



DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Health
Office of Mosquito Control
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County of Sussex

Sussex County Mosquito Control

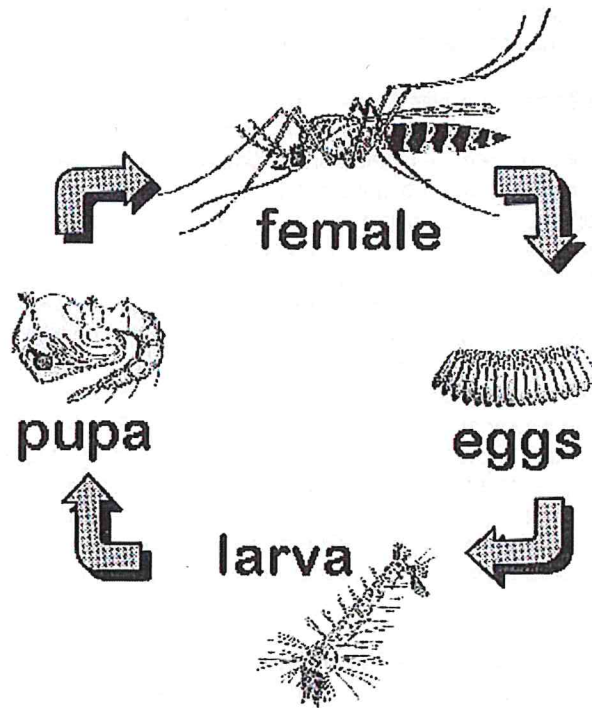
Municipalities are encouraged to share this information with all residents in their community

MOSQUITOES....WHAT EVERYONE SHOULD KNOW

Questions & Answers

What is the life cycle of mosquitoes?

All mosquitoes have four stages of development-egg, larva, pupa, and adult. Mosquitoes spend their larval and pupal stages in water. The females of some mosquito species deposit eggs on moist surfaces, such as mud or fallen leaves that may be near water but dry. Later, rain refloods these surfaces and stimulates the eggs to hatch into larvae. The females of other species deposit their eggs directly on the surface of still water in such places as ditches, street catch basins, tire tracks, streams that are drying up, and fields or excavations that hold water for some time. This water is often stagnant and may be close to homes in discarded tires, ornamental pools, unused wading and swimming pools, tin cans, bird baths, plant saucers, and even gutters and flat roofs. The eggs deposited on such waters soon hatch into larvae. In the hot summer months, larvae grow rapidly, become pupae, and emerge one week later as flying adult mosquitoes. A few important spring species have only one generation per year. However, most species have many generations per year, and their rapid increase in numbers becomes a problem.



When adult mosquitoes emerge from the aquatic stage, they mate, and the female seeks a blood meal to obtain the protein necessary for the development of her eggs. After a blood meal is digested and the eggs are laid, the female mosquito again seeks a blood meal to produce a second batch of eggs. Depending on her stamina and the weather, she may repeat this process many times without mating again. The male mosquito does not take a blood meal, but may feed on plant nectar. He lives for only a short time after mating.

How many kinds of mosquitoes are there?

In Sussex County we have 43 species of mosquitoes. The state of New Jersey has 63 documented species of mosquitoes, with the last state species added in 2001.

What human diseases do mosquitoes cause?

Mosquito-borne diseases, such as malaria and yellow fever, have plagued civilization for thousands of years. Organized mosquito control in the United States has greatly reduced the incidence of these diseases. However, there are still a few diseases that mosquitoes in New Jersey can transmit. West Nile Virus is the newest introduced mosquito-borne virus but several other viruses have been in New Jersey for a long time including those that cause Eastern Equine Encephalitis and St. Louis encephalitis.

What animal diseases do mosquitoes cause?

Both dogs and horses are possible hosts for mosquito-borne diseases. Dog heartworm is a serious threat to canine life and is costly to treat once an animal becomes infected. Dog heartworm can be transmitted by one of the mosquito species, the northern house mosquito, which also transmits West Nile Virus. Horses are susceptible to both West Nile Virus and Eastern Equine Encephalitis. In Sussex County during the 2000 season, 3 horses died of West Nile Encephalitis. Consult your veterinarian for the availability of horse vaccines.

What does the office of Mosquito Control do?

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

What control efforts are utilized by Mosquito Control?

This office uses an Integrated Mosquito Management approach to controlling mosquitoes. It starts with the philosophy that a multi-faceted prevention and control plan is the most cost-efficient and effective means of controlling mosquito populations.

Source reduction or the elimination of breeding habitat is the most effective method of preventing mosquito populations. This practice ranges from removing tires and other artificial containers from the landscape to using water management practices to render habitats inhospitable to mosquitoes. In cases where this is not feasible, controlling mosquitoes in the aquatic habitat is the preferred approach. The mosquito larvae are concentrated and limited to their aquatic habitat; they cannot escape control efforts as can adult mosquitoes on the wing. Several control agents can be employed against mosquitoes at this larval stage. Fish ranging from *Gambusia* to native fat-head minnows are natural predators of mosquitoes and are readily stocked in breeding sites to provide 24 hour larval control. Biorational larvicides with active ingredients found in soil everywhere, such as Bti, are used quite extensively and offer effective control as well.

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 are the winter activities of the Office of Mosquito Control?

The control of mosquitoes starts in February with the first emergence of the snow pool species of mosquitoes and continues through mid November. We also perform source reduction during the months when mosquito populations are low. This includes tire removal and some minor water

management activities. Winter provides us time to update information on breeding sites in our database, analyze the season's data and produce the annual reports and permits required of our office by NJ DEP, the National Park Service, USFWS, Sussex County, and Rutgers University. In addition, equipment maintenance is performed, as well as "right of way" work, if time permits.

What can homeowners do?

The most efficient method of controlling mosquitoes is reducing the availability of water suitable for larval and pupal growth. Large lakes, ponds, and streams that have waves, contain mosquito-eating fish, and lack aquatic vegetation around their edges do not contain mosquitoes; mosquitoes thrive in smaller bodies of water in protected places. Examine your home and neighborhood and take the following precautions:

- Dispose of unwanted buckets and tires.
- Clean clogged roof gutters and drain flat roofs.
- Flush sump-pump pits weekly.
- Stock ornamental pools with fish.
- Change water in birdbaths, fountains, and troughs twice a week.
- Clean and chlorinate swimming pools; when not regularly used, they should be emptied.
- Turn over unused wading pools and other containers that tend to collect rainwater.
- Cover containers tightly with window screen or plastic when storing rainwater for garden use during drought periods.

What do I do if there are adult mosquitoes or standing water around my home?

If mosquitoes present a problem in your area, contact the office at 973-948-4545. Our staff will investigate your service request. Each area is inspected to verify the presence of adult mosquitoes and to locate the breeding source(s) to facilitate controlling the mosquitoes in their immature stages in the future. If warranted, spraying for adult mosquitoes may be carried out. *What triggers adult spraying? The number of mosquitoes trapped, species trapped, disease presence, weather conditions, location of bodies of water, location of bee hives, and other factors.

What pesticides are used to control mosquitoes?

The majority of the pesticides used are products to control mosquito larvae in water, some of which may be applied by aircraft in a granular form. Also, it is sometimes necessary to use pesticides to control adult mosquitoes. For more information regarding the pesticides which may be applied by aircraft or the pesticide used for adult control, please refer to the accompanying NJ Department of Environmental Protection approved Fact Sheet. All pesticides used by the Sussex County Office of Mosquito Control are registered with both the USEPA and the NJDEP, which means that they are legal for use in New Jersey. All employees of Sussex County Mosquito Control are licensed by the NJDEP.

What do I do if exposed to pesticide?

See enclosed NJDEP pesticide Fact Sheets.

Where can I find more specific information on mosquito spraying and how will I be notified of the spraying?

You can find on our Web Site at www.sussex.nj.us/mosquito for updated information on time and location of application(s).

Help Control Mosquitoes that Spread Dengue, Chikungunya, and Zika Viruses

B Zzzz.



Aside from being itchy and annoying, the bite of an infected female mosquito (*Aedes aegypti* or *Aedes albopictus*) can spread dengue, chikungunya, or Zika viruses. People become infected with dengue, chikungunya, or Zika after being bitten by an infected mosquito.

- Female mosquitoes lay several hundred eggs on the walls of water-filled containers. Eggs stick to containers like glue and remain attached until they are scrubbed off. When water covers the eggs, they hatch and become adults in about a week.
- Adult mosquitoes live inside and outside.
- They prefer to bite during the day.
- A few infected mosquitoes can produce large outbreaks in a community and put your family at risk of becoming sick.

Protect Yourself, Your Family, and Community from Mosquitoes

1.

Eliminate standing water in and around your home:

- **Once a week**, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, pools, birdbaths, flowerpots, or trash containers. Check inside and outside your home.
- Tightly cover water storage containers (buckets, cisterns, rain barrels) so that mosquitoes cannot get inside to lay eggs.
- For containers without lids, use wire mesh with holes smaller than an adult mosquito.

2.

If you have a septic tank, follow these steps:

- Repair cracks or gaps.
- Cover open vent or plumbing pipes. Use wire mesh with holes smaller than an adult mosquito.

3.

Keep mosquitoes out of your home:

- Use screens on windows and doors.
- Repair holes in screens.
- Use air conditioning when available.



Put plants in soil, not in water.



Drain water from pools when not in use.



Recycle used tires or keep them protected from rain.



Drain & dump any standing water.



Weekly, scrub vases & containers to remove mosquito eggs.

National Center for Emerging and Zoonotic Infectious Diseases
Division of Vector-Borne Diseases



4.

Prevent mosquito bites:

- Use an Environmental Protection Agency (EPA)-registered insect repellent with one of the following active ingredients. All EPA-registered insect repellents are evaluated to make sure they are safe and effective.

Active ingredient

Higher percentages of active ingredient provide longer protection

DEET

Picaridin (known as KBR 3023 and Icaridin outside the US)

IR3535

Oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD)

2-undecanone



Find the insect repellent that's right for you by using **EPA's search tool***.

* The EPA's search tool is available at: www.epa.gov/insect-repellents/find-insect-repellent-right-you

- Always follow the product label instructions.
- Reapply insect repellent every few hours, depending on which product and strength you choose.
- Do not spray repellent on the skin under clothing.
- If you are also using sunscreen, apply sunscreen first and insect repellent second.
- Treat clothing and gear (such as boots, pants, socks, and tents) with permethrin or purchase permethrin-treated clothing and gear.
 - Treated clothing remains protective after multiple washings. See product information to find out how long the protection will last.
 - If treating items yourself, follow the product instructions carefully.
 - Do **not** use permethrin products, intended to treat clothing, directly on skin.
- Wear long-sleeved shirts and long pants.



Keep rain barrels covered tightly.



Weekly, empty standing water from fountains and bird baths.



Keep septic tanks sealed.



Install or repair window & door screens.

For more information, visit:

www.cdc.gov/dengue, www.cdc.gov/chikungunya, www.cdc.gov/zika



Mosquito Prevention and Protection



www.mosquito.org

Always remember the 3 D's of protection from mosquitoes

Drain

Many mosquito problems in your neighborhood are likely to come from water-filled containers that you, the resident, can help to eliminate. All mosquitoes require water in which to breed. Be sure to drain any standing water around your house.

- Dispose of any tires. Tires can breed thousands of mosquitoes.
- Drill holes in the bottom of recycling containers.
- Clear roof gutters of debris.
- Clean pet water dishes regularly.
- Check and empty children's toys.
- Repair leaky outdoor faucets.
- Change the water in bird baths at least once a week.
- Canoes and other boats should be turned over.
- Avoid water collecting on pool covers.
- Empty water collected in tarps around the yard or on woodpiles.
- Plug tree holes.
- Even the smallest of containers that can collect water can breed hundreds to thousands of mosquitoes. They don't need much water to lay their eggs. (bottles, barrels, buckets, overturned garbage can lids, etc.)

Dress

Wear light colored, loose fitting clothing. Some of the 176 mosquito species are attracted to dark clothing and some can bite through tight-fitting clothes. When practical, wear long sleeves and pants.

Defend

Choose a mosquito repellent that has been registered by the Environmental Protection Agency. Registered products have been reviewed, approved, and pose minimal risk for human safety when used according to label directions. Three repellents that are approved and recommended are:

- DEET (N,N-diethyl-m-toluamide)
- Picaridin (KBR 3023)
- Oil of lemon eucalyptus (p-methane 3,8-diol, or PMD)

Here are some rules to follow when using repellents:

- Read the directions on the label carefully before applying.
- Apply repellent sparingly, only to exposed skin (not on clothing).
- Keep repellents away from eyes, nostrils and lips: do not inhale or ingest repellents or get them into the eyes.
- The American Academy of Pediatrics suggests that DEET-based repellents can be used on children as young as two months of age. Generally, the AAP recommends concentrations of 30% or less.
- Avoid applying repellents to portions of children's hands that are likely to have contact with eyes or mouth.
- Pregnant and nursing women should minimize use of repellents.
- Never use repellents on wounds or irritated skin.
- Use repellent sparingly and reapply as needed. Saturation does not increase efficacy.
- Wash repellent-treated skin after coming indoors.
- If a suspected reaction to insect repellents occurs, wash treated skin, and call a physician. Take the repellent container to the physician.



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County of Sussex

"Anvil®"

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 Sussex County Office of Mosquito Control, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What is Anvil® and how is it used?

Anvil® is an imitation mimic of a naturally occurring insecticide that is produced by certain chrysanthemum flowers. It is an adulticide that is recommended for mosquito control in New Jersey by the Agricultural Experiment Station of Rutgers University. It contains the active ingredients of "**sumithrin, also known as 3-phenoxybenzyl-(1RS, 3RS; 1RS, 3SR)-2,2-dimethyl-3-(2-methylprop-1-enyl) cyclopropanecarboxylate, and piperonyl butoxide**". The U.S. Environmental Protection Agency's (EPA) current evaluation considers **sumithrin 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.

Anvil® applications are made with Ultra Low Volume (ULV) equipment, which put out very small drops of the material at very low levels. 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. The application of **Anvil®** will only be conducted if deemed absolutely necessary. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide in order for it to be effective. **Anvil®** is not residual and breaks down rapidly in sunlight, minimizing the buildup of this product in the environment.

How can I avoid exposure to Anvil®?

Risk to the general public from the use of **Anvil®** 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 illness. Any possible exposure risk can be reduced by following some common sense actions:

- Pay attention to notices about spraying found through newspaper, 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 Anvil®?

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 Anvil® last in the environment?

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

Where can I get more information on Anvil®?

The following are resources for more information regarding **Anvil®** 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 Bureau of Pesticide Compliance **609-984-6568**

For Federal pesticide regulation:

USEPA Region 2 Office of Pesticide Programs **877-251-4575**

For statewide mosquito control information:

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

For mosquito control recommendations:

Rutgers University, Department of Entomology **732-932-9437**

For local mosquito control information:

Sussex County Office of Mosquito Control **973-940-5225**

For local health information:

Sussex County Health Department **973-579-0370**

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on “behind the scenes”, using water management, fish, and other 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 Anvil or any other mosquito control related products or practices, please feel free to call the Sussex County Office of Mosquito Control at 973-534-5225 (mon-Fri; 8:00 AM – 4:30 PM), or visit our web site at www.sussex.nj.us/mosquito.



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County of Sussex

"Zenivex"

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This Fact Sheet answers some basic questions about mosquito control products in use in your County. The Sussex County Office of Mosquito Control, 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*TM 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*TM 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*TM 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 Bureau of Pesticide Compliance **609-984-6568**

For Federal pesticide regulation:

USEPA Region 2 Office of Pesticide Programs **877-251-4575**

For statewide mosquito control information:

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

For mosquito control recommendations:

Rutgers University, Department of Entomology **732-932-9437**

For local mosquito control information:

Sussex County Office of Mosquito Control **973-940-5225**

For local health information:

Sussex County Health Department **973-579-0370**

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and other 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 Sussex County Office of Mosquito Control at 973-534-5225 (mon-Fri; 8:00 AM – 4:30 PM), or visit our web site at

www.sussex.nj.us/mosquito.



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County of Sussex

"DUET" Dual Action Adulticide

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

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

What is Duet and how is it used?

Duet 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 "Prallethrin (ETOC), d-Phenothrin (Sumithrin), Piperonyl Butoxide." The U.S. Environmental Protection Agency's (EPA) current evaluation considers **Prallethrin, d-Phenothrin 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.

Duet 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 Duet?

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

Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash, nausea, vomiting and diarrhea may also occur. 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 (**NJPIS**) 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 Duet last in the environment?

Pyrethroids are unstable in light and air, and rapidly degrade in sunlight. The **Duet** spray stays in the air for a short time until it lands on surfaces. **Prallethrin, d-Phenothrin, and Piperonyl Butoxide** has a low persistence and lasts no longer than 25 days in water and soil. **Prallethrin, d-Phenothrin, and Piperonyl Butoxide** breaks down faster in sunlight.

Where can I get more information on Duet?

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:
New Jersey Poison Information & Education System 800-222-1222

For New Jersey pesticide regulation & misuse complaints:
NJ DEP Bureau of Pesticide Compliance 609-984-6568

For Federal pesticide regulation:
USEPA Region 2 Office of Pesticide Programs 877-251-4575

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

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

For local mosquito control information:
Sussex County Mosquito Control 973-940-5225

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If you have questions about Duet or any other mosquito control related products or practices, please feel free to call the Sussex County Office of Mosquito Control at 973-534-5225 (mon-Fri; 8:00 AM – 4:30 PM), or visit our web site at www.sussex.nj.us/mosquito.



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“DUET HD” Dual Action Adulticide

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What is Duet HD and how is it used?

Duet HD 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 “Prallethrin (ETOC), d-Phenothrin (Sumithrin), Piperonyl Butoxide.” The U.S. Environmental Protection Agency’s (EPA) current evaluation considers **Prallethrin, d-Phenothrin 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.

Duet HD 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 Duet HD?

Risk to the general public from the use of **Duet HD** 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 Duet HD?

Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash, nausea, vomiting and diarrhea may also occur. 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 Duet HD last in the environment?

Pyrethroids are unstable in light and air, and rapidly degrade in sunlight. The **Duet HD** spray stays in the air for a short time until it lands on surfaces. **Prallethrin, d-Phenothrin, and Piperonyl Butoxide** has a low persistence and lasts no longer than 25 days in water and soil. **Prallethrin, d-Phenothrin, and Piperonyl Butoxide** breaks down faster in sunlight.

Where can I get more information on Duet?

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:

New Jersey Poison Information & Education System 800-222-1222

For New Jersey pesticide regulation & misuse complaints:

NJDEP Bureau of Pesticide Compliance 609-984-6568

For Federal pesticide regulation:

USEPA Region 2 Office of Pesticide Programs 877-251-4575

For state-wide mosquito control information:

NJDEP Office of Mosquito Control Coordination 609-292-3649

For mosquito control recommendations:

Rutgers University, Department of Entomology 732-932-9437

For local mosquito control information:

Sussex County Mosquito Control 973-940-5225

For local health information:

Sussex County Health Department 973-579-0370

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and other 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 HD or any other mosquito control related products or practices, please feel free to call the Sussex County Office of Mosquito Control at 973-534-5225 (mon-Fri; 8:00 AM – 4:30 PM), or visit our web site at www.sussex.nj.us/mosquito.



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County of Sussex

"Fyfanon"

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

This sheet answers some basic questions about a mosquito control product in use in your county. Sussex County Mosquito Control, 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 (**NJPIS**) 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:

NJ DEP Bureau of Pesticide Compliance

609-984-6568

For Federal pesticide regulation:

USEPA Region 2 Office of Pesticide Programs

877-251-4575

For state-wide mosquito control information:

NJDEP Office of Mosquito Control Coordination

609-292-3649

For mosquito control recommendations:

Rutgers University, Department of Entomology

732-932-9437

For local mosquito control information:

Sussex County Mosquito Control

973-940-5225

For local health information:

Sussex County Health Department

973-579-0370

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and other 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 Fyfanon or any other mosquito control related products or practices, please feel free to call the Sussex County Office of Mosquito Control at 973-534-5225 (mon-Fri; 8:00 AM – 4:30 PM), or visit our web site at www.sussex.nj.us/mosquito.



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County of Sussex

"DeltaGard"

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

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

What is DeltaGard and how is it used?

DeltaGard contains a pesticide called deltamethrin, a member of the category of pesticides called Type II 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. Deltamethrin is a Type II pyrethroid, and therefore does not require a synergist such as piperonyl butoxide. The U.S. Environmental Protection Agency (EPA) has classified deltamethrin 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 DeltaGardTM adulticide, deltamethrin is considered a non-carcinogen, non-teratogen and non-mutagen.

This Type II 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 commonly used, the spraying of adult mosquitoes is necessary when biting populations reach critical levels or when a disease-causing agent is present in adult mosquitoes. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide for effective control.

How can I avoid exposure to deltamethrin?

Because of the very small amounts of active ingredients released per acre, the risk to the general public from the use of Type II 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 deltamethrin?

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 deltamethrin last in the environment?

The Type II pyrethroid deltamethrin has a half-life of 1-2 weeks in soil and is rapidly adsorbed by sediment in surface water. It is insoluble in water and is immobile in the environment. Deltamethrin is nontoxic to plants and residues are not present after 10 days.

Where can I get more information on deltamethrin?

The following are resources for more information regarding **deltamethrin** 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 **609-984-6568**

For Federal pesticide regulation:

USEPA Region 2 Office of Pesticide Programs **877-251-4575**

For state-wide mosquito control information:

NJDEP Office of Mosquito Control Coordination

609-292-3649

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If you have questions about deltamethrin or any other mosquito control related products or

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