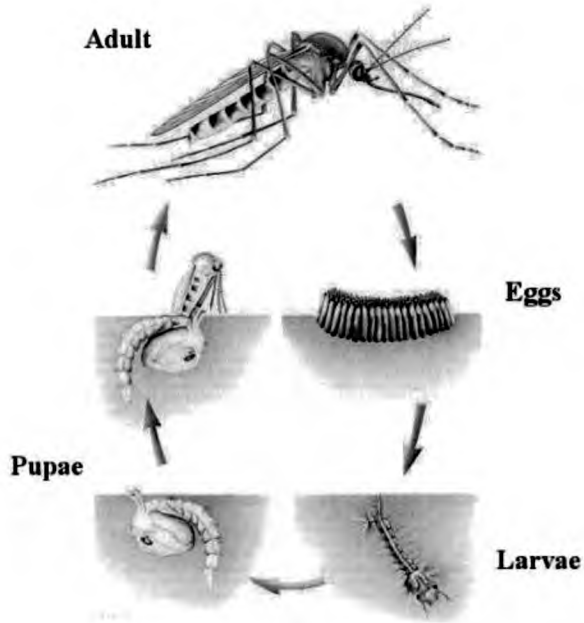
WARREN COUNTY MOSQUITO EXTERMINATION COMMISSION

MOSQUITOES...WHAT EVERYONE SHOULD KNOW
Questions & Answers

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 pest species in Warren 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 permanent water and since the water is constant, 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 4-6 weeks.



http://www.uq.edu.au/~xxjelfic/MosqCycleY6.JPG

How many kinds of mosquitoes are there?
In Warren County, there have been 40 different species documented of a total of 63 species found in the state of New Jersey. The newest species to be added was in 2001.

What human diseases do mosquitoes cause?
West Nile Virus, a mosquito-borne virus causing encephalitis, was first recognized in the United States, in New York City and surrounding areas in the fall of 1999. The primary vector is a mosquito commonly found around homes. La Crosse Encephalitis, although rare in this area, is a form of encephalitis occurring almost exclusively in children. While the disease is seldom fatal it can cause convulsions and paralysis. This disease is transmitted primarily by mosquito species that breed in tires and other containers that are often found around the home. Eastern Equine Encephalitis (EEE) is also transmitted by mosquitoes and effects humans but is rare in the northwestern part of New Jersey.

What animal diseases do mosquitoes cause?
Dogs and horses are targets for mosquito borne diseases. Dog heartworm is a serious threat to your pet's life and is costly to treat once it is contracted through the bite of the mosquito. Your dog should be checked for this condition and put on preventative medicine. An exotic pheasant died of Eastern Equine Encephalitis (EEE) in Warren County in 1998 and the disease is a threat to horses. Horses should be vaccinated against EEE. Horses are also susceptible to West Nile Virus. A vaccine for West Nile Virus has recently been approved and your veterinarian can provide more information. West Nile Virus has also been responsible for the death of numerous birds, particularly in the wild bird population.

What is the Mosquito Commission and what does it do?
The Warren County Mosquito Commission was established on October 18, 1956. The statutory mandate of the Warren County Mosquito Extermination Commission is "To perform all acts which in its opinion may be necessary for the elimination of mosquito breeding areas, or which will tend to exterminate mosquitoes within the county." The commission is composed of seven members, at least three of which have experience on a Board of Health, and employs a staff of well educated and trained mosquito control professionals.

The Commission's activities are guided by a comprehensive surveillance program which directs control efforts where significant populations of mosquitoes exist that pose a disease and/or nuisance threat. Emphasis is placed on the elimination of mosquito-breeding habitat and the control of mosquitoes when they are still in the aquatic stages of their development.

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What are the winter activities of the Commission?
The seasonal control operations start in February with the hatching of snowpool mosquito species and continues into October, until a killing frost. Water management activities are conducted year round. Follow-up record keeping on the season's mosquito activity at all the breeding sites continues beyond the active mosquito season. The inspection routes are revised after additions/deletions of breeding sites. New sites where the breeding source was not apparent with the presence of heavy vegetation in the summer are inspected after the foliage falls for a clearer view of the area. Breeding sites that are difficult to access are kept clear with brush clearing work done when the time permits. Leaf dams are cleared from drainage structures after the fall. Site evaluation occurs to target sites for fish stocking or water management potential. Prior to the spring hatching, beehive locations are verified to avoid accidental exposure to honey bees during our adult mosquito spraying activities. Appropriate permits are pursued for the water management projects. Equipment is maintained and readied for the next onslaught of mosquitoes. Educational presentations are made at schools, etc. on mosquitoes and mosquito control.

What control efforts are utilized by the Commission?
The Commission uses an Integrated Pest Management (IPM) approach to controlling mosquitoes. With an IPM strategy, control efforts focus primarily on the immature, water borne stages of the mosquito. The immature stages cannot escape control measures and are more concentrated and accessible than the adult mosquitoes, which disperse after emerging. IPM uses various methods of control, including the use of biological pesticides and other pesticides when needed. The primary insecticide used to control the immature stage is a biological pesticide, which is a bacterial larvicide (Bti) that specifically targets mosquitoes. Mosquito fish (*Gambusia affinis)* and other fish species such as fathead minnows that feed on the immature mosquitoes are released in locations that will sustain fish but do not have other fish species present. These fish are raised by the NJ Division of Fish, Game & Wildlife in Hackettstown as part of the State Mosquito Control Commission's bio-control program. The *Gambusia* are distributed to mosquito control agencies throughout the state. The Commission conducts year round water management/source reduction projects that control mosquitoes by eliminating the standing water. Hand labor and heavy equipment are utilized and Best Management Practices for Water Management on Freshwater Wetlands are followed. In addition, proper tire disposal is encouraged and the commission actively participates in tire collections programs with the county. As a final line of defense, a treatment for adult mosquitoes may be applied by truck-mounted sprayer if a significant mosquito population exists. All pesticide applications comply with guidelines published by Rutgers University and regulations set by NJ Department of Environmental Protection.

What pesticides are used to control mosquitoes in Warren County?
The majority of the pesticides used are products to control mosquito larvae in the water some of which are applied by aircraft in a granular form that drops into the water. The insecticide is not released from the granule until it comes in contact with water. Also, it is sometimes necessary to use pesticides to control adult mosquitoes. For more information regarding the pesticides which may be used for adult mosquito control, please refer to the accompanying NJ Department of Environmental Protection approved Fact Sheets. All pesticides are applied by licensed pesticide applicators/operators.

What can homeowners do?

- Homeowners can provide effective control by eliminating standing water on their property. Any container holding water is a potential mosquito-breeding source and is likely to cause problems around your home. Of particular concern are clogged gutters and scattered tires. Both tend to collect leaves, then fill with water and provide very attractive sites for mosquitoes to breed. Since these containers are water tight, they dry out very slowly. Natural depressions in your yard will hold water but will often dry out in less than a week, killing the mosquitoes before they fly, whereas artificial containers will remain wet. Keep gutters clean and remove or overturn containers if possible. Items such as dog water bowls and birdbaths should be emptied and refilled at least once a week.
- Small depressions in your yard can be filled to prevent the collection of water. If larger wet areas exist on your property, bring them to the attention of the Mosquito Commission personnel.
- Keeping adult mosquitoes out of your home is another step. Make sure windows and door screens are properly fitted and holes are patched to prevent mosquitoes from entering the house.
- A wide variety of repellents are available to provide relief from mosquitoes and other insects. Most repellents contain the same active ingredient, only the percentages vary. Sport shops generally carry the brands that contain higher percentages. The repellents are effective but caution should be used and directions followed carefully.

What do I do if there are adult mosquitoes or possible breeding areas around my home?
If mosquitoes present a problem in your area, contact the Commission office at (908) 453-3585. Our staff will investigate your call promptly. Each area is inspected to verify the presence of adult mosquitoes. The area of the complaint is also searched to locate the breeding source(s) to facilitate controlling the mosquitoes in their immature stages in the future. Spraying for adult mosquitoes may be carried out as soon as possible if warranted based on the number and species of mosquitoes present (considering their disease or nuisance potential).

Where can I get more information? Call the Commission office at (908) 453-3585.

NJDEP approved 4/19/02

WARREN COUNTY MOSQUITO CONTROL COMMISSION

"Zenivex"

Municipalities are encouraged to share this information with all residents in their community

This Fact Sheet answers some basic questions about mosquito control products in use in your County. The Warren County Mosquito Commission, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What is *Etofenprox* and how is it used?

Zenivex™ contains a pesticide called Etofenprox, a member of the category of pesticides called *non-ester pyrethroids*, which are synthetic versions of pesticides produced by plants called pyrethrins. Traditional pyrethroid/piperonyl butoxide mixtures are recommended for Ultra-Low-Volume (ULV) mosquito control in New Jersey by Rutgers, The State University of New Jersey. *Zenivex™* is a non-ester pyrethroid, and therefore does not require a synergist such as piperonyl butoxide. The U.S. Environmental Protection Agency (EPA) has classified Etofenprox as a reduced risk molecule. It poses a low risk to human health and the environment when used properly as part of an integrated mosquito control program. As formulated in *Zenivex™* adulticide, Etofenprox is considered a non-carcinogen, non-teratogen and non-mutagen.

This non-ester pyrethroid-containing product is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in water are preferred and most used, the spraying of adult mosquitoes is necessary 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 reduce my exposure to Etofenprox?

Because of the very small amounts of active ingredients released per acre, the risk to the general public from the use of non-ester pyrethroid-containing products is minimal. Avoiding exposure is always the safest course of action. 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 your pets, their food, and water dishes inside during ULV applications. Also bring clothing and children's toys inside.
- Stay away from application equipment, whether or not it is in use.
- Whenever possible, remain indoors with windows closed, window air conditioners on non-vent (closed to the outside air), and window fans turned off during spraying.
- Avoid direct contact with surfaces 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 Etofenprox?

Symptoms of over-exposure can include irritation to skin and eyes. The chance of experiencing these symptoms of over-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.

How long will Etofenprox last in the environment?

The non-ester pyrethroid in Etofenprox has a half-life of 1.7 days in water and 4.4 days in soil. The Etofenprox molecule rapidly degrades in sunlight at the soil and water surface into its constituent elements Carbon, Hydrogen, and Oxygen.

Where can I get more information on this adulticide?

The following are resources for more information regarding Etofenprox 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 & 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 statewide mosquito control information:
NJDEP Office of Mosquito Control Coordination 609-292-3649

For local mosquito control information:
Warren County Mosquito Control Commission 908-453-3585

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

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and products to control immature mosquitoes in the water where they begin their life cycle. Controlling adult mosquitoes is more difficult because they are spread out and moving.

If you have questions about Zenivex or any other mosquito control related products or practices, please feel free to call the Warren County Mosquito Commission at (908) 453-3585, or visit our web site at www.warrencountymosquito.org

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WARREN COUNTY MOSQUITO EXTERMINATION COMMISSION

"Scourge®"

This sheet answers some basic questions about a mosquito control product in use in your county. The Warren 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 & 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 state-wide mosquito control information:
NJDEP Office of Mosquito Control Coordination **609-292-3649**

For local mosquito control information:
Warren County Mosquito Control Commission **908-453-3585**

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

For local health information:
Warren County Health Department **908-689-6693**

NJDEP Approved 4/26/02

"Fyfanon"

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

What is Fyfanon and how is it used?

Fyfanon is an insecticide product that is recommended for mosquito control in New Jersey by Rutgers, The State University of New Jersey. It contains 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.

Fyfanon 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 Fyfanon?

Risk to the general public from the use of **Fyfanon** 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 Fyfanon?

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 Fyfanon last in the environment?

The **Fyfanon** 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 Fyfanon?

The following are resources for more information regarding **Fyfanon** 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 & 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 state-wide mosquito control information:
NJDEP Office of Mosquito Control Coordination 609-292-3649

For local mosquito control information:
Warren County Mosquito Control Commission 908-453-3585

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

For local health information:
Warren County Health Department 908-689-6693

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