

Somerset County Mosquito Control Program

Questions and Answers

How long has Somerset County controlled mosquitoes?

Somerset County Mosquito Commission started in 1945 and had been a Commission until 1991. It then became part of the Public Works Department, Road Division. The Road Division currently has sixty-five permanent employees. There are a total of thirty-three (33) employees in the division that are currently holding Commercial Pesticide Applicator Licenses.

What kind of equipment is used for Mosquito Control in Somerset County?

Twelve pick-up trucks, two rack body trucks, four dump trucks, one four wheel drive back hoe, four trailers, 6 Ultra Low Volume (ULV) Sprayers, and one Vac-Con basin pipe cleaning truck, and one 6x6 off-road vehicle.

What is the life cycle of mosquitoes?

Mosquitoes have four stages of development – egg, larva, pupa, and adult. They spend their larval and pupal stages in water. Female mosquitoes, of most species, in Somerset County deposit eggs on moist surfaces such as mud or fallen leaves. Rain re-floods surfaces and stimulates the hatching of the eggs, starting the life cycle. Other mosquito species in the County lay their eggs on the surface of water and since the water is permanent, there are always eggs hatching and larvae developing. Mosquitoes take approximately one week to develop from egg to flying adult. Only the female adult mosquitoes bite after emerging from the aquatic stages, adult mosquitoes, mate and females then seek a blood meal to obtain nutrients necessary for egg development. Adult male mosquitoes feed on plant nectar and die shortly after mating. While various species differ, the average life expectancy for adult mosquitoes is 4 to 6 weeks.

How many different kinds of Mosquitoes are in New Jersey?

There are 63 different species of Mosquitoes documented in the state, the most recent added to the total just in 2001. Somerset County has 41 different species found by way of surveillance. This list of mosquitoes can be found on the internet at <http://www-rci.rutgers.edu/~insects/somsp.htm>

What type of viruses do Mosquitoes cause in humans?

Mosquitoes can cause several viruses in humans.

The West Nile Virus (WNV) is the most recently recognized virus. It is a mosquito-borne virus causing Encephalitis. In the fall of 1999, cases in humans were discovered in New York City and now have also been found in the eastern portions of the United States. The primary vector is a mosquito commonly found around homes.

La Crosse Encephalitis, although very rare in this area, is a form of Encephalitis occurring almost exclusively in children. This disease is seldom fatal, but it can cause paralysis and convulsions. This disease is transmitted primarily by a mosquito species that breeds in tires and other containers.

Eastern Equine Encephalities (EEE) should be mentioned here too.

What type of viruses do Mosquitoes cause in animals?

Animals are also targets for mosquito borne diseases. Dogs can be threatened by heartworm through the bite of a mosquito, which is a serious threat to a pet's life. Your dog should be checked for this condition and put on preventative medication. Horses should be vaccinated against Eastern Equine Encephalitis (EEE). Horses are also susceptible to West Nile Virus (WNV). A vaccine for the virus has recently been approved. Further information can be obtained through local Veterinarians. West Nile Virus (WNV) has also been found in the wild bird population.

What does Somerset County Mosquito Control do?

The Mosquito Control is responsible for the suppression of vector born diseases and the control of nuisance mosquito populations; our activities are based on an extensive surveillance program. Emphasis is placed on the elimination of mosquito habitats and the control of mosquitoes while they are still in their aquatic stages of development.

What control efforts are used in Somerset County?

This office uses an integrated pest management approach to control mosquitoes. It starts with the philosophy that a multi-faceted prevention and control plan is the most cost efficient and effective means of controlling mosquito populations. Source reduction or the elimination of habitats is the most effective method of preventing mosquito populations. This practice ranges from removing tires and other artificial containers from the landscape to using water management practices to remove mosquito habitats. In cases where this is not feasible, controlling mosquitoes in their aquatic habitat is the preferred approach. The mosquito larvae are concentrated and limited to their aquatic habitat; they cannot escape control efforts like adult mosquitoes. Several control agents can be employed at the larval stage. Fish such as Gambusia and native fat head minnows are natural predators of mosquitoes, and are readily stocked at breeding sites to provide 24-hour larval control. Somerset County chooses to use biorational and chemical larvicides. Biorational larvicides are pesticides of natural origin that have limited or no adverse effect on the environment or beneficial organisms. They are found in soil everywhere and are used quite extensively and offer effective control as well. Somerset County uses the following biorational pesticides, **Vectobac G** (bacillus thuringiensis israelensis), **Vectolex CG**(bacillus sphaericus), and **B.t.i. Briquets**(bacillus thuringiensis israelensis). Our chemical pesticides are **Altosid Briquets** (methoprene), , and **Bonide** (Mineral Oil).

As a final line of defense, a treatment for adult mosquitoes may be applied by a truck-mounted sprayer if a significant mosquito population exists. All pesticide applications comply with guidelines published by Rutgers University and regulations set by the New Jersey Department of Environmental Protection.

What can you do around the house to help?

If you and your neighbors in Somerset County do not like mosquitoes in and around your house and yard, there is something you can do to help yourself. The most important part of mosquito control is denying the mosquito a place to lay eggs. If there is no standing or stagnant water there is less of a chance for egg laying in the area. The northern house mosquito does not normally migrate far from their breeding site (less than one mile) so most problems are most often local.

Treating the water with insecticides helps in controlling mosquitoes, but treatments must be repeated because mosquitoes return as soon as the insecticide biodegrades. Chemical control of mosquitoes is expensive and never as effective as the elimination of breeding sites.

To control mosquitoes in and around the home:

Eliminate unnecessary water holding containers, especially tires, large cans and bottles.

Keep water clean in children's wading pools and drain them when not in use.

Keep ditches and streams adjoining your property free of grass clippings, garbage, and other debris, which will obstruct the natural flow of water.

Keep weeds and grass cut short during the summer months. Report vacant lots that are not maintained properly to city or local officials.

Make sure stored boats are covered and water drains out of them completely. Store small boats upside down.

Change water in birdbaths, fountains and troughs weekly.

Clean roof gutters.

Make sure septic wastewater does not lie on the ground surface and cesspools are sealed with screened vents.

Small depressions in your yard can be filled to prevent the collection of water. If large wet areas exist on your property, bring them to the attention of Somerset County Road Division 908-541-5021.

What other measures can you take?

Proper screening for windows and doors will help keep mosquitoes from coming into your home and feeding on you, your family, or your pets. Outdoor areas are more difficult to treat. There are mosquito coils, candles, and area repellents that can be used, but they are only effective for a short time.

Commercial repellents provide personal protection, but be sure to read the label and follow directions. Bug lights have been used with low varying degrees of success. They generally attract more moths than mosquitoes to an area where people are, at which time the people are far more attractive than the light.

What about the big problem areas?

There are many places too large for an individual to control mosquitoes even with the help of neighbors. There are also mosquito species that lay their eggs on moist soil in low spots that later fill with rain or floodwater. The individual may be able to fill or drain these places, but for problems that cannot be handled the individual should call the Somerset County Road Division at 908-541-5021.

Remember: Your help as an individual can make for a better environment. Mosquitoes do not respect your property lines, so what you think is your problem will also affect others around you.

Mosquitoes are not an essential part of a healthy environment.

Discourage mosquitoes from reproducing in your neighborhood by eliminating trash and containers that may hold water, such as cans, jars, and old tires. Maintain rain gutters and down spouts, make certain that no water remains on flat roofs after rains. Keep water clean in children's wading pools and birdbaths.

How is Surveillance done?

New Jersey light traps are used to monitor the adult mosquito population at various locations, from May through September. In addition to the New Jersey light trap the American Biophysics ABC trap will also be used.

Inspector reports and landing courts are also a way of monitoring mosquitoes.

Somerset County is broken down into four sections that have been mapped and recorded.

Public complaints by phone and all other complaints are investigated by a foreperson or an inspector to determine if adult mosquitoes are a problem. All complaints are recorded and kept on file.

Somerset County Mosquito Control, each season seeks to employ a seasonal identification person. This I.D. person will collect mosquitoes from the traps, and then take them back to the lab for identification. The location and number is recorded and kept on file.

What is Water Management?

The ditches that Somerset County Road Division has installed over many years are maintained each year in the winter months by hand cleaning and brush removal. These systems drain water down quickly to rivers and brooks. All water management ditches are also mapped and recorded on the date they were last serviced. Some ditch projects may need redefining with machinery. Permits are needed for these types of projects. Somerset County Mosquito Section will apply for a blanket permit or a general permit Type-1 so our employees can perform these functions.

Is Biological Control currently used?

In Somerset County biological control currently is in use with mosquito fish (*Gambusia* species) and other species.

All Department of Environmental Protection guidelines will be used for stocking in mosquito habitats.

How is Ground Larvacidal done?

Somerset County personnel perform this application. All inspectors have a New Jersey Commercial Pesticide Applicator License. This application will be applied only to water that indicates mosquito larvae are present. This application is made to the standing water by a hand carried spray tank; (oil liquid) or a hand carried horn spreader, (granular formulation). Weather pending it will take place from April to October. Six inspectors on a daily basis will perform larval mosquito work. The county is divided into 4 sections to be checked for larval mosquitoes from route books. Pesticides will be applied if necessary by ground using a horn seeder and/or a backpack blower for Vectobac G, (*Bacillus thuringiensis israelensis* and Vectolex CG(*bacillus sphaericus*)). Bonide, (Mineral Oil) is applied with a two and a half gallon spray container. The amounts that are used will be recorded in the route books, and kept on file.

How is Ground Adulticiding done?

In the event that mosquito Adulticiding is necessary it will be preformed in the evening or early morning hours. The Somerset County Road Division will contact the County Health Department and advise them of the locations that will be treated. One day's notice will be given prior to spraying for adult mosquitoes. The mosquito control work to be performed will then be relayed to the local health departments via e-mail by the County Health Department. Local police departments will be notified by the Road Division, of the areas that will be treated. The local news media will also be contacted regarding these control operations. In the event of bad weather conditions, rescheduling will be necessary.

Recommended conditions are less than eighty-two degrees Fahrenheit air temperature, and wind velocity less than 10 mph.

Ultra Low Volume (ULV) ground equipment on the back of pick up truck will be used. There are six ULV units in Somerset County, five county owned and one state owned.

These units are used when large mosquito out breaks need to be treated. All six ULV machines will be applying the pesticide Scourge, (Resmethin and Piperonyl). **All** calibrations on the ULV machines are done each year, this is determined by flow rate and droplet size.

The Road Division will receive a registered list of Beekeepers who will be notified if the ULV work will be performed within one mile of the keeper's location.

Integrated pest management (IPM), is another approach to manage the mosquito population. This is a sustainable approach to managing pests by using all appropriate technology and management practices in a way that minimizes health, environment, consumer education, and when needed; cultivation practices, sanitation, solid waste management, structural maintenance, physical mechanical, biological, and chemical control.

How will I be notified of the adult mosquito spraying?

Somerset County Mosquito Control will have 2 local news medias, The Courier News and The Messenger Gazette, run this information at least 24 hours in advance of spraying. It will also be given to a local radio station, WCTC to be announced. This information along with locations and dates will be posted on the county Website. For further information please contact Somerset County Road Division at 908-541-5021.

See NJDEP pesticide Fact Sheets.

<http://www.nj.gov/dep/mosquito/depfs.htm>