and EPA state that in order to be effective, spraying must be done under extremely precise conditions: at the ideal temperature, with low winds, at the time of day when mosquitoes are most active, and with carefully calibrated equipment to form droplets the right size. Furthermore, the spray is only effective against adult mosquitoes and not eggs or larvae. In an April 2001 report the CDC stated "Adulticiding, The application of Chemicals to kill adult mosquitoes by ground or aerial applications, is usually the least effective mosquito control technique" and also "The most effective and economical way to control mosquitoes is by larval source reduction". The EPA and CDC advocate Integrated Pest Management (IPM). They explain, "IPM is an ecologically based strategy that relies heavily on natural mortality factors and seeks out control tactics that are compatible with or disrupt these factors as little as possible. IPM uses pesticide, but only after systematic monitoring of pest populations indicates a need. Ideally, an IPM program considers all available control actions and evaluates the interaction among various control practices, cultural practices, and weather and habitat structure. This approach thus uses a combination of resource management techniques to control mosquito populations with decisions based on surveillance"

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Statement Revised September 2018.

Spanish: Atención: La asistencia de idiomas esta disponible. Nepali: भाषा सहायता उपलब्ध छ

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