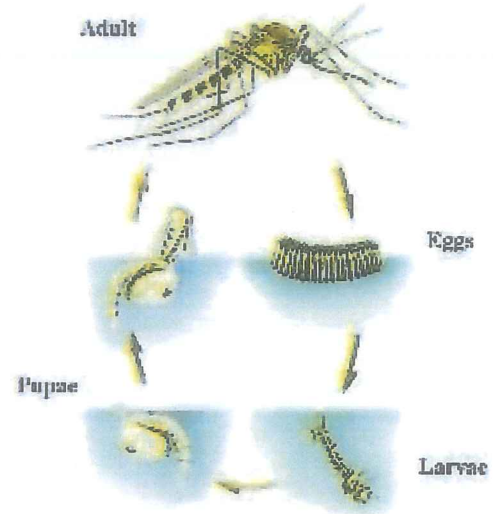


MOSQUITOES...WHAT EVERYONE SHOULD KNOW

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. Other mosquito species lay their eggs on permanent water surfaces. Since the water source is constant, egg hatching and larval development is an ongoing 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 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?

There are more than 63 mosquito species found in New Jersey. Fortunately, most mosquito species either do not prefer to feed on humans or do not occur in high enough numbers to cause a problem. Between 24 and 28 problematic species occur regularly throughout the County during the year.

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 Bergen 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. These mosquitoes will readily utilize tires or containers 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 Bergen 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, preventative medicines are available to protect your dog from contracting heartworm. WNV and EEE are threats to horses as well as to humans. Vaccines are also readily available to protect your horse against EEE and WNV. Contact your local veterinarian for more information. WNV has also been responsible for the death of numerous birds, mostly in the wild bird population.

What does the Division do?

Bergen County has been performing mosquito control since 1914. Mosquito-borne disease control and quality of life assurance are the principal concerns of the Division. The statutory mandate of the Division 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 key to the Division'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.

What control efforts does the Division utilize?

The Division 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 Division from the NJ Division of Fish & Wildlife as part of the State Mosquito Control Commission's bio-control program. The fish available are fathead minnows, banded killifish, sunfish, and mosquitofish. The Division 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 Division 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. 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 sprayers, truck-mounted sprayers, or from the air. All pesticides used are registered for use in New Jersey with the US Environmental Protection Agency (EPA) and the NJDEP. These products are also reviewed and recommended by the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences/Rutgers University.

What are the winter activities of the Mosquito Control Division?

Pesticides are not used to control mosquitoes during the winter when they are inactive. However, many other activities are continued throughout the year. These include water management, necessary repairs and maintenance, and record keeping on the past season's mosquito control activities. The inspection routes are revised to include new larval sources and remove sources that no longer exist. Brush is removed to enable easy access to treat larval habitats during the following mosquito season. Site evaluation is conducted on potential areas for fish stocking or for water management projects. Beehives are located to prevent accidental pesticide exposure to honey bees during spray operations. Presentations are made at public events on mosquitoes and mosquito control. Employees attend training classes to fulfill NJDEP pesticide licensing requirements.

What can homeowners do?

- Homeowners can control mosquitoes by eliminating standing water on their property. Any container holding water is a potential source of mosquitoes and is likely to cause problems around your home. Of particular concern are clogged gutters, scattered tires and unopened swimming pools. These tend to collect leaves and water and provide very attractive habitats for mosquito larvae. 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 water 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 the Mosquito Control Division.
- 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 are causing a problem in your area, contact the Division office at (201) 634-2881. 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 or larval mosquito problem is identified, insecticides may be applied for their control.

What pesticides are used to control mosquitoes?

The majority of the pesticides (insecticides) used are to control immature mosquitoes in the water. These insecticides may be applied either by ground equipment or aircraft. If a major adult mosquito problem is identified, or if disease-carrying mosquitoes are detected, an adulticide may be applied throughout the area of infestation. For more information regarding the pesticides used for adult mosquito control, please refer to the accompanying NJDEP approved pesticide fact sheets. Some of the insecticides used to control mosquitoes are also used to control other pests. However, the dosage rates for mosquitoes are usually much lower, as low as 5/8ths of an ounce per acre to control mosquito larvae.

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

All spraying for adult mosquitoes on more than 3 acres aggregate, whether conducted from the ground or air, will be advertised in The Record and The Herald News. The advertisements will contain information such as intended application dates, locations, contacts, and phone numbers. This information is also available by accessing the Bergen Bites Back web page (<https://www.co.bergen.nj.us/health-promotions/bergen-bites-back>). Individual homeowners can request to be notified prior to an adulticide application near their home. Contact the Division for details on the procedure to request notification.

2/2023

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

Example COPY

BERGEN COUNTY DEPARTMENT OF PUBLIC WORKS - MOSQUITO CONTROL

PUBLIC NOTICE

Mosquito Control is everyone's responsibility; please do your part by preventing mosquitoes from breeding on your property. For more information on mosquitoes and mosquito control contact The Bergen County Mosquito Control Program

@ 201-634-2880 or 201-634-2881 and or visit our website @ <https://www.co.bergen.nj.us/public-works-mosquito-control/about-mosquito-control>

In compliance with Section 9.10 of the New Jersey Pesticide Control Code (N.J.A.C. Title 7 Chapter 30) the Bergen County Department of Public Works - Mosquito Control Division, Jerome Avenue, Paramus New Jersey 07653 will be applying pesticides for the control and reduction of adult mosquito populations on an area-wide basis as needed throughout BERGEN COUNTY during the period from April 30, 2023 to May 31, 2023.

The pesticides used will be those recommended by the New Jersey Agricultural

Experiment Station (NJAES) for the control of adult mosquitoes which includes:

DUET (Active Ingredients: Prallethrin and trans-chrysanthemate), Zenivex (Active Ingredient: etofenprox 20%), Fyfanon (Active Ingredient: Malathion) Merus (Active Ingredient: Pyrethrins 5.0%) applied ONLY by ground using truckmounted Ultra Low Volume (ULV) equipment. UNLESS in an extreme emergency where we may utilize the above by helicopter All applications will be according to product labeling and NJAES recommendations.

In case of any pesticide emergency please contact the New Jersey Poison Information and Education System @ 1-800-222-1222; or the National Pesticide Information Center @ 1-800-858-7378 for routine pesticide-related health inquiries.

Upon request the Bergen County Mosquito Control 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 the 12 hours.

The phone number for updated information on time and location of applications

is 201-225-7000; and those seeking further information regarding the Bergen County

Mosquito Control activities are requested to contact Warren Staudinger, Division Director (NJCPA License #58053A) @ (201) 634-2880 or (201) 634-2881. The information is also

posted on the County website @ <https://www.co.bergen.nj.us/public-works-mosquito-control/about-mosquito-control>

For information on pesticide regulations, pesticide complaints and health referrals

contact the New Jersey Pesticide Control Program @ 1-609-984-6507

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

ADULT MOSQUITO CONTROL PRODUCT

MERUS 3.0

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

How does Merus Work?

Merus 3.0 is an EPA registered product for public health mosquito control that contains natural pyrethrin, which is derived from chrysanthemum flowers in Africa. The Merus formulation has no chemical synergists or petroleum distillates, and can be applied via ground or air. It is Organic Material Review Institute (OMRI) Listed for use and in around organic farms and gardens.

Other formulas components include a vegetable oil (e.g., corn oil) and proprietary vegetable – derived biodegradable emollient commonly used in cosmetic creams, liquids and lotions, pharmaceuticals, lipsticks, mouthwash, and flavorings for baked goods and candies.

How will Merus be applied?

Merus may be applied by ground or air with ULV (ultra low volume) application nozzles.

ULV applications create a fine spray cloud (mist) that is comprised of tiny droplets – think 15 droplets on the head of a pin – that moves through the air in order to make contact with in – flight adult mosquitoes.

Will application of this product harm people and/ or pets? Can they be outdoors during the application?

Merus is applied at extremely low dosage rates – less than an ounce per acre. An acre is equivalent to approximately a football field, and a shot glass holds one ounce of liquid. Such low rates mean there is very low exposure even if present during or immediately after application made; this level of exposure is far less than the amount necessary to pose a health concern.

People and pets can be outdoors during the application; there are no re-entry restrictions or limitations for Merus. If you choose to remain indoors, the spray (mist) will dissipate quickly through the treatment area (in 5 – 30 minutes, depending on weather conditions).

The low application rate and wide area dispersal of the spray ensure that exposures are minimal.

Can Merus be used around organic farms?

Yes. All components in Merus 3.0 are approved for crops grown for human food and animal feed. Merus 3.0 is the only OMRI Listed and National Organic Program (NOP) compliant mosquito control product available for the public health industry, which means that Merus can be used in and around organic crops and gardens as well as conventional farms.

Will I notice a scent when Merus is applied?

No. Merus 3.0 is virtually odorless, making it more attractive for mosquito control programs.

How does Merus affect non- target insects?

Because of the manner in which Merus is applied and the time of day it is applied, it should not affect beneficial insects, like bees and butterflies. Merus is applied in small droplets, which break down quickly in the environment. Since the product must hit a mosquito while it is in flight to have an effect, it is sprayed at night when mosquitoes are actively flying and when other insects, such as bees and butterflies, are inactive or in their hives.

Mosquito control products, including Merus, are specifically formulated and applied in a very fine aerosol spray to control mosquitoes, and should not pose a risk to bees even if they inadvertently come in contact with the spray. In a 2016 Louisiana State University study of several public health mosquito control products applied by typical ULV sprayers found no harm to bees, even with direct exposure at a 50 foot distance from the sprayer and at the highest possible label rate.

Are residues on leaves toxic to foraging bees?

No. In studies with pyrethrins, the insecticide in Merus, applications made directly to flowering plants at application rates more than 10 times the rates used in mosquito control did not affect honeybees or adversely affect the conditions of bee colonies, individual survival, flight intensity, or brood development.

How long will Merus last in environment?

Depending on weather conditions, the Merus spray mist will dissipate in 5 to 30 minutes, and the product does not have any residual effect.

Mosquito control products are designed and applied in a very specific way (ultra – low volume mist) to limit deposition on the ground and other surfaces. Any deposition that does occur following a ULV treatment will be minimal, non – toxic to animals and the environment, and will continue degrading quickly upon exposure to sunlight.

Will Merus 3.0 harm the finish of my car / house? Do I need to rinse off outdoor toys?

No. The ingredients of Merus 3.0 are not corrosive or staining and should cause no chemical harm to the finish of a car / house. There is no need to wash off outdoor toys.

Do I need to close my doors or windows during the application?

No, it is not necessary to close doors or windows. The spray will dissipate from the treated area quickly (5 – 30 minutes.)

Should I turn off my air conditioner during the application?

No. There is no need to take precautions with air conditioning systems.

Do vegetables and fruits need to be harvested before Merus 3.0 is applied?

No. Merus 3.0 will not deposit in significant amounts, and residues that may result are far below internationally established thresholds of safe dietary exposure. Residues will degrade quickly on exposure to sunlight. However, it is always prudent to wash fruits and vegetables before eating.

Do I need to cover my fishpond before Merus 3.0 is applied?

No. Merus 3.0 is applied in such a way that only an incidental amount of spray may settle in the area and will not pose a risk to a healthy pond.

Do horses and livestock need to be sheltered during the application?

No. Horses and livestock should not be adversely affected by applications of Merus.

This product has low mammalian toxicity.

Where can I get more information on Merus 3.0?

The following are resources for more information regarding Merus 3.0 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:

NJ DEP Pesticide Control Program 609-984-6568

For pesticide regulation:

USEPA Region 2 Office of Pesticide Programs 732-321-6768

For pesticide health information

Bergen County Department of Health Services 201-634-2600

For mosquito control insecticide recommendations:

Rutgers University, Department of Entomology 732-932-9774

Where can I get more information about local mosquito Control?

Bergen County Mosquito Control 201-634-2881

For state – wide mosquito control information:

NJDEP Office of Mosquito Control Coordination 609-292-3649

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

Adult Mosquito Control Product

Fyfanon

This **fact sheet** answers some basic questions about a mosquito control product used in your county. The Bergen County Mosquito Control Division, 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 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):

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 **609-984-6568**

For pesticide regulation:

USEPA Region 2 Office of Pesticide Programs **732-321-6768**

For pesticide health information:

Bergen County Department of Health Services **201-634-2600**

For mosquito control insecticide recommendations:

Rutgers University, Department of Entomology **732-932-9774**

Where can I get more information about local mosquito control?

Bergen County Mosquito Control **201-634-2880**

For state-wide mosquito control information:

NJDEP Office of Mosquito Control Coordination **609-292-3649**

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

Adult Mosquito Control Product

Zenivex

This Fact Sheet answers some basic questions about mosquito control products in use in your County. The Bergen County Mosquito Control Division 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:

NJ Poison Information & Education System **800-222-1222**

For pesticide regulation & misuse complaints:

NJDEP Pesticide Control Program **609-984-6568**

For pesticide regulation:

USEPA Region 2 Office of Pesticide Programs **732-321-6768**

For pesticide health information:

Bergen County Department of Health Services **201-634-2600**

For mosquito control insecticide recommendations:

Rutgers University, Department of Entomology **732-932-9774**

Where can I get more information about local mosquito control?

Bergen County Mosquito Control **201-634-2880**

For state-wide mosquito control information:

NJDEP Office of Mosquito Control Coordination **609-292-3649**

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

Duet/AquaDuet/Duet HD

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

What is Duet adulticide and how is it used?

Duet contains two pesticides called prallethrin and sumithrin, and a synergistic compound called piperonyl butoxide which increases the effectiveness of the pesticides. AquaDuet is a water-based formulation of Duet. Duet HD is a heavier formulation developed for aerial applications. 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 species like *Aedes albopictus* which typically rest during the evening hours when adulticiding usually takes place.

How can I reduce my exposure to Duet?

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?

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 at 1-800-222-1222 if you experience these symptoms following a pesticide spraying.

How long will Duet 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 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 **609-984-6568**

For pesticide regulation:

USEPA Region 2 Office of Pesticide Programs **732-321-6768**

For pesticide health information:

Bergen County Department of Health Services **201-634-2600**

For mosquito control insecticide recommendations:

Rutgers University, Department of Entomology **732-932-9774**

Where can I get more information about local mosquito control?

Bergen County Mosquito Control **201-634-2880**

For state-wide mosquito control information:

NJDEP Office of Mosquito Control Coordination **609-292-3649**

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 Duet or any other mosquito control related products or practices, please feel free to call the Bergen County Mosquito Control Division at (201) 634-2880 (Mon-Fri; 7:00 AM – 3:30 PM), or visit our web site at <https://www.co.bergen.nj.us/mosquito-control>.