

MIDDLESEX COUNTY MOSQUITO EXTERMINATION COMMISSION

200 PARSONAGE ROAD
EDISON, N.J. 08837-2118



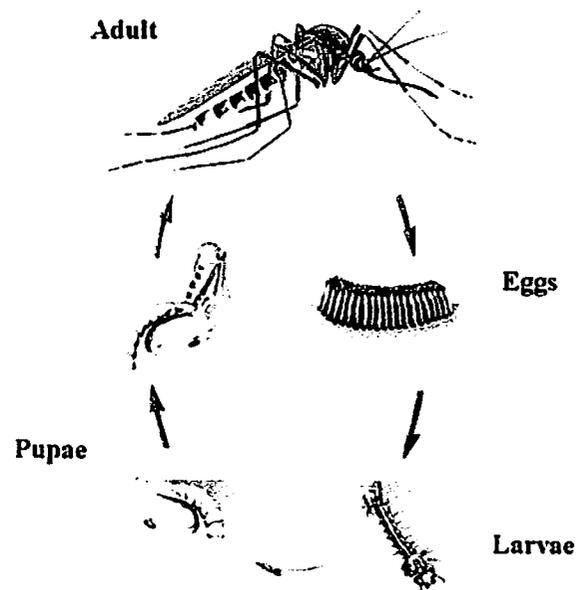
TELEPHONE: (732) 549-0665
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John Kranz
Secretary MEC/Ex.Dir.

MOSQUITOES...WHAT EVERYONE SHOULD KNOW Questions & Answers

What is the life cycle of mosquito?

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 deposit eggs on moist surfaces such as mud or fallen leaves. Rain re-floods these surfaces and stimulates the hatching of the eggs, starting the life cycle. Other mosquito species lay their eggs on permanent water surfaces. Since the water source is constant, egg hatching and larval development is an on-going process. Mosquitoes take approximately one week to develop from egg to adult. After emerging from the aquatic stages, adult mosquitoes mate and females seek a blood meal to obtain nutrients necessary for egg development. Only the female mosquitoes bite. Adult male mosquitoes feed on plant nectar and die shortly after mating. The average life span for adult mosquitoes is 2 – 3 weeks.



How many kinds of mosquitoes are there?

In Middlesex County, there are more than 40 different mosquito species, with more than 63 species found in New Jersey.

Fortunately, most mosquitoes either do not prefer to feed on humans or do not occur in high enough numbers to cause a problem.

What human diseases do mosquitoes transmit?

West Nile virus (WNV), St. Louis (SLE) and Eastern Equine encephalitis (EEE) are several diseases that can be transmitted by mosquitoes found in Middlesex County. WNV was first identified in the United States in New York City and surrounding areas in the fall of 1999. The primary transmitter of WNV and SLE are mosquitoes commonly found around homes. They are mosquitoes that will readily utilize tires or any container holding water. Both of these diseases can pose a significant threat to the very young and old, as well as individuals with compromised immune systems. EEE, while rare in Middlesex County, is a more dangerous disease and is transmitted by mosquitoes that are produced in permanent swamps and saltwater marshes.

What animal diseases do mosquitoes transmit?

Dogs and horses are also susceptible to mosquito-transmitted 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 an infected mosquito. Fortunately, a preventative medicine to protect your dog from contracting heartworm is available. WNV



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and EEE are threats to horses as well as to humans. Vaccines that can protect your horse against EEE and WNV are also readily available. Contact your local veterinarian to get more information. WNV has also been responsible for the death of numerous birds, mostly in the wild bird population.

What does the Commission do?

The Middlesex County Mosquito Extermination Commission (the Commission) has been in existence since 1914, providing the residents of Middlesex County with over 90 years of quality mosquito control. Presently, as in the past, mosquito-borne disease control and quality of life assurance are the principal concerns of the Commission. The statutory mandate of the 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." Key to the Commission's activities is a comprehensive surveillance program. The presence of a mosquito problem must be documented before any control measures can be initiated. Emphasis is placed on the elimination of mosquito production habitat and the control of mosquitoes while they are still in the aquatic stages of their development. The Commission's Board is comprised of a Freeholder and Freeholder-appointed citizens whose job it is to oversee the Commission's operations.

What control efforts does the Commission utilize?

The Commission uses an Integrated Pest Management (IPM) approach to controlling mosquitoes. An IPM program employs various methods of control including but not limited to surveillance, water management, source reduction, biological control, biological and man-made pesticides, and education. With an IPM strategy, control efforts focus primarily on the immature, water-borne stages of the mosquito. These immature stages are more concentrated and accessible than the adult mosquitoes, which disperse after emerging. The primary insecticide applied from the ground is a bio-rational insecticide derived from the bacteria, *Bacillus thuringiensis* var. *israelensis* (Bti), which is specific to the mosquito's metabolism. Fish are available to the Commission from the NJ Division of Fish, Game & Wildlife as part of the State Mosquito Control Commission's bio-control program. The fish available are Fathead minnows, Fresh Water killies, sunfish and the Mosquito fish. The Commission will supply fish free of charge to any county resident to control mosquitoes after NJ Department of Environmental Protection (NJDEP) fish stocking criteria are satisfied. The Commission conducts year round water management (source reduction) projects that control mosquitoes by eliminating mosquito habitat water. These operations are accomplished following the NJDEP Best Management Practices manual. Hand labor and excavating equipment are utilized for this work. The Commission also collects illegally discarded tires to eliminate them as larval production sources for mosquitoes. The Commission has collected and recycled well over 100,000 illegally discarded tires since the programs inception in 1991. If surveillance indicates that a nuisance level of mosquitoes is reached or disease is detected, a spray for adult mosquitoes may be applied by hand-held or truck-mounted sprayers or from the air. All pesticides used are registered with the US Environmental Protection Agency (USEPA), and the NJDEP, and are legal for use in New Jersey. These products are also reviewed and recommended by the New Jersey Agricultural Experiment Station, Cook College/Rutgers.

What are the winter activities of the Commission?

While the Commission practices an IPM approach to mosquito control, the pesticide portion of the IPM program is not conducted during the time of year when larval production sources are not active. However, all other activities are continuous throughout the year. Appropriate permits are pursued for the water management projects. Necessary repairs and maintenance are performed on excavation and pesticide application equipment. Follow-up record keeping on the past season's mosquito control



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activities at all larval production sources continues beyond the active mosquito season. The inspection routes are reviewed and revised as necessary to record new larval sources and remove sources that no longer exist. Larval production sources that were difficult to access due to the presence of dense vegetation are inspected after the foliage falls for a clearer view of the areas. These sources then may have paths cleared to allow easier access during the next mosquito production season. Debris dams are cleared from drainage structures. Site evaluation is conducted on potential areas for fish stocking or for water management. Beehives are located to avoid accidental pesticide exposure to honey bees in the event adult mosquito spraying (adulticiding) is required. Presentations are made at schools, civic organizations and interested groups on mosquitoes and mosquito control. Commission employees attend training classes to maintain their NJDEP-issued Certified Pesticide Applicators license.

What can homeowners do?

- Homeowners can control mosquitoes by eliminating standing water on their property. Any container holding water is a potential mosquito-production source and is likely to cause problems around your home. Of particular concern are clogged gutters, scattered tires and unopened swimming pools. All tend to collect leaves and water and provide very attractive larval sources for mosquitoes. These containers dry out very slowly. Keep gutters clean and free flowing. Remove or overturn containers that may collect water.
- Remove water from swimming pool covers. If pools are not covered, make sure the water is clean so it is not attractive to mosquitoes. Natural depressions in your yard can hold water. They will not be a problem, however, if the water disappears within 4 to 5 days. Artificial containers will remain wet for a much longer period of time. If you wish to collect rainwater, tightly screen the tops of the containers to prevent mosquitoes from depositing their eggs on the waters surface. Items such as pet 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 Commission personnel.
- 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. Always read and follow the label before using any repellent.

What can I do if there are adult mosquitoes around my home?

If mosquitoes present a problem in your area, contact the Commission's office at (732) 549-0665. Our staff will investigate your call promptly. Each area is inspected to locate mosquito-production sources and to verify the presence of adult mosquitoes. If an adult mosquito problem is identified, spraying may be conducted.

What pesticides are used to control mosquitoes?

The majority of the pesticides used are insecticides to control immature mosquitoes in the water. These insecticides may be applied either by ground equipment or aircraft. If an adult mosquito problem is identified, an adulticide may be applied throughout the area of infestation. For more information regarding the pesticides used for adult mosquito control, which may be applied by Commission personnel, please refer to the accompanying NJDEP approved pesticide fact sheets. It should be noted that some of the insecticides used for the control of mosquitoes are used to control other pests. The dosage rates used for mosquito control are usually much less, as low as 5/8ths of an ounce per acre to control mosquito larvae.



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Where can I find more specific information on spraying for adult mosquitoes in Middlesex County and will I be notified of the spraying?

All spraying for adult mosquitoes on more than 3 acres aggregate whether it is conducted from the ground or air will be advertised in the Home News Tribune and the Star Ledger. The advertisements will contain information such as intended application dates or range of application dates, location, contact name and phone number. The Commission's automated phone system (732-549-0665) can also be accessed during non-working hours to determine if an adult mosquito spray is scheduled for the county. This information is also available by accessing the Commission's web page (<http://www.co.middlesex.nj.us/mosquito>) on the Middlesex County's website. Individual homeowners can request to be notified prior to an adulticide application by their home. Contact the Commission for details on the procedure to request notification.

3-30-2010

**MUNICIPALITIES ARE ENCOURGED TO SHARE THIS INFORMATION
WITH ALL RESIDENTS IN THEIR COMMUNITY**

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Adult Mosquito Control Product

"Fyfanon"

This **fact sheet** answers some basic questions about a mosquito control product used in your county. The Middlesex County Mosquito Extermination 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 malathion. The U.S. Environmental Protection Agency (EPA) "evaluates and registers (licenses) pesticides to ensure they can be used safely", and their current evaluation of products containing malathion shows them 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 in an integrated pest management (IPM) approach to mosquito control. IPM strategy includes habitat management, source reduction, biological control and other measures to control immature mosquitoes, augmented by adult mosquito control when needed. The spraying of adult mosquitoes is called for when biting populations reach critical annoyance levels or when a disease organism is present in adult mosquitoes. A fine mist of malathion is applied during times of peak mosquito activity, 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 public from the use of Fyfanon is minimal. Avoiding exposure is always the safest course of action, particularly for those that may be at higher risk such as pregnant women, children, the elderly, and those with



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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 potential pesticide treatments, usually at sunset and sunrise.
- 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 during spraying, remain indoors with windows closed, window air conditioners set on non-vent (closed to the outside air), and window fans turned off.
- Avoid direct contact with surfaces that are 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, 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 extremely 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 settles out and lands on surfaces. Fyfanon has a low persistence and lasts no longer than 25 days in water and soil. Fyfanon breaks down quickly 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):



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For pesticide-specific information – 9:30am to 7:30pm EST:
National Pesticide Information Center **800-858-7378**
<http://ace.orst.edu/info/nptn>

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

For New Jersey pesticide regulations and misuse complaints:
NJDEP Pesticide Control Program **609-984-6507**
<http://www.state.nj.us/dep/enforcement/pcp>

For Federal pesticide regulations:

USEPA Region 2 Office of Pesticide Programs **732-321-6759**
<http://www.epa.gov/pesticides>

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

For local health information:
Your Municipal Health Department-Check your telephone book for the number.

For local mosquito control information:
The Middlesex County Mosquito Commission **732-549-0665**
<http://www.co.middlesex.nj.us/mosquito>

For mosquito control recommendations:
Rutgers University, Department of Entomology **732-932-9437**
<http://www.rci.rutgers.edu/~insects/njmos.htm>

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ADULT MOSQUITO CONTROL PRODUCT

"Scourge®"

This **fact sheet** answers some basic questions about a mosquito control product used in your county. The Middlesex County Mosquito Extermination 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 that is recommended for mosquito control in New Jersey by Rutgers, The State University of New Jersey. It contains the pesticides resmethrin and piperonyl butoxide. The U.S. Environmental Protection Agency (EPA) "evaluates and registers (licenses) pesticides to ensure they can be used safely", and their current evaluation considers products containing resmethrin and piperonyl butoxide to be slightly toxic with minimal potential risks to people when used properly as part of a complete mosquito control program.

Scourge is used for the control of adult mosquitoes in an integrated pest management (IPM) approach to mosquito control. IPM strategy includes habitat management, source reduction, biological control and other measures to control immature mosquitoes, augmented by adult mosquito control when needed. The spraying of adult mosquitoes is called for when biting populations reach critical annoyance levels or when a disease organism is present in adult mosquitoes. A very fine mist of Scourge is applied during times of peak mosquito activity, 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 those that



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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, usually at sunset or sunrise.
- Move children's toys out of application areas.
- Move your pets, 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, window air conditioners set on non-vent (closed to the outside air), and window fans turned off during spraying.
- Avoid direct contact with surfaces that are wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have 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, 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 extremely 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 spray stays in the air for a short time until it settles on surfaces. Resmethrin has a low persistence and breaks down in water and soil within 1 to 25 days. Resmethrin breaks down quickly in sunlight.

Where can I get more information about Scourge?

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



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For pesticide-specific information – 9:30am to 7:30pm EST:
National Pesticide Information Center **800-858-7378**
<http://ace.orst.edu/info/nptn>

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

For New Jersey pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program **609-984-6507**
<http://www.state.nj.us/dep/enforcement/pcp>

For Federal pesticide regulations:
USEPA Region 2 Office of Pesticide Programs **732-321-6759**
<http://www.epa.gov/pesticides>

For pesticide health information:
Contact your municipal health department. Check the telephone book for their number.

For mosquito control insecticide recommendations:
Rutgers University, Department of Entomology **732-932-9459**
<http://www.rci.rutgers.edu/~insects/njmos.htm>

For more information about local mosquito control:
The Middlesex County Mosquito Commission **732-549-0665**
<http://www.co.middlesex.nj.us/mosquito>

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

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"Duet Dual-Action[®] Adulticide"

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

What is *Duet Dual-Action[®]* adulticide and how is it used?

Duet Dual-Action[®] contains two pesticides called ***Prallethrin*** and ***Sumithrin***, and a synergistic compound called ***piperonyl butoxide*** which increases the effectiveness of the pesticides. Prallethrin and Sumithrin are members of a category of pesticides called ***pyrethroids***, which in turn are synthetic versions of pesticides produced by plants called ***pyrethrins***. Pyrethroid/piperonyl butoxide mixtures have been recommended for Ultra-Low-Volume (ULV) mosquito control in New Jersey by Rutgers, The State University of New Jersey. The U.S. Environmental Protection Agency's (EPA) current evaluation considers pyrethroid-containing products to be slightly toxic with minimal potential risk to people when used properly as part of an integrated mosquito control program.

This 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 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. The combination of the two pesticides has been shown to produce what the manufacturer calls 'benign agitation'. In other words mosquitoes are agitated from a resting state to a non-biting flying state where they are more vulnerable to pesticide exposure. This makes *Duet Dual-Action[®]* adulticide more effective against hard-to-control



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species like *Aedes albopictus* which typically rest during the evening hours when adulticiding usually takes place.

How can I reduce my exposure to *Duet Dual-Action*®?

Because of the very small amounts of active ingredients released per acre, the risk to the general public from the use of 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 application. Also bring clothing and children's toys inside.
- 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 *Duet Dual-Action*® ?

Symptoms of over-exposure can include irritation to skin and eyes, respiratory and nasal irritation, irritability to sound or touch, abnormal facial sensation, sensation of prickling, tingling or creeping of skin, numbness, headache, dizziness, nausea, vomiting, diarrhea, excessive salivation, and fatigue. 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.



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How long will *Duet Dual-Action*[®] last in the environment?

Pyrethroids have a soil half-life of 12 days. They have an extremely low pesticide movement rating because they bind tightly to the soil. Pyrethroids are unstable in light and air. They rapidly degrade in sunlight at the soil surface and in water. Piperonyl butoxide has a soil half-life of approximately 4 days.

Where can I get more information on this adulticide?

The following are resources for more information regarding *Duet Dual-Action*[®] 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:
NJ Poison Information & Education System 800-222-1222

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

For pesticide regulation:
USEPA Region 2 Office of Pesticide Programs 732-321-6768

For pesticide health information:
Middlesex County Public Health Department 732-745-3100

For mosquito control insecticide recommendations:
Rutgers University, Department of Entomology 732-932-9774

Where can I get more information about local mosquito control?
Middlesex County Mosquito Commission 732-549-0665
(Mon-Fri; 7:00 AM – 3:30 PM)
<http://www.co.middlesex.nj.us/mosquito>

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