OCEAN COUNTY
MOSQUITO EXTERMINATION COMMISSION

QUESTIONS & ANSWERS

Q: What is the life cycle of a mosquito?

A: Despite all the different mosquito species and various mosquito habitats in Ocean County, they all have at least one thing in common; all mosquitoes require water to complete their life cycle.

Mosquitoes have 4 different developmental stages: egg, larva, pupa and adult. Depending on the species, female mosquitoes will lay their eggs either on the water's surface, edges of emergent vegetation or damp soil depressions that will become inundated by rain and or tide.

The eggs hatch into the aquatic life stage known as larvae. Larvae grow by feeding on organic matter in the water and go through 4 growth stages called instars. After the 4th instar, the larvae molt into pupae, beginning to prepare for adulthood.

The pupa is still an aquatic stage and is where the mosquito undergoes metamorphosis in order to become the flying adult.

Shortly after emerging, the female mosquitoes fly off in order to seek a bloodmeal. The mosquito doesn't gain nutrition from blood feeding. Instead, the proteins from the blood are used to help her eggs to develop. Once egg laying is completed, she will host seek for another bloodmeal in order to lay further batches of eggs.

Q: What mosquitoes do we have in Ocean County?

A: In Ocean County, we have identified 40 different mosquito species that are found in a wide variety of habitats. These include roadside ditches, flooded woodlands, freshwater swamps, storm water basins, artificial containers and coastal salt marshes.

Salt marsh breeding species constitute by far the majority of pest problems throughout the county. Heaviest populations of these mosquitoes occur in southern Ocean County. These mosquitoes can travel over 20 miles for a bloodmeal and can be found to the western borders of the county.

Q: What human and animal diseases do mosquitoes transmit?

A: It's through this blood "feeding" behavior that a mosquito can act as a vector, or transmitter, of diseases between humans and animals. Depending on the species, mosquitoes can transmit diseases like malaria, yellow fever, dog heartworm and encephalitis (such as Eastern Equine Encephalitis and West Nile Virus).

West Nile Virus (WNV) was first recognized in the New York/Metropolitan area in 1999. Fortunately, WNV activity in Ocean County has been minimal, with only 2 horse cases, several positive mosquito test pools and a low number of positive crows.

Historically, Eastern Equine Encephalitis (EEE) has been the major human health concern in Ocean County. In previous years, EEE outbreaks have caused sickness and even fatalities and can account for the development of mosquito control in Ocean County.

Animals can also be the targets of mosquito diseases. Dog Heartworm is an ever-present threat to your pet's life and is costly to treat once if has been contracted. Horses can contract EEE and it is important to have them vaccinated against this disease. Horses are susceptible to WNV and a vaccine has recently been approved. Contact your veterinarian for more information. WNV has been responsible for deaths in several species of birds, particularly in wild populations.

Q: What does the Mosquito Commission do?

A: By state mandate, the Ocean County Mosquito Extermination Commission was established in 1913. Since that time, our goal has been to control mosquitoes to eliminate disease and enhance the quality of life to the people of Ocean County.

The commission's mosquito control program is a comprehensive integrated pest management program that utilizes a balance of various control techniques and a detailed surveillance program to monitor the effectiveness of those techniques. Our control techniques focus on the aquatic larval stage of the mosquito. This aquatic stage of the life cycle is more concentrated and accessible than that of the adult stage.

The larval control program utilizes pesticides to eliminate breeding by directly treating the larval mosquito habitat by use of ground trucks or helicopters. A routine system has been developed and breeding sites are continually inspected throughout the breeding season (April-October).

Our water management program utilizes a technique called Open Marsh Water Management to eliminate mosquito breeding in the salt marshes (i.e. grassy tidal lands surrounding Barnegat Bay) of Ocean County. This technique controls mosquitoes by

increasing tidal flow or providing access to predacious fish or other natural predators. It also eliminates the use of pesticides on these managed areas.

The commission stocks Mosquito Fish (Gambusia affinis) and other mosquito predacious fish species in applicable breeding areas to reduce the use of pesticides. These fish are made available by the N.J. Division of Fish & Wildlife as part of the State mosquito Control Commission's bio-control program.

The commission also runs a comprehensive adult mosquito surveillance program, which helps us keep abreast of adult mosquito populations throughout Ocean County.

The system utilizes a countywide network of Light Traps and Landing Rate Counts to determine the size and species make-up of our mosquito population. Mosquito collections are conducted for virus testing in conjunction with Rutgers University - Mosquito Research and Control Program.

Q: <u>What pesticides are used to control mosquitoes in Ocean County?</u>

A: The pesticides most often used are ones that will control mosquito larvae in their aquatic breeding habitat. These products are applied directly into stagnant, mosquito breeding water. Rarely it may be necessary to control adult mosquitoes.

All products used are recommended for use by the New Jersey Agricultural Experiment Station/Cook College and are registered with both USEPA and NJDEP thus legal for use in New Jersey. Both liquid and granular formulations are used in applicable situations and they can be delivered by hand, by ground truck or aerially by helicopter or plane.

For larval mosquito control by ground we use liquid BTI under the brand names Vectobac, Aquabac, and Technar. By air our primary larvicide is Methoprene, brand name Altosid. However on occasion we utilize the granular products of B.T.I., brand names Vectobac, Aquabac, and Technar, and Temephos, brand name Abate. Also there are occasions where very small applications of hand-applied products are made to small breeding sites. At that time we would use Larvicide oil, brand name Golden Bear Oil, or B.T.I. Briquettes, brand name Mosquito Dunks.

On rare occasions, adult mosquito control may be necessary. By ground ULV sprayer we would use Resmethrin, brand name Scourge, and if aerial application had to be made, it would be with Malathion brand names Fyfanon, Atrapa or Microflo, or with Resmethrin, brand name Scourge.

For more information on the pesticides used for larval and adult mosquito control, and how to limit your exposure, please refer to the N.J. Department of Environmental Protection approved pesticide fact sheets. All pesticides applications are made by state licensed pesticide applicators/operators.

Q: <u>What can the homeowner do?</u>

A: Mosquito control begins at home. If you can eliminate any standing water around your home, mosquitoes will have no local place to breed. Anything that can hold water has the potential to become a mosquito-breeding site.

Keeping adult mosquitoes out of your house is an additional step. Make sure all windows and door screens are free of holes and close securely.

A wide variety of repellents exist for relief from adult mosquitoes or other biting insects. Many of these are available anywhere from department stores to garden centers. Repellents are generally effective, but should be used with caution in accordance with label directions. Please - read the label.

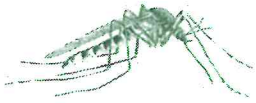
Q: <u>What do I do if there is a possible breeding site or an adult mosquito problem around my home?</u>

A: Contact the Mosquito Commission at (609) 698-8271. Our staff will investigate your situation promptly. If an on-site inspection is deemed necessary, a service request form will be filled out and handled as soon as possible.

Q: <u>Where do I get more information?</u>

A: Attached is an example of a newspaper notice that the Commission places in two local newspapers every three weeks throughout the mosquito season.

Visit our Website – www.ocmosquito.org. There you will find more information on our program and numerous links to more information about mosquitoes. You will also find updates on any adult mosquito control, which may be necessary. You can also call the commission for any specific information at (609) 698 – 8271 Monday through Friday between 7:00 AM to 3:30 P.M.



National Pesticide Information Center – 1 (800) 858-7378
New Jersey Poison Information and Education System – 1 (800) 222-1222
Pesticide Control Program* - 1 (609) 984-6507
*This number for pesticide regulation information, pesticide complaints and Health referrals.

Mosquito control product fact sheet on:

"Atrapa" "Fyfanon" "Microflo"

This sheet answers some basic questions about mosquito control products that may be used in your county. The Ocean County Mosquito Commission, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What are these insecticides and how are they used?

They are an insecticide product that is recommended for mosquito control in New Jersey by Rutgers, The State University of New Jersey. They contain the pesticide called **"Malathion."** The U.S. Environmental Protection Agency's (EPA) current evaluation considers **Malathion** - containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program.

Malathion is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in water are the preferred routine approaches, the spraying of adult mosquitoes is called for when biting populations reach critical levels or when a disease organism is present in adult mosquitoes. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide in order for it to be effective.

How can I avoid exposure to these products?

Risk to the general public from the use of **Malathion** is minimal. Avoiding exposure is always the safest course of action, particularly for populations that may be at higher risk such as pregnant women, children, the elderly and those with chronic illnesses. Any possible exposure risk can be reduced by following some common sense actions:

- Pay attention to notices about spraying found through newspapers, websites, automated telephone messages or distributed by municipal, county or state agencies.
- Plan your activities to limit time spent outside during times of possible pesticide treatments.
- Move children's toys out of application areas.
- Move animals and their food and water dishes out of application areas.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and with window air conditioners on non-vent (closed to the outside air) and window fans turned off during spraying.
- Avoid direct contact with surfaces that are still wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have completely dried (approximately one hour).
- If you must remain outdoors, avoid eye and skin contact with the spray. If you get spray in your eyes or on your skin, immediately flush and rinse with water.

What are the symptoms of exposure to these products?

Symptoms of exposure can include headache, nausea, dizziness, excessive sweating, salivation, excessive tearing and a runny nose. The chance of experiencing these symptoms of exposure with proper use is low. You should contact your physician, other medical providers or the New Jersey Poison Information and Education System **(NJPIES)** at **1-800-222-1222** if you experience these symptoms following a pesticide spraying. Bring this sheet with you if you visit a physician or other medical provider.

How long will these products last in the environment?

The spray stays in the air for a short time until it lands on surfaces. **Malathion** has a low persistence and lasts no longer than 25 days in water and soil. **Malathion** breaks down faster in sunlight.

Where can I get more information on these products?

The following are resources for more information regarding these products and mosquito control in your area (unless otherwise noted, available during normal business hours):

For overall pesticide-specific information – 9:30am to 7:30pm:
National Pesticide Information Center **800-858-7378**

For pesticide health information and possible exposures – 24 hours:
New Jersey Poison Information & Education System **800-222-1222**

For New Jersey pesticide regulation & misuse complaints:
NJDEP Pesticide Control Program **609-984-6507**

For Federal pesticide regulation:
USEPA Region 2 Office of Pesticide Programs **732-321-6759**

For mosquito control recommendations:
Rutgers University, Department of Entomology **732-932-9437**

For state-wide mosquito control information:
NJDEP Office of Mosquito Control Coordination **609-292-3649**

For local mosquito control information:
The Ocean County Mosquito Commission **609-698-8271**

Mosquito control product fact sheet on:

"Scourge"

This sheet answers some basic questions about a mosquito control product that may be used in your county. The Ocean County Mosquito Commission, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What is Scourge and how is it used?

Scourge is an insecticide product that is recommended for mosquito control in New Jersey by Rutgers, The State University of New Jersey. It contains the pesticides called **"Resmethrin and Piperonyl Butoxide."** The U.S. Environmental Protection Agency's (EPA) current evaluation considers **Resmethrin and Piperonyl Butoxide-** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program.

Scourge is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in water are the preferred routine approaches, the spraying of adult mosquitoes is called for when biting populations reach critical levels or when a disease organism is present in adult mosquitoes. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide in order for it to be effective.

How can I avoid exposure to Scourge?

Risk to the general public from the use of **Scourge** is minimal. Avoiding exposure is always the safest course of action, particularly for populations that may be at higher risk such as pregnant women, children, the elderly and those with chronic illnesses. Any possible exposure risk can be reduced by following some common sense actions:

- Pay attention to notices about spraying found through newspapers, websites, automated telephone messages or distributed by municipal, county or state agencies.
- Plan your activities to limit time spent outside during times of possible pesticide treatments.
- Move children's toys out of application areas.
- Move animals and their food and water dishes out of application areas.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and with window air conditioners on non-vent (closed to the outside air) and window fans turned off during spraying.
- Avoid direct contact with surfaces that are still wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have completely dried (approximately one hour).
- If you must remain outdoors, avoid eye and skin contact with the spray. If you get spray in your eyes or on your skin, immediately flush and rinse with water.

What are the symptoms of exposure to Scourge?

Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash. The chance of experiencing these symptoms of exposure with proper use is low. You should contact your physician, other medical providers or the New Jersey Poison Information and Education System **(NJPIES)** at **1-800-222-1222** if you experience these symptoms following a pesticide spraying. Bring this sheet with you if you visit a physician or other medical provider.

How long will Scourge last in the environment?

The **Scourge** spray stays in the air for a short time until it lands on surfaces. **Resmethrin** has a low persistence and lasts no longer than 25 days in water and soil. **Resmethrin** breaks down faster in sunlight.

Where can I get more information on Scourge?

The following are resources for more information regarding **Scourge** and mosquito control in your area (unless otherwise noted, available during normal business hours):

For overall pesticide-specific information – 9:30am to 7:30pm:
National Pesticide Information Center **800-858-7378**

For pesticide health information and possible exposures – 24 hours:
New Jersey Poison Information & Education System **800-222-1222**

For New Jersey pesticide regulation & misuse complaints:
NJDEP Pesticide Control Program **609-984-6507**

For Federal pesticide regulation:
USEPA Region 2 Office of Pesticide Programs **732-321-6759**

For mosquito control recommendations:
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For state-wide mosquito control information:
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For local mosquito control information:
The Ocean County Mosquito Commission **609-698-8271**

Sample

This is a sample of a notice published every three weeks in two local Newspapers

PUBLIC NOTICE

In compliance with Section 9.10 & 9.15 of the New Jersey Pesticide Control Code (N.J.A.C. Title 7 Chapter 30), The Ocean County Mosquito Extermination Commission, P.O. Box 327, Barnegat, NJ 08005 may be applying insecticides for the control of adult mosquito populations on an area-wide basis, as needed, throughout Ocean County during the period from May 15 through November 30.

The pesticides used will be those recommended by the New Jersey Agricultural Experiment Station for the control of adult mosquitoes which include: Malathion (Fyfanon ULV, Atrapa) or Resmethrin & Piperonyl Butoxide (Scourge).
Products will be applied from the ground by truck or by aircraft, all using Ultra Low Volume techniques.

Contact the National Pesticide Information Center @ 1-900-858-7378 for routine pesticide related health inquires. Call the New Jersey Pesticide Control Program @ 1-609-984-6507 for pesticide regulation information, pesticide complaints and health referrals. In the case of any pesticide emergency, please contact the New Jersey Poison Information and Education System @ 1-800-222-1222.

Upon request, The OCMEC shall provide a resident with notification at least 12 hours prior to the application, except for Quarantine and Disease Vector Control only, when conditions necessitate pesticide applications sooner than that time.

Visit our Website @ www.oceancountymosquito.org for updated information on mosquito operations and for further information regarding OCMEC activities. Call OCMEC @ 1-609-698-8271.

Richard Candeletti
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Sample