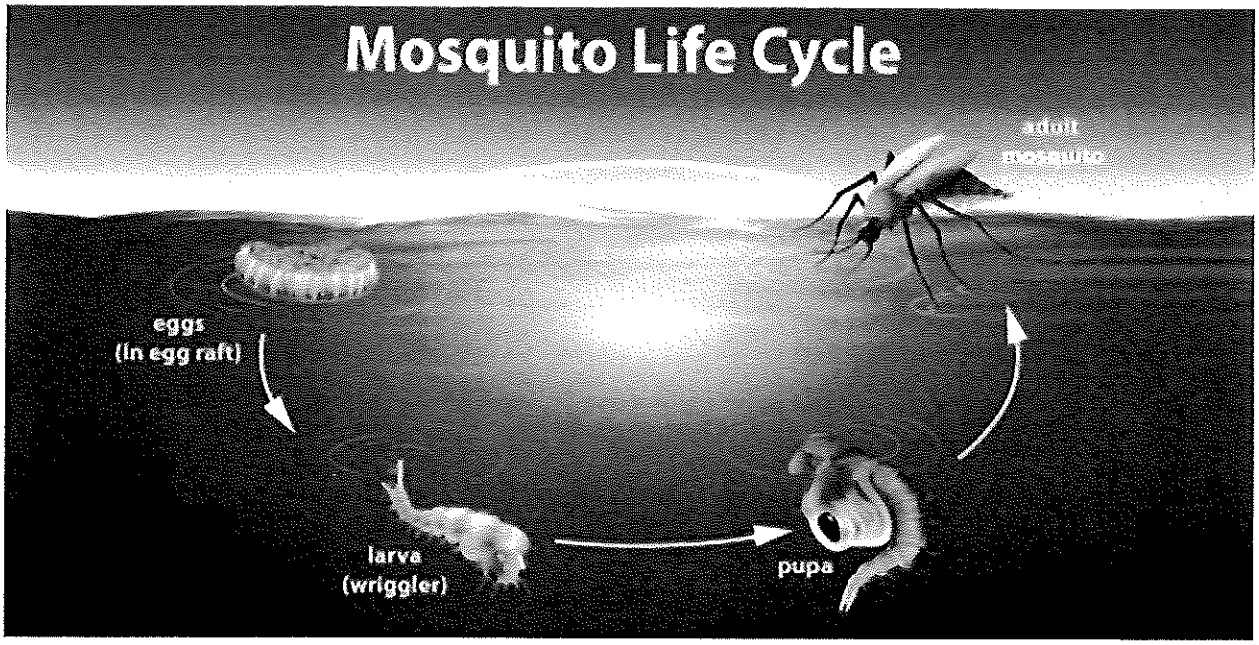
Gloucester County

Mosquito Control Division



What does the agency do?

The division performs "all acts which in its opinion may be necessary for the elimination within the County." A comprehensive surveillance program guides the agency's activities and control is emphasized on the elimination of mosquito-breeding habitat and eradication of mosquitoes when they are still in the aquatic stages of their development. Surveillance for mosquito borne diseases is performed throughout Gloucester County for West Nile Virus, Eastern Equine Encephalitis, Jamestown Canyon Virus and several other Mosquito borne diseases.

What control efforts are used by our agency?

In order to accomplish long-range and environmentally sound mosquito control, we employ an Intergraded Pest Management (IPM) approach. This program

incorporates many pest control methods including vector surveillance, breeding source prevention and reduction, biological and chemical control and public education. With an IPM strategy, control efforts focus primarily on the immature, water-borne stages of the mosquito. The immature stages are generally confined to an aquatic habitat and are easier to treat since they cannot escape control measures.

The primary insecticide used to control the immature stage is a bio rational larvacide, which uses bacteria called Bacillus thuringiensis israelensis (BTI) to specifically target mosquito larvae. Mosquitoes feed on the bacteria, which then releases a crystallized toxin that ruptures the larval stomach and causes death. Another target specific larvacide uses another bacteria called Bacillus sphaericus (Bs) for the same purpose. We also use several other types of insecticides that are used for the control of mosquito larva which include an insect growth regulator that mimics a hormone found in mosquito larva, that will suspend and damage the developmental stages of the immature mosquito. A chemical control method that is a petroleum derivative is also used when needed. This is mainly used as a pupicide in aquatic habitats. We rotate (5) different adulticides that are applied when unusually large numbers of adult mosquitoes are present and public health is threatened. All pesticide applications comply with the guidelines recommended for mosquito control in New Jersey by the Agricultural Experiment Station of Rutgers University and regulations set forth by the New Jersey Department of Environmental Protection.

Biological control measures are also taken by utilizing different fish species to control larval populations in enclosed aquatic locations. The state of New Jersey has established a statewide mosquito fish program that uses resources from the Division of Fish and Game to provide mosquito eating fish to the counties as needed. The species of fish include Gambusia Affinis, Fathead minnows, Freshwater Killifish, Pumpkinseed Sunfish and Bluegill Sunfish.

Our agency also conducts water management and source reduction projects that eliminate standing water. This includes removing blockages in ditches and pipes by reducing mosquito-breeding habitat by physically managing the water's flow. We also perform tire collections and removal to help reduce mosquito habitats for container breeding mosquitoes.

When is the agency active?

Mosquito Control is a year round activity. Generally, the seasonal control program starts in March with the hatching of snow pool mosquito species and continue into November until the temperatures drop or the first frost. During the winter months, we perform follow-up record keeping on the season's mosquito activity at all larvaicide sites, which continues beyond the active mosquito season. The inspection routes are revised, surveillance data is analyzed to identify areas of high mosquito populations and virus activity, and all equipment is maintained and prepared for next season. In addition, plans and protocols are revised for the next mosquito season. Public education is also an important component of our program. Our mosquito personnel are available for mosquito education presentations at local schools, community and civic groups.

What can a homeowner do?

Homeowners can help us in the Mosquito control battle, by eliminating standing water on their property. Any container holding water is a potential mosquito-breeding source and is likely causing problems around the area. Of concern are clogged gutters and scattered tires. Both tend to collect leaves, then fill with water and provide extremely attractive sites for mosquitoes to breed. Since these containers are watertight, they dry out very slowly and are generally the cause of mosquito problems around the homes. Gutters should be kept clean and other containers removed or overturned to limit mosquito-breeding sites. Item such as dog water bowels, horse-watering troughs, and birdbaths should be emptied and refilled a least once a week. Small lower areas in the yard can be filled to prevent the accumulation of water. If larger wet areas exit on the property or on nearby properties, this should be brought to the attention of the Gloucester County Mosquito Control Division. See list below for additional steps homeowners can take to reduce mosquito populations around the home include:

- **Dump all standing water from containers around the home. This includes children's pools, flower pots, tarps, garbage and recycling cans, tires, buckets, kid's toy's, boats and canoes.**

- **Clean out bird baths once a week.**
- **Eliminate standing water or low areas in your yard.**
- **Clean the rain gutters on your house or garage.**
- **Use an aerator or fish in any ornamental ponds.**
- **Drill holes in the bottom of recycling and garbage containers that are left outside. Drainage holes that are located on the sides collect enough water for mosquitoes to breed in.**
- **Remove any discarded tires from your property and recycle them.**
- **Clean and chlorinate swimming pools, even if they are not being used. We can stock an unused pool with mosquito eating fish upon request. A swimming pool left unattended can cause a mosquito problem throughout the whole neighborhood.**

Keeping adult mosquitoes out of your home is another step. Homeowners should make sure the window and door screens are properly fitted, and holes patched to prevent mosquitoes from entering the home. Personal Protective measures should also be undertaken to limit exposure to mosquitoes as much as possible. Limit outdoor activities during dawn and dusk hours when most species of mosquitoes are active. If outdoor activity is necessary, wear long sleeve clothing and pants to limit exposure areas to mosquitoes. A wide variety of repellents are available to provide relief from mosquitoes and other biting insects. Most repellents contain the same active ingredients and are readily available at a variety of stores. Repellants are generally effective, but caution should be used and manufacturer's directions must be followed carefully.

What pesticides are used to control mosquitoes in Gloucester County?

The majority of the pesticides used are products to control mosquito larvae in the water. However, it is sometimes necessary to use pesticides to control adult mosquitoes. For more information regarding the specific pesticides used, please refer to the accompanying N.J Department of Environmental Protection approved Fact sheets.

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

The community will be notified of any adulticiding activity in Gloucester County whether by ground or aerial applications through announcements in two local newspapers, via our agency web site @ http://www.gloucestercountynj.gov:Mosquito

When you visit our web site, you can review a brief summary of our mosquito operation, review information pertaining to controlling mosquitoes around your home, our Spotted Lantern Fly treatment program, and a link to the Gloucester County Health Dept. Web page on Mosquito and Tick information. You can also review the Scheduled Mosquito Spray Locations listed on the site. The site, which is updated daily. The information listed includes Road names, Towns and the Date and Time of application. All treatment dates and times may be rescheduled due to weather conditions.

How can county residents contact The Gloucester County Mosquito Control?

If mosquito present a problem in your area, or you would like a site inspected by our division personnel, the below contact information may be used.

The Gloucester County Public Works, Mosquito Control Division
1200 North Delsea Drive.
Clayton, NJ 08312
Tel: 856-307-6400
If requesting a Mosquito Service Request.
Please go to the Gloucester Co Mosquito Control Website.
You can enter a Mosquito Service Request form online.
By submitting a service request, you agree to be contacted by the County of Gloucester, via email, text (SMS) message or phone call, the day prior to any service being performed.

GLOUCESTER COUNTY PUBLIC WORKS/MOSQUITO CONTROL DIVISION

PUBLIC NOTICE IS HEREBY GIVEN

In compliance to Section 9.10 & 9.15 of the New Jersey Pesticide Control code (N.J.A.C. Title 7, Chapter 30) the Gloucester County Public Works, Mosquito Control Division (MCD) will be applying pesticides for the control and reduction of adult populations on an area-wide basis as needed, throughout Gloucester County during the period of May 5, 2024 to October 20, 2024. Township residents can request a packet of information from their Mayor's Office regarding a state approved "Questions and Answers" sheet and proposed individual pesticides used throughout Gloucester County, which explains everything you need to know about our program, important phone numbers and your health and well being.

The pesticides to be used in these programs will be **Fyfanon ULV**®-(Malathion), **Duet Dual Action Adulticide**®- (Prallethrin-Sumithrin), **Zenivex® E4 RTU** – (Etofenprox), **DeltAGard®**-(Deltamethrin), **PermaSease® 4-4** – (Permethrin and Piperonyl Butoxide), **Anvil 2+2®** – (3-Phenoxybenzyl-(1RS, 3RS; 1RS, 3RS)-2,2-dimethyl-3-(2-methylprop-1-enyl)cyclopropanecarboxylate) and **PermaSease® 3-15** – (3-Phenoxyphenyl) methyl (+/-) cis, trans-3-(2,2-dichlorethenyl)-2,2-dimethyl cyclopropanecarboxylate.. All chemicals will be applied by truck, aircraft or hand held Ultra Low volume spraying equipment for adult mosquito control.

In case of any pesticide emergency, please contact The New Jersey Poison Information and Educational System @ 1-800-222-1222 for routine pesticide related health inquires.

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

Updated information on the time and location of adulticide applications can be found and reviewed **@ http://www.co.gloucester.nj.us/depts/p/pw/highway/mosdiv/msl.asp.** For those seeking further information please contact Wayne J. Wurtz, Jr., General Supervisor, NJCPA license number 69093A at The Gloucester County Public Works/Mosquito Control Division @ 1-856-307-6400, between 8:00 am and 4:00 pm, Monday thru Friday, except on holidays.

For information on pesticide regulations, pesticide complaints and health referrals, contact the New Jersey Pesticide Control Program @ 1-609-984-6666.

GLOUCESTER COUNTY PUBLIC WORKS

VEGETATION CONTROL

PUBLIC NOTICE IS HEREBY GIVEN

In compliance to Section 9.10 & 9.15 of the New Jersey Pesticide Control code (N.J.A.C. Title 7, Chapter 30) the Gloucester County Public Works will be applying herbicides for the control of Roadside Vegetation on an area-wide basis as needed, throughout Gloucester County during the period of March 31,2024 to October 13, 2024. Township residents can request a packet of information from their Mayor's Office regarding a state approved "Questions and Answers" sheet and proposed individual pesticides used throughout Gloucester County, which explains everything you need to know about our program, important phone numbers and your health and well being.

The herbicides to be used in the Roadside Vegetation program will be **Roundup PRO®** (Active ingredient – Glyphosate, N-(phosphonomethyl) glycine, **Trimec®922** (Active ingredient – Dimethyamine salt of 2,4-Dichlorophenoxyacetic Acid, Dimethyamine salt of Dicamba and Dimethyamine salt of (+) -(R)-2-(2-methyl-4-chlorophenoxy) propionic acid.) **Veteran®720 Herbicide** (Active ingredient – Dimethyamine salt of 2,4-Dichlorophenoxyacetic Acid and Dimethylamine salt of Dicamba and Dimethylamine salt of (+) -(R)-2-(2-methyl-4-chlorophenoxy) propionic acid.) and **EsplAnade EZ®** (Active ingredient – Indaziflam , Diquat dibromide , and Glyphosate isopropylamine salt. All herbicides will be applied by low pressure truck mounted sprayer or hand held sprayer.

In case of any pesticide emergency, please contact The New Jersey Poison Information and Educational System @ 1-800-222-1222 for routine pesticide related health inquires.

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

Updated information on the time and location of herbicide applications can be found and reviewed **@ http://www.co.gloucester.nj.us/depts/p/pw/highway/mosdiv/msl.asp.** For those seeking further information please contact Wayne J. Wurtz, Jr., General Supervisor, NJCPA license number 69093A at The Gloucester County Public Works/Mosquito Control Division @ 1-856-307-6400, between 8:00 am and 4:00 pm, Monday thru Friday, except on holidays.

For information on pesticide regulations, pesticide complaints and health referrals, contact the New Jersey Pesticide Control Program @ 1-609-984-6666.

GLOUCESTER COUNTY PUBLIC WORKS/MOSQUITO CONTROL DIVISION

PUBLIC NOTICE IS HEREBY GIVEN

In compliance to Section 9.10 & 9.15 of the New Jersey Pesticide Control code (N.J.A.C. Title 7, Chapter 30) the Gloucester County Public Works, Mosquito Control Division (MCD) will be applying pesticides for the control and reduction of Spotted Lanternflies on an area-wide basis as needed, throughout Gloucester County during the period of March 31, 2024 to October 27, 2024. Township residents can request a packet of information from their Mayor's Office regarding a state approved "Questions and Answers" sheet and proposed individual pesticides used throughout Gloucester County, which explains everything you need to know about our program, important phone numbers and your health and well being.

The pesticides to be used in these programs will be **Bifen I/T Reg No. 53883-118:** (Active ingredient - Bifenthrin)., **Safari 20SG Insecticide Reg No. 86203-11-59639**: (Active Ingredient – Dinotefuran), **Zylam Liquid Systemic Insecticide Reg No. 2217-937**: (Active Ingredient – Dinotefuran), **Tandem Insecticide Reg No. 100-1437:** (Active Ingredient – Thiamethoxam and Lambda-cyhalothrin), **D-Fense SC Insecticide Reg No. 53883-276**: (Active Ingredient- Deltamethrin), **Garlon 3A Reg No. 62719-37**: (Active Ingredient- Triclopyr), **Wisdom TC Flowable Reg No. 5481-520**: (Active Ingredient – Bifenthrin) and **Golden Pest Spray Oil Reg No. 57538-11**: Active Ingredient – Soybean Oil) All chemicals will be applied by truck mounted sprayer or hand held or backpack spraying equipment for Spotted Lantern Flies.

In case of any pesticide emergency, please contact The New Jersey Poison Information and Educational System @ 1-800-222-1222 for routine pesticide related health inquires.

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

For those seeking further information please contact Wayne J. Wurtz, Jr., General Supervisor, NJCPA license number 69093A at The Gloucester County Public Works/Mosquito Control Division @ 1-856-307-6400, between 8:00 am and 4:00 pm, Monday thru Friday, except on holidays.

For information on pesticide regulations, pesticide complaints and health referrals, contact the New Jersey Pesticide Control Program @ 1-609-984-6666.

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

Altosid (Larvicide)

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

What is Altosid and how is it used?

Altosid 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 **Methoprene**. The U.S Environmental Protection Agency's (EPA) current evaluation considers **Methoprene**-containing products to be very slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program. **Altosid** is used to prevent mosquitoes from hatching in lakes, ponds and other bodies of water. It acts on the larval or immature stage of the mosquito in water immediately before the flying mosquito emerges. **Altosid** is part of a integrated pest management (IPM) approach to mosquito control.

How can I reduce my exposure to Altosid?

Risk to the general public from the use of **Altosid** 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 action:

- 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 between sunset and sunrise.

- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 Altosid?

Methoprene is not a skin irritant or a sensitizer. The chance of experiencing symptoms of exposure 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 treatment.

How long will Altosid last in the environment?

Methoprene has a low persistence and breaks down in water within a few days. In the soil, it breaks down in last that 10 days.

Where can I get information on this Larvicide.?

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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Fyfanon

This Fact Sheet answers some basic questions about mosquito control products in use in your county. The Gloucester 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 recommend 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 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 reduce my 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during ULV application. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 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 treatment.

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 last no longer that 25 days in water and soil. Fyfanon breaks down quickly in sunlight.

Where can I get 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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

BVA2 Larvicide Oil

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

What is BVA2 Larvicide oil and how is it used?

BVA2 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 **mineral oil** The U.S Environmental Protection Agency's (EPA) current evaluation considers **mineral-oil products** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program. **BVA2 is used to prevent mosquitoes from hatching in lakes, ponds, and other bodies of standing water. It acts on the pupae or immature stage of the mosquito in water immediately before the flying mosquito emerges. It is a part of 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.**

How can I reduce my exposure to BVA2 Larvicide Oil?

Risk to the general public from the use of **BVA2** 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 BVA@ Larivcide Oil?

Direct contact with eyes or skin may cause mild irritation or discomfort. The chance of experiencing symptoms of exposure 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 treatment.

How long will BVA2 last in the environment?

Mineral Oil photodegrades rapidly in water, breaking down after a few days.

Where can I get information on this Larvicide.?

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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

PermaSease® 4-4 (Adulticide)

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

What is PermaSease 4-4 and how is it used?

PermaSease 4-4 is an insecticide product that is recommended for Ultra-Low Volume mosquito control in New Jersey. It contains the pesticides called **Permethrin and Piperonyl Butoxide (PBO)** The U.S Environmental Protection Agency's (EPA) current evaluation considers **Permethrin and Piperonyl Butoxide (PBO)** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program. **Piperonyl Butoxide (PBO)** is a synergist and is not designed to kill insects on its own. When PBO is added to a pyrethroid, like permethrin, it decreases the ability of the mosquito to detoxify the permethrin, which can increase the efficacy of the insecticide**. PermaSease 4-4** is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in the 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.

How can I reduce my exposure to PermaSease 4-4?

Risk to the general public from the use of **PermaSease 4-4** 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 PermaSease 4-4?

Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash The chance of experiencing symptoms of exposure 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 treatment.

How long will PermaSease 4-4 last in the environment?

PermaSease 4-4 application stays in the air for a short time until it lands on surfaces. **Permethrin** has a low persistence and breaks down in water and soil within 1 to 25 days. **Permethrin** breaks down faster in sunlight.

Where can I get information on this PermaSease 4-4 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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Zenivex

This Fact Sheet answers some basic questions about mosquito control products in use in your county. The Gloucester 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 recommend 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 intergrated 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 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 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 reduce my exposure to Etofenprox?

Because of every 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during ULV application. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 Etofenprox?

Symptoms of 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 at 1-800-222-1222 if you experience these symptoms following a pesticide treatment.

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 surfaces into its constituent elements Carbon, Hydrogen, and Oxygen

Where can I get 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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Fourstar Larvicide

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

What is Fourstar Larvicide and how is it used?

Fourstar Larvicide is an insecticide that is recommended for mosquito control in New Jersey by Rutgers, The State university of New Jersey. It contains the pesticide **Bacillus Sphaericus** and **Bacillus Thuringiensis, subspecies israelensis**. The U.S Environmental Protection Agency (EPA) current evaluation considers **Bacillus Sphaericus** and **Bacillus Thuringiensis, subspecies israelensis** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program.

Fourstar Larvicide is used to prevent mosquitoes from hatching in lakes, ponds, and other bodies of water. It acts on the pupa, or immature stage, of the mosquito in water immediately before the flying mosquitoes emerges**. Fourstar Larvicide** is part of 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.

How can I reduce my exposure to Fourstar Larvicide?

Risk to the public from the use of **Fourstar Larvicide** is minimal. Because of the very small amounts of active ingredients released per acre. 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during ULV application. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 Fourstar Larvicide?

Direct contact with eyes or skin may cause mild irritation or discomfort. 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 at 1-800-222-1222 if you experience these symptoms following a pesticide treatment.

How long will Fourstar Larvicide last in the environment?

Because BS is a biological agent, it tends to break down quickly in the environment. Its breakdown occurs in water and soil within hours of its' use.

Where can I get information on this Fourstar Larvicide?

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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Aqua-Reslin (Adulticide)

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

What is Aqua-Reslin and how is it used?

Aqua-Reslin is an insecticide product that is recommended for Ultra-Low Volume mosquito control in New Jersey by Rutgers, The State University of New Jersey. It contains the pesticides called **Permethrin and Piperonyl Butoxide (PBO)** The U.S Environmental Protection Agency's (EPA) current evaluation considers **Permethrin and Piperonyl Butoxide (PBO)** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program. **Aqua-Reslin** is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in the 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.

How can I reduce my exposure to Aqua-Reslin?

Risk to the general public from the use of **Aqua-Reslin** 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 Aqua-Reslin?

Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash The chance of experiencing symptoms of exposure 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 treatment.

How long will Aqua-Reslin last in the environment?

Aqua-Reslin application stays in the air for a short time until it lands on surfaces. **Permethrin** has a low persistence and breaks down in water and soil within 1 to 25 days. **Permethrin** breaks down faster in sunlight.

Where can I get 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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Natular® Larvicide

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

What is Natular Larvicide and how is it used?

Natular is a bacterial larvicide that is used for mosquito control in New Jersey. It contains the active ingredient "**Spinosad".** Spinosad is made up of the complex organic compands SpinosynA and Spinosyn D, which are created by soil microbes. The U.S Environmental Protection Agency's (EPA) current evaluation considers **Spinosad** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program.

Natular contains parts of a naturally occurring soil bacterium. When mosquito larvae eat the spores, toxins are released by the mosquito's stomach fluids, which in turn cause the larvae to die. It is a part of 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.

How can I reduce my exposure to Natular Larvicide?

Risk to the general public from the use of **Natular** is very minimal. The organic compounds that are lethal to mosquitoes are harmless to mammals. 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 action:

- 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 between sunset and sunrise.
- Avoid direct contact with water bodies that have been treated.
- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 Natular Larvicide.?

Direct contact with eyes or skin may cause mild irritation or discomfort. The chance of experiencing symptoms of exposure 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 treatment.

How long will Natular Larvicide last in the environment?

Since Spinosyn A and Spinosyn D are biological agents, they tend to break down quickly in the environment. It breakdown occurs in water and soil within hours of its use.

Where can I get information on this Larvicide.?

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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

PermaSease® 3-15 (Adulticide)

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

What is PermaSease 3-15 and how is it used?

PermaSease 3-15 is an insecticide product that is recommended for Ultra-Low Volume mosquito control in New Jersey. It contains the pesticides called **Permethrin and Piperonyl Butoxide (PBO)** The U.S Environmental Protection Agency's (EPA) current evaluation considers **Permethrin and Piperonyl Butoxide (PBO)** containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program. **Piperonyl Butoxide (PBO)** is a synergist and is not designed to kill insects on its own. When PBO is added to a pyrethroid, like permethrin, it decreases the ability of the mosquito to detoxify the permethrin, which can increase the efficacy of the insecticide**. PermaSease 3-15** is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in the 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.

How can I reduce my exposure to PermaSease 3-15?

Risk to the general public from the use of **PermaSease 3-15** 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 PermaSease 3-15?

Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash The chance of experiencing symptoms of exposure 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 treatment.

How long will PermaSease 3-15 last in the environment?

PermaSease 3-15 application stays in the air for a short time until it lands on surfaces. **Permethrin** has a low persistence and breaks down in water and soil within 1 to 25 days. **Permethrin** breaks down faster in sunlight.

Where can I get information on this PermaSease 3-15 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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Fyfanon EW

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

What is Fyfanon EW and how is it used?

Fyfanon EW is an insecticide product that is recommend for mosquito control in New Jersey by Rutgers, The State university of New Jersey. It contains the pesticide Malathion. **Fyfanon EW** is a low-odor formulation of Fyfanon. 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.

Fyfanon EW 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 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 reduce my exposure to Fyfanon EW?

Risk to the public from the use of **Fyfanon EW** 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 action:

- 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 between sunset and sunrise.
- Move your pets, their food, and water dishes inside during ULV application. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 EW?

Symptoms of exposure can include headache, nausea, dizziness, excessive sweating, salivation, excessive tearing and a runny nose. 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 treatment.

How long will Fyfanon EW last in the environment?

The **Fyfanon EW** spray stays in the air for a short time until it settles out and lands on surfaces. **Fyfanon EW** has a low persistence and last no longer that 25 days in water and soil. Fyfanon breaks down quickly in sunlight.

Where can I get information on this Fyfanon EW 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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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

Vectolex® Larvicide

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

What is Vectolex Larvicide and how is it used?

Vectolex 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 **"Bacillus Sphaericus (BS)".** The U.S Environmental Protection Agency's (EPA) current evaluation considers BS-containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program.

Vectolex is used to prevent mosquitoes from hatching in lakes, ponds and other bodies of water. It acts on the larval or immature stage of mosquito in water immediately before flying mosquito emerges. It is a part of 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 on order to lessen the need to spray for adult mosquitoes.

How can I reduce my exposure to Vectolex Larvicide?

Risk to the general public from the use of **Vectolex** is very 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 action:

- 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 between sunset and sunrise.
- Avoid direct contact with water bodies that have been treated.
- Move your pets, their food, and water dishes inside during applications. Also bring clothing and children's toy's inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and window air conditioners on non-vent (closed to 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 Vectolex Larvicide.?

Direct contact with eyes or skin may cause mild irritation or discomfort. The chance of experiencing symptoms of exposure 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 treatment.

How long will Vectolex Larvicide last in the environment?

Because **BS** is a biological agent, it tends to break down quickly in the environment. It breakdown occurs in water and soil within hours of its use.

Where can I get information on this Larvicide.?

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 exposure- 24 hours:

New Jersey Poison Information & Education System

800-222-1222

- For pesticide regulations and misuse complaints:

NJDEP Pesticide Control Program – 609-984-6568

- For 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:

848-932-9774

- For local Mosquito control information:

Gloucester County Mosquito Control Division: 856-307-6400

- For Health related pesticide information:

The Gloucester County Health Department: 856-218-4101

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NATIONAL PESTICIDE INFORMATION CENTER

DELTAMETHRIN
GENERAL FACT SHEET

What is deltamethrin?

Deltamethrin is an insecticide belonging to the pyrethroid family. Pyrethroids are the man-made versions of pyrethrins, natural insecticides from chrysanthemum flowers. Deltamethrin is used outdoors on lawns, ornamental gardens, golf courses, and indoors as a spot or crack and crevice treatment. In its purest form, deltamethrin is colorless or white to light beige crystals that have no odor.

Deltamethrin was first described in 1974 and entered the marketplace in 1978.

What are some products that contain deltamethrin?

Deltamethrin is in a variety of products used to kill a wide range of insects. Deltamethrin can be formulated in insecticide products as aerosols, sprays, dusts, granules and wettable powders. The illegal, unregistered product known as "Chinese Chalk" or "Miraculous Chalk" often contains deltamethrin as the active ingredient. "Chinese Chalk", "Miraculous Chalk", and products like them are not registered for use in the United States and illegal products such as these should be avoided at all times.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to discuss a pesticide problem, please call 1-800-858-7378.

How does deltamethrin work?

Deltamethrin can kill insects by direct contact or if they eat it. It disrupts their normal nervous system function. It is less toxic to mammals due to their higher body temperature, larger body size, and decreased sensitivity to the chemical.

How might I be exposed to deltamethrin?

You can be exposed to deltamethrin if you touch, eat, or breathe it in. As an example, it could be breathed in if a fine mist or dust containing deltamethrin gets in the air you breathe. Exposure to deltamethrin can be limited by reading and following label directions.

NPIC General Fact Sheets are designed to provide scientific information to the general public. This document is intended to promote informed decision-making. Please refer to the Technical Fact Sheet for more information.

DELTAMETHRIN
GENERAL FACT SHEET

What are some signs and symptoms from a brief exposure to deltamethrin?

When deltamethrin gets on the skin, it can cause skin sensations like tingling, itching, burning, or numbness at that spot. These sensations usually go away within 48 hours. Deltamethrin can be mildly irritating if it gets in the eye. If enough deltamethrin is breathed in, it can cause headaches and dizziness. Although not common, individuals who have ingested large amounts of deltamethrin have experienced nausea, vomiting, abdominal pain, and muscle twitches. Deltamethrin is low in toxicity when it is touched or breathed in and is low to moderately toxic if eaten.

Deltamethrin can affect dogs and cats if they eat, breathe, or touch it. It can cause vomiting, drooling, in-coordination, and muscle tremors if they eat enough of it. If deltamethrin gets on their skin, it can sometimes cause skin sensations that result in biting, scratching, or licking of the exposed area.

What happens to deltamethrin when it enters the body?

In animal studies, deltamethrin was readily absorbed when it was eaten. Some of the chemical was broken down into other chemicals before they were excreted within 2 days. In a rat study, deltamethrin was poorly absorbed through the skin. The small amount that was absorbed through the skin left the body within 24 hours.

Is deltamethrin likely to contribute to the development of cancer?

The evidence from animal studies indicates that deltamethrin does not cause cancer. The U.S. EPA classifies deltamethrin as Not Likely to Be a Human Carcinogen by all routes of exposure.

Has anyone studied non-cancer effects from long-term exposure to deltamethrin?

Yes, studies have been done using laboratory animals. In multiple studies with mice and dogs, no effects were observed at the highest doses tested, over a 2 year period. Deltamethrin did not cause birth defects in laboratory animals that ate deltamethrin during their pregnancy.

Are children more sensitive to deltamethrin than adults?

While children may be especially sensitive to pesticides compared to adults, it is currently unknown whether children have increased sensitivity specifically to deltamethrin. However, studies in rats showed that young rats were more sensitive than older rats when they were both fed deltamethrin.

DELTAMETHRIN
GENERAL FACT SHEET

What happens to deltamethrin in the environment?

When deltamethrin gets in the soil, it has a tendency to bind tightly to soil particles. It has a half-life ranging from 5.7-209 days. Half-life is the measure of time it takes for half of the applied amount to break down. The half-life can change based on soil chemistry, temperature, water content and the amount of organic matter in the soil. Deltamethrin does not break down as quickly in soil with a high clay or organic matter content. Deltamethrin is broken down by microbes, light, and water. Its two major breakdown products move more easily in the soil than deltamethrin itself.

Deltamethrin is not likely to evaporate into the air or dissolve easily into water.

Deltamethrin has a half-life of 5.9-17 days on plant surfaces. It is unlikely to be taken up by plants, since it binds to soil particles so tightly.

Can deltamethrin affect birds, fish, or other wildlife?

Deltamethrin is moderately to highly toxic to fish under laboratory conditions. However, when products are used according to the label, deltamethrin is less likely to affect fish. This is because it is more likely to be bound to the sediment.

Deltamethrin is practically non-toxic to birds when they eat it.

Deltamethrin is highly toxic to honeybees under laboratory conditions. It did not harm bees in field studies, and formulated products actually had a repellant effect that lasted for 2-3 hours.

Earthworms were not affected when soil was treated with deltamethrin.

Where can I get more information?

For more detailed information call the National Pesticide Information Center, Monday - Friday, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time) at 1-800-858-7378 or visit us on the web at http://npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

Date Reviewed: February 2010

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OSU Oregon State University

2,4-D
GENERAL FACT SHEET

What is 2,4-D?

2,4-D is an herbicide that kills plants by changing the way certain cells grow. 2,4-D comes in several chemical forms, including salts, esters, and an acid form. The toxicity of 2,4-D depends on its form. The form also affects what will happen to 2,4-D in the environment and what impacts it may have, especially on fish. 2,4-D is used in many products to control weeds, and it is often mixed with other herbicides in these products.

2,4-D was first used in the United States in the 1940s. Agent Orange, an herbicide used during the Vietnam War, contained both 2,4-D and 2,4,5-T. Dioxin, a by-product of 2,4,5-T, led to the ban of Agent Orange.

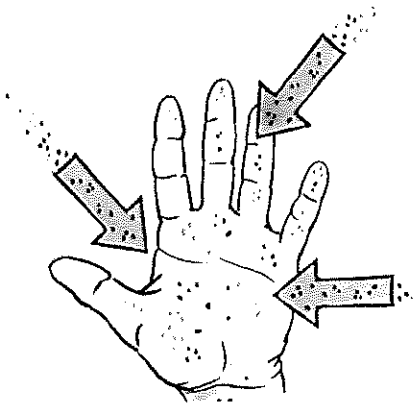
What are some products that contain 2,4-D?

Products containing 2,4-D may be liquids, dusts, or granules. The liquid forms may be concentrated or ready-to-use. There are over a thousand products with 2,4-D in them that are sold in the United States.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to discuss a pesticide problem, please call 1-800-858-7378.

How does 2,4-D work?

2,4-D kills broadleaf weeds but not most grasses. 2,4-D kills plants by causing the cells in the tissues that carry water and nutrients to divide and grow without stopping. Herbicides that act this way are called auxin-type herbicides.



How might I be exposed to 2,4-D?

Products with 2,4-D may be used on farms, home lawns, roadsides, industrial areas, and pastures. You may be exposed if you are applying 2,4-D and you get it on your skin, breathe it in, or eat or smoke afterwards without washing your hands. You also may be exposed if you touch plants that are still wet with spray. You can limit exposure by following the label carefully if you are using products that contain 2,4-D. You can also stay away from grass or plants that have been treated until the leaves are dry.

NPIC General Fact Sheets are designed to provide scientific information to the general public. This document is intended to promote informed decision-making. Please refer to the Technical Fact Sheet for more information.

2,4-D
GENERAL FACT SHEET

What are some signs and symptoms from a brief exposure to 2,4-D?

Pure 2,4-D is low in toxicity if eaten, inhaled, or if it contacts the skin, and some forms are low in toxicity to the eyes. However, the acid and salt forms of 2,4-D can cause severe eye irritation. People who drank products containing 2,4-D vomited, had diarrhea, headaches, and were confused or aggressive. Some people also had kidney failure and skeletal muscle damage. People who spilled 2,4-D on their skin developed skin irritation. Breathing 2,4-D vapors can cause coughing, a burning feeling in the airway, and dizziness.

Pets may be exposed to 2,4-D if they touch grass or other plants still wet from spraying and then groom their feet or fur, if they drink the pesticide, or possibly if they eat grass that has been treated with 2,4-D. Dogs may be more sensitive to 2,4-D than other animals. Dogs and cats that ate or drank products with 2,4-D in them developed vomiting, diarrhea, loss of appetite, lethargy, drooling, staggering, or convulsions. See the fact sheet on Pets and Pesticide Use for more information.

What happens to 2,4-D when it enters the body?

In humans, 2,4-D is not absorbed well through the skin or lungs, but it is absorbed into the body if swallowed. Sunscreen, insect repellents, and drinking alcohol may increase how much 2,4-D is absorbed through the skin. Once inside, 2,4-D moves throughout the body but does not build up in any tissues. The human body gets rid of most of the 2,4-D in the urine without changing it into anything else. More than 75% of the absorbed 2,4-D leaves the body in the first 4 days after exposure.

Is 2,4-D likely to contribute to the development of cancer?

Scientists have not found a clear link between 2,4-D and cancer in people. Because 2,4-D is often mixed with other herbicides, it is difficult to tell if 2,4-D or one of the other herbicides might be linked to cancer. Some studies have suggested that there may be links between non-Hodgkin's lymphoma and exposure to 2,4-D by itself, but other studies have not found any evidence of this.

In 2004, the EPA decided that 2,4-D could not be classified with regard to its ability to cause cancer because there was not enough data.

Has anyone studied non-cancer effects from long-term exposure to 2,4-D?

Animals fed high doses of 2,4-D for several weeks sometimes had fewer young or the young did not have normal skeletons. This only happened if the amount of 2,4-D fed to the mothers was enough to affect the mothers. 2,4-D has not been linked to health problems in human mothers or infants.

2,4-D
GENERAL FACT SHEET

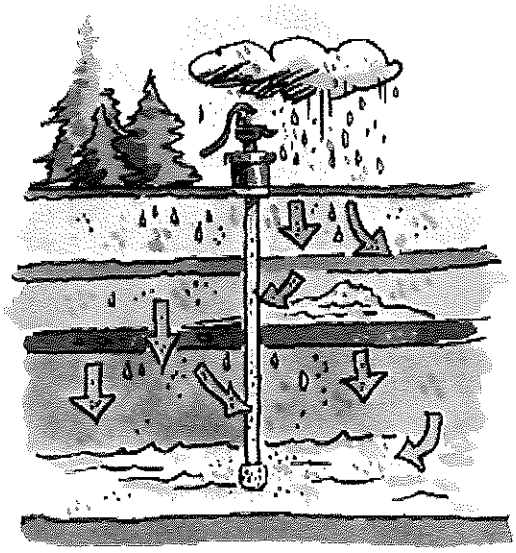
Are children more sensitive to 2,4-D than adults?

While children may be especially sensitive to pesticides compared to adults, there are currently no data to conclude that children have increased sensitivity specifically to 2,4-D.

What happens to 2,4-D in the environment?

2,4-D goes through different changes in the environment depending on its form. Most of the time, 2,4-D breaks down in soil so that half of the original amount is gone in 1-14 days. This breakdown time is called the "half-life" of the pesticide. One form of 2,4-D, the butoxyethyl ester, had a much longer half-life in aquatic sediment of 186 days.

2,4-D is broken down by bacteria in water and in soil. Water alone can also break down 2,4-D. 2,4-D has been found at low levels in shallow groundwater and streams in both rural and urban areas.



Can 2,4-D affect birds, fish, or other wildlife?

How 2,4-D affects animals and plants depends on the form of 2,4-D. Some of the ester forms of 2,4-D can be very toxic to fish and other aquatic life. The salt forms may be only slightly toxic to aquatic animals. Aquatic animals are more sensitive to 2,4-D as water temperature rises. 2,4-D may be moderately toxic to practically non-toxic to birds if they eat it. Eggs sprayed with 2,4-D still hatched and the chicks were normal. 2,4-D is practically non-toxic to honeybees. It is not expected to be a hazard to other beneficial insects.

Where can I get more information?

For more detailed information call the National Pesticide Information Center, Monday - Friday, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time) at 1-800-858-7378 or visit us on the web at http://npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

Date Reviewed: March 2009

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GLYPHOSATE
GENERAL FACT SHEET

What is glyphosate?

Glyphosate is an herbicide. It is applied to the leaves of plants to kill both broadleaf plants and grasses. The sodium salt form of glyphosate is used to regulate plant growth and ripen specific crops.

Glyphosate was first registered for use in the U.S. in 1974. Glyphosate is one of the most widely used herbicides in the United States. People apply it in agriculture and forestry, on lawns and gardens, and for weeds in industrial areas. Some products containing glyphosate control aquatic plants.

What are some products that contain glyphosate?

Glyphosate comes in many forms, including an acid and several salts. These can be either solids or an amber-colored liquid. There are over 750 products containing glyphosate for sale in the U.S.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 800-222-1222. If you wish to discuss a pesticide problem, please call 800-858-7378.

How does glyphosate work?

Glyphosate is a non-selective herbicide, meaning it will kill most plants. It prevents the plants from making certain proteins that are needed for plant growth. Glyphosate stops a specific enzyme pathway, the shikimic acid pathway. The shikimic acid pathway is necessary for plants and some microorganisms.

How might I be exposed to glyphosate?

You can be exposed to glyphosate if you get it on your skin, in your eyes or breathe it in when you are using it. You might swallow some glyphosate if you eat or smoke after applying it without washing your hands first. You may also be exposed if you touch plants that are still wet with spray. Glyphosate isn't likely to vaporize after it is sprayed.

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GLYPHOSATE
GENERAL FACT SHEET

What are some signs and symptoms from a brief exposure to glyphosate?

Pure glyphosate is low in toxicity, but products usually contain other ingredients that help the glyphosate get into the plants. The other ingredients in the product can make the product more toxic. Products containing glyphosate may cause eye or skin irritation. People who breathed in spray mist from products containing glyphosate felt irritation in their nose and throat. Swallowing products with glyphosate can cause increased saliva, burns in the mouth and throat, nausea, vomiting, and diarrhea. Fatalities have been reported in cases of intentional ingestion.

Pets may be at risk if they touch or eat plants that are still wet with spray from products containing glyphosate. Animals exposed to products with glyphosate may drool, vomit, have diarrhea, lose their appetite, or seem sleepy.

What happens to glyphosate when it enters the body?

In humans, glyphosate does not easily pass through the skin. Glyphosate that is absorbed or ingested will pass through the body relatively quickly. The vast majority of glyphosate leaves the body in urine and feces without being changed into another chemical.

Is glyphosate likely to contribute to the development of cancer?

Animal and human studies were evaluated by regulatory agencies in the USA, Canada, Japan, Australia, and the European Union, as well as the Joint Meeting on Pesticide Residues of the United Nations and World Health Organization (WHO). These agencies looked at cancer rates in humans and studies where laboratory animals were fed high doses of glyphosate. Based on these studies, they determined that glyphosate is not likely to be carcinogenic. However, a committee of scientists working for the International Agency for Research on Cancer of the WHO evaluated fewer studies and reported that glyphosate is probably carcinogenic.

Has anyone studied non-cancer effects from long-term exposure to glyphosate?

Long-term feeding studies in animals were assessed by the US Environmental Protection Agency (EPA) and other regulatory authorities. Based on these evaluations, they found there is no evidence glyphosate is toxic to the nervous or immune systems. They also found it is not a developmental or reproductive toxin.

Are children more sensitive to glyphosate than adults?

As required by the Food Quality Protection Act, the EPA has determined that children are not more sensitive to glyphosate as compared to the general population.

GLYPHOSATE
GENERAL FACT SHEET

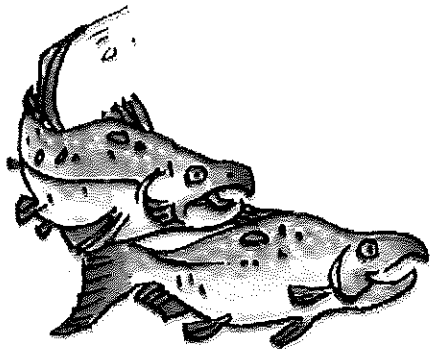
What happens to glyphosate in the environment?

Glyphosate binds tightly to soil. It can persist in soil for up to 6 months depending on the climate and the type of soil it is in. Glyphosate is broken down by bacteria in the soil.

Glyphosate is not likely to get into groundwater because it binds tightly to soil. In one study, half the glyphosate in dead leaves broke down in 8 or 9 days. Another study found that some glyphosate was taken up by carrots and lettuce after the soil was treated with it.

Can glyphosate affect birds, fish, or other wildlife?

Pure glyphosate is low in toxicity to fish and wildlife, but some products containing glyphosate may be toxic because of the other ingredients in them. Glyphosate may affect fish and wildlife indirectly because killing the plants alters the animals' habitat.



Where can I get more information?

For more detailed information about glyphosate references please visit npic.orst.edu/factsheets/glyphorefs.html or call the National Pesticide Information Center, Monday - Friday, between 8:00am - 12:00pm Pacific Time (11:00am - 3:00pm Eastern Time) at 800-858-7378 or visit us on the web at npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

Date Reviewed: 2010; limited revisions made: March 2019

Please cite as: Henderson, A. M.; Gervais, J. A.; Luukinen, B.; Buhl, K.; Stone, D.; Cross, A.; Jenkins, J. 2010. *Glyphosate General Fact Sheet*; National Pesticide Information Center, Oregon State University Extension Services. http://npic.orst.edu/factsheets/glyphogen.html.

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DICAMBA
GENERAL FACT SHEET

What is dicamba?

Dicamba is a selective herbicide in the chlorophenoxy family of chemicals. It comes in several salt formulations and an acid formulation. These forms of dicamba have different properties in the environment. Products with dicamba frequently contain other herbicides as well.

What are some products that contain dicamba?

Products containing dicamba may be liquids, dusts or granules. Products may be concentrated or ready-to-use. Currently, dicamba can be found in over 1100 products that are sold in the United States. It is used in agriculture, residential areas, and other sites.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to discuss a pesticide problem, please call 1-800-858-7378.

How does dicamba work?

Dicamba is similar to the herbicide 2,4-D. Both act like natural plant hormones known as auxins. These hormones help to control plant growth. When plants are treated with dicamba, they grow in abnormal and uncontrollable ways, and often, the plants die. Dicamba is used on many broadleaf weeds and woody plants.

How might I be exposed to dicamba?

Products with dicamba may be used in many places including on home lawns, farms, golf courses and rights-of-way along utility lines, roadsides and railways. You may be exposed if you are applying dicamba and you get it on your skin, inhale it, or eat or smoke afterwards without washing your hands first. You also may be exposed if you touch plants that are still wet with spray. You can limit exposure by following the label carefully if you are using products that contain dicamba. You can also stay away from grass or plants that have been treated until the leaves are dry.

In some cases, dicamba can be found in well water but typically at low levels. These levels are usually so low that no effect on human health is expected. Dicamba has also been found in house dust in farmer's homes at very low levels.

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DICAMBA
GENERAL FACT SHEET

What are some signs and symptoms from a brief exposure to dicamba?

Pure dicamba is low in toxicity if breathed. If inhaled, people may experience dizziness, and irritation of the nose, resulting in coughing. If you get pure dicamba on your skin, it is low in toxicity, however skin irritation may develop. If you get dicamba in your eyes, it is moderately toxic. If dicamba is swallowed, people have reported symptoms such as vomiting, loss of appetite and muscle spasms. If a large amount is swallowed, diarrhea and abdominal pain have been reported.

Pets may be exposed to dicamba if they come into contact with plants that have been treated with dicamba, either by eating the plants or walking through an area where dicamba was applied. Signs that a dog or a cat may have been exposed to dicamba include shortness of breath, muscle spasms and the animal may produce a lot of saliva. Birds may also be exposed to dicamba by eating dicamba granules and signs include wing drop, a loss of controlled movements, and weakness.

What happens to dicamba when it enters the body?

In humans, dicamba is not absorbed through the skin very well. If swallowed, dicamba is taken in quickly. Following dicamba's uptake, the chemical is rapidly eliminated in the urine, mostly unchanged. When laboratory rats were fed dicamba, most of the dose was found in urine within two days.

Is dicamba likely to contribute to the development of cancer?

Scientists have not found a clear link between dicamba and cancer in people. One study on pesticide applicators found weak links between lung and colon cancer and dicamba exposure, but other studies have not found any evidence of this. The EPA had concluded that dicamba is not likely to cause cancer in people.

Has anyone studied non-cancer effects from long-term exposure to dicamba?

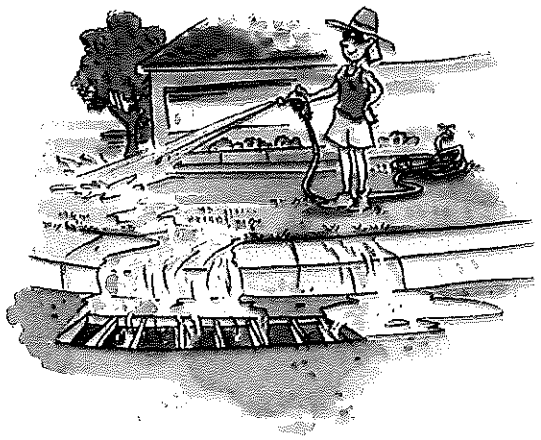
Scientists have studied the effects from long-term exposure to dicamba to different animals. When rats were fed dicamba for 90 days, some of the rats didn't gain as much weight when compared to rats that were not fed dicamba. When rabbits had dicamba on their skin for 21 days, there were no effects on any internal organs, but dicamba irritated the rabbits' skin.

DICAMBA
GENERAL FACT SHEET

Are children more sensitive to dicamba than adults?

While children may be especially sensitive to pesticides compared to adults, there are currently no data showing that children have an increased sensitivity specifically to dicamba.

What happens to dicamba in the environment?



When dicamba is applied to plants, it can be absorbed by the leaves and roots. It can travel throughout the plant, but the amount and speed of movement depends on the plant. In water, microbes and ultraviolet (UV) light can break down dicamba.

Dicamba breaks down in soil so that half of the original amount is gone in 30-60 days. Water and microbes in soil can speed up the breakdown of dicamba. Sometimes following an application, dicamba can become airborne and cause damage to nearby plants.

Can dicamba affect birds, fish, or other wildlife?

The salt forms of dicamba are not likely to hurt birds if eaten. The acid form is slightly or moderately toxic to birds. Dicamba is not likely to harm fish because of its low toxicity. Among several studies in fish exposed to dicamba, results showed that dicamba was relatively non-toxic to fish.

Where can I get more information?

For more detailed information call the National Pesticide Information Center, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time), Monday - Friday, at 1-800-858-7378 or visit us on the web at http://npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

Date Reviewed: February 2012

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BIFENTHRIN
GENERAL FACT SHEET

What is bifenthrin?

Bifenthrin is an insecticide in the pyrethroid family. Pyrethroids are man-made versions of pyrethrins, which come from chrysanthemum flowers. Bifenthrin is used on various agricultural crops and in homes.

Bifenthrin was first registered for use by the United States Environmental Protection Agency (U.S. EPA) in 1985.

Chrysanthemum flower

What are some products that contain bifenthrin?

Products containing bifenthrin come in many forms, including sprays, granules, and aerosols. There are over 600 products containing bifenthrin available in the United States.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to discuss a pesticide problem, please call 1-800-858-7378.

How does bifenthrin work?

Bifenthrin interferes with the nervous system of insects when they eat or touch it. It's more toxic to insects than it is to people because insects have lower body temperatures and smaller body size.

How might I be exposed to bifenthrin?

You could be exposed to bifenthrin if you touch it, eat it, or breathe it in. You may be exposed if you breathe in the spray mist during an application, or eat some of it if you smoked or ate without washing your hands after you applied a product. Limit your exposure to bifenthrin by reading the product label and following all of the directions.

What are some signs and symptoms from a brief exposure to bifenthrin?

When bifenthrin gets on the skin, it can cause tingling, itching, burning, or numbness at the site of contact. The sensations usually go away within 48 hours. Inhaling bifenthrin can irritate the nose, throat, and lungs. People who ate large amounts of bifenthrin experienced sore throat, nausea, abdominal pain and vomiting almost immediately.

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Exposed pets may experience single-episode vomiting or diarrhea, reduced activity, twitching of the ear, paw flicking and increased drooling. Other signs can include hyperactivity followed by incoordination with diarrhea, depression, and dilated pupils. Some veterinarians have reported additional signs such as chewing, head bobbing, partial paralysis, and tremors.

What happens to bifenthrin when it enters the body?

Bifenthrin is slowly absorbed by the body after being eaten, and most of it is excreted within 3-7 days. Studies indicate that bifenthrin does not absorb through the skin well.

Is bifenthrin likely to contribute to the development of cancer?

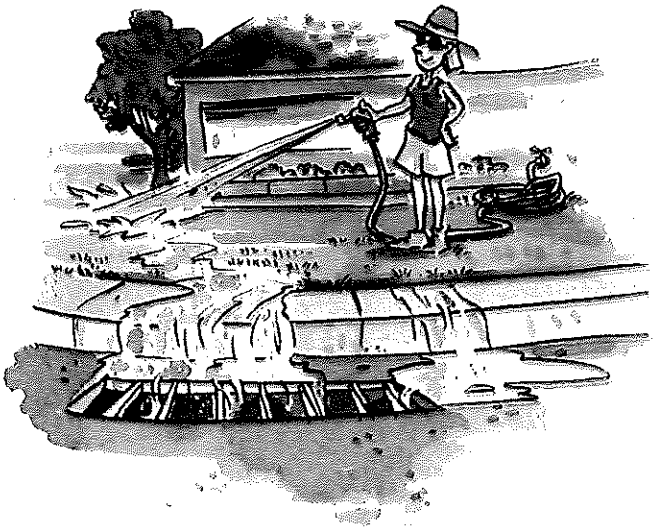
The U.S. EPA classifies bifenthrin as a possible human carcinogen. This rating was based on studies in mice. Other studies indicate that bifenthrin does not cause cancer when fed to rats.

Has anyone studied non-cancer effects from long-term exposure to bifenthrin?

Yes, studies have been done using laboratory animals. Bifenthrin did not cause birth defects in rats or rabbits that ate bifenthrin when pregnant. In long-term studies, rats and rabbits had tremors at high doses.

Are children more sensitive to bifenthrin than adults?

While children may be especially sensitive to pesticides compared to adults, there are currently no data showing that children have increased sensitivity specifically to bifenthrin.

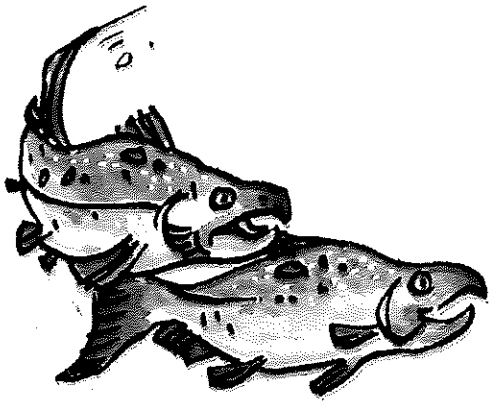


What happens to bifenthrin in the environment?

Bifenthrin is not likely to reach groundwater because it binds tightly to soil. However, soil-bound bifenthrin has the potential to contaminate surface waters through runoff. Bifenthrin on soil surfaces is unlikely to become airborne.

BIFENTHRIN
GENERAL FACT SHEET

Can bifenthrin affect birds, fish, or other wildlife?



Bifenthrin is low in toxicity to birds. There are potential risks for birds and mammals that eat aquatic organisms because bifenthrin can last in a long time in the environment and it may accumulate in fish.

Bifenthrin is highly toxic to fish and small aquatic organisms. It's also very highly toxic to bees.

Where can I get more information?

For more detailed information call the National Pesticide Information Center, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time), Monday - Friday, at 1-800-858-7378 or visit us on the web at http://npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

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TRICLOPYR
GENERAL FACT SHEET

What is triclopyr?


photo credit: blickpixel, pixabay

Triclopyr is a man-made herbicide used to control both broadleaf and woody plants. It was first registered in 1979 for use in forestry and it is used in both agricultural and non-agricultural settings. Certain products may have limited use for campsites, roadside applications, and some ornamental lawns. Always read the label for your product's use sites and instructions.[1]

Broadleaf weeds often controlled with triclopyr include nettles, docks, brambles, and woody plants. Triclopyr is a selective herbicide, meaning it only controls certain types of plants. Grasses tend to be less sensitive to triclopyr than other weeds.[2]

What are some products that contain triclopyr?

There are over 200 products containing triclopyr.[3] Many of these products have other active ingredients in addition to triclopyr. Products may be ready-to-use, concentrated liquids, granules, or mixable powders. Products with triclopyr can be applied aerially or by ground application. They may be applied on tree bark, injected into tree trunks or soil, or sprayed on plant leaves.[4]

Products with triclopyr may have acid, salt, or ester forms. These forms tend to behave similarly in terms of toxicity and their movement in the environment.[5,6]

Triclopyr is commonly used on pastures and rice. It is also commonly used for turf, landscaping, and lawn care.[1] One type of triclopyr (a salt form) can be used on aquatic weeds.[7] Triclopyr is not allowed for use in certified organic production.[8]

How does triclopyr work?

Triclopyr is a systemic herbicide. It affects actively growing plants by mimicking a specific type of plant growth hormone, known as an auxin.[9] Plants rapidly take in triclopyr through leaves and roots. It causes uncontrolled plant growth and plant death.[4] After absorbing the herbicide, plants die slowly (within weeks).[10]

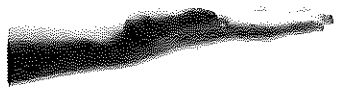
How might I be exposed to triclopyr?

If you are in an area during or shortly after application, you could contact it, breathe it in, or get it in your eyes. Most triclopyr incidents that were reported to the US Environmental Protection Agency (EPA) from 2000 to 2014 involved homeowners who were mixing or applying products.[11]

While accidents can happen, following label instructions and taking steps to minimize exposure can help reduce risks. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 800-222-1222. If you wish to discuss a pesticide problem, please call 800-858-7378.

What are some signs and symptoms from a brief exposure to triclopyr?

The salt form of triclopyr can cause permanent eye damage. The ester form of triclopyr may cause eye irritation. All forms of triclopyr were low in toxicity on the skin.[5] Rabbits had some skin irritation when exposed to triclopyr for 24 hours.[12] The salt and ester forms are dermal sensitizers, meaning after multiple exposures there could be signs of allergic reactions.[5]



Triclopyr is low in toxicity if inhaled.[5] Rats that inhaled moderate doses for four hours had teary eyes and salivation.[12]

If eaten, triclopyr is low in toxicity.[5] Rats showed signs of lethargy, teary eyes, and shallow breathing after eating large doses of triclopyr.[12]

What happens to triclopyr when it enters the body?

Triclopyr is not absorbed well through the skin. A study with rabbits measured that 1.5% of a dose was absorbed through skin. In a study with human skin, it was estimated that less than 2% of the dose was absorbed.[5]

Triclopyr residues were measured in fat, ovaries, livers, and kidneys of rats that had eaten triclopyr.[5,12] The EPA sets tolerances, which are legal limits for the amount of triclopyr that can be in milk and other animal products.[13]

Triclopyr mainly leaves the body in urine.[5] Within 24 hours, 93-94% of a single dose eaten by rats was excreted.[12]

Is triclopyr likely to contribute to the development of cancer?

More studies may be needed to determine if triclopyr exposures could be linked to human cancer risks. The EPA has determined triclopyr is "unable to be classified as to human carcinogenicity."[5] There is only weak evidence for breast cancer in female rats and kidney tumors in male rats.[5,7] Tests show triclopyr is unlikely to damage genetic material.[5]

Has anyone studied non-cancer effects from long-term exposure to triclopyr?

Triclopyr is moderate in toxicity over long-term ingestion exposures. Rats fed moderate doses of triclopyr for 90 days had changes in their kidneys. Parts of kidneys that filter salts and vitamins from the blood were affected. Dogs fed moderate doses for a year had changes in their blood, liver function, weight gain, and kidney weights.[5]

Studies show that dogs were more sensitive to triclopyr than rats when fed triclopyr over longer periods of time.[7] Results of one study suggest that it may be more difficult for dogs to excrete triclopyr compared to other animals.[14] Always take steps to minimize your pets' exposure when using pesticides.

Triclopyr is low to moderate in developmental toxicity and moderate in reproductive toxicity. When moderate doses of triclopyr were fed to pregnant rabbits daily for 13 days, some pregnancies were lost and there were changes in fetal skeletal growth. Similar effects were seen when high doses were fed to pregnant rats for 10 days.[5]

In another study, two generations of male and female rats were fed triclopyr daily for 10 to 12 weeks before mating. There were fewer offspring and more lost pregnancies in both generations.[5]

The EPA has not tested triclopyr for endocrine disruption potential.[15]

Are children more sensitive to triclopyr than adults?

There is no evidence to suggest that children are more sensitive to triclopyr than adults.[5] However, young children may act in ways that put them at greater risk of being exposed. For example, they may spend more time near the floor or ground. They may also be more likely to place their hands in their mouths after touching treated surfaces. Take steps to keep children away from pesticides.

What happens to triclopyr in the environment?

Ester and salt forms of triclopyr rapidly turn into the triclopyr acid form in the environment. Most triclopyr is soluble in water, meaning it dissolves easily. However, the ester form is less soluble. Triclopyr has a low vapor pressure, meaning it is not likely to release fumes into the environment.[5]

Triclopyr in water breaks down faster with light. The half-life of triclopyr in water with light is around 1 day.[5] Without light, it is stable in water with a half-life of 142 days.[4]

Triclopyr breaks down relatively quickly in soils. It is mainly broken down by microbes.[5] The soil half-life ranges from 8 to 46 days.[5,10] In deeper soils with less oxygen, the half-life is longer.[5] Triclopyr is mobile in soils.[2,5] However, movement studies show that triclopyr was not measured in soils deeper than 15 to 90 centimeters (about 6 to 35 inches).[4,5] Its movement in soil is affected by the amount of compost and rain, among other factors.[10,16] Use NPIC's Herbicide Properties Tool (HPT) to find out how triclopyr can move in the environment.

As a systemic herbicide, triclopyr is absorbed through plant leaves and roots. It tends to accumulate in the growing points in a plant. The half-life in plants can vary widely with the type of plant. Barley and wheat plants broke down 85% of triclopyr within 3 days of application.[10] The half-life in grass was between 5 and 20 days.[16] The half-life in plants ranges from 3 to 24 days.[2,5,16]

Can triclopyr affect fish or other wildlife?

Triclopyr is practically non-toxic to slightly toxic to birds.[5] Long-term exposures to birds (acid form) may affect eggshell thickness.[4] While the salt form is practically non-toxic to slightly toxic to shellfish, the ester form is moderately to highly toxic.[5] All forms of triclopyr can be toxic to algae.[4]

For fish, the acid and salt forms are practically non-toxic, but the ester form is moderately to highly toxic.[5] The ester form can bioaccumulate (build up) in fish.[4] However, the ester form rapidly degrades to the acid form in the environment and fish are not likely to contact large amounts of the pesticide.[4,5] A breakdown product of triclopyr called TCP* is slightly to moderately toxic to fish and shellfish.[4,5]

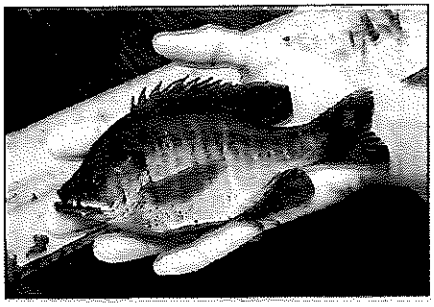


photo credit: Larry Perez, National Park Service

For water fleas, the acid and salt forms are practically non-toxic, but the ester form is slightly to moderately toxic.[5]

Triclopyr is practically non-toxic to bees.[4,5] Data is not currently available on the long-term toxicity of triclopyr to bees.[4] Changes in vegetation, rather than toxicity of triclopyr itself, may affect populations of beetles, butterflies, and spiders.[7]

*TCP: trichloropyridinol

Where can I get more information?

For more detailed information about triclopyr please visit the list of referenced resources or call the National Pesticide Information Center, Monday - Friday, between 8:00am - 12:00pm PT (11:00am - 3:00pm ET) at 800-858-7378 or visit us on the web at npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

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This fact sheet was created in 2001; some of the information may be out-of-date. NPIC is not planning to update this fact sheet. More pesticide fact sheets are available here. Please call NPIC with any questions you have about pesticides at 800-858-7378, Monday through Friday, 8:00 am to 12:00 pm PST.

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NATIONAL PESTICIDE INFORMATION CENTER

NPTN General Fact Sheets are designed to answer questions that are commonly asked by the general public about pesticides that are regulated by the U.S. Environmental Protection Agency (U.S. EPA). This document is intended to be helpful to professionals and to the general public for making decisions about pesticide use.

Lambda-cyhalothrin

(General Fact Sheet)

Please refer to the **Technical Fact Sheet** for more technical information.

The Pesticide Label: Labels provide directions for the proper use of a pesticide product. *Be sure to read the entire label before using any product.* A signal word on each product label indicates the product's potential hazard.

CAUTION - low toxicity **WARNING - moderate toxicity** **DANGER - high toxicity**

What is lambda-cyhalothrin?

- Lambda-cyhalothrin is an insecticide registered by the U.S. Environmental Protection Agency (EPA) in 1988 (1).
- Lambda-cyhalothrin belongs to a group of chemicals called pyrethroids. Pyrethroids are manmade chemicals that are similar to the natural insecticides pyrethrins. Scientists developed pyrethroid insecticides to have properties better than those of the pyrethrins (2).
- Lambda-cyhalothrin is similar to the pyrethroid cyhalothrin (2, 3). Due to their similarity, researchers sometimes use toxicity tests conducted with cyhalothrin to evaluate the toxicity of lambda-cyhalothrin (3).
- Lambda-cyhalothrin is a colorless to beige solid that has a mild odor. It has a low water solubility and is nonvolatile (2, 4).
- Signal words for products containing lambda-cyhalothrin range from Caution to Danger (5). The signal word reflects the combined toxicity of lambda-cyhalothrin and other ingredients in each product. See the **Pesticide Label** box above.
- Lambda-cyhalothrin products come in various forms including powders, pellets, liquids, small capsules, and ear tags containing the chemical (5).

How does lambda-cyhalothrin work?

- Pyrethroids, including lambda-cyhalothrin, disrupt the normal functioning of the nervous system in an organism (2). By disrupting the nervous system of insects, lambda-cyhalothrin may cause paralysis or death (4). Temperature influences insect paralysis and the toxicity of lambda-cyhalothrin (6).

Exposure: Effects of lambda-cyhalothrin on human health and the environment depend on how much lambda-cyhalothrin is present and the length and frequency of exposure. Effects also depend on the health of a person and/or certain environmental factors.

- Lambda-cyhalothrin affects a variety of indoor and outdoor insects when they eat or touch the chemical (4).
- Lambda-cyhalothrin has properties that may repel insects (4).

What types of products contain lambda-cyhalothrin?

- Agricultural insecticides for food and non-food crops
- Insecticides used indoors and outdoors for homes, hospitals, and other buildings
- Greenhouse, ornamental plant, and lawn insecticides
- Insecticide products for use on cattle
- Termite treatments
- Insecticide products for use on rights-of-way
- Aerially-applied insecticides
-

LD50/LC50: A common measure of acute toxicity is the lethal dose (LD50) or lethal concentration (LC50) that causes death (resulting from a single or limited exposure) in 50 percent of the treated animals. LD50 is generally expressed as the dose in milligrams (mg) of chemical per kilogram (kg) of body weight. LC50 is often expressed as mg of chemical per volume (e.g., liter (L)) of medium (i.e., air or water) the organism is exposed to. Chemicals are considered highly toxic when the LD50/LC50 is small and practically non-toxic when the value is large. However, the LD50/LC50 does not reflect any effects from long-term exposure (i.e., cancer, birth defects, or reproductive toxicity) that may occur at levels below those that cause death.

What are some products that contain lambda-cyhalothrin?

- Demand®
- Karate®
- Warrior®

How toxic is lambda-cyhalothrin?

Animals

- When eaten, lambda-cyhalothrin is highly toxic to mice and moderately toxic to rats (2). See boxes on **Laboratory Testing, LD50/LC50,** and **Toxicity Category**.
- A lambda-cyhalothrin product is moderately toxic when inhaled (1).
- Lambda-cyhalothrin is moderately toxic when applied to the skin of rats (2).
- In skin irritation studies, lambda-cyhalothrin caused no skin irritation in rabbits (2). The EPA classifies lambda-cyhalothrin as very low in toxicity for skin effects (3).
- Lambda-cyhalothrin causes mild eye irritation in rabbits (2). The U.S. EPA categorizes lambda-cyhalothrin as moderately toxic for eye effects (3).
- Guinea-pigs exposed to lambda-cyhalothrin show no signs of skin sensitivity (2).
- Investigators fed rats lambda-cyhalothrin for 90 days and at the highest dose detected lower body weight gains in both male and female rats. Investigators did not detect adverse effects at lower doses (2, 3).
- Researchers fed dogs lambda-cyhalothrin for 1 year and observed symptoms of toxicity at the highest dose (2).

Laboratory Testing: Before pesticides are registered by the U.S. EPA, they must undergo laboratory testing for short-term (acute) and long-term (chronic) health effects. Laboratory animals are purposely fed high enough doses to cause toxic effects. These tests help scientists judge how these chemicals might affect humans, domestic animals, and wildlife in cases of overexposure. When pesticide products are used according to the label directions, toxic effects are not likely to occur because the amount of pesticide that people and pets may be exposed to is low compared to the doses fed to laboratory animals.

Toxicity Category

	High Toxicity (*Danger*)	Moderate Toxicity (*Warning*)	Low Toxicity (*Caution*)	Very Low Toxicity (*Caution*)
Oral LD50	Less than 50 mg/kg	50 - 500 mg/kg	500 - 5000 mg/kg	Greater than 5000 mg/kg
Dermal LD50	Less than 200 mg/kg	200 - 2000 mg/kg	2000 - 5000 mg/kg	Greater than 5000 mg/kg
Inhalation LC50	Less than 0.05 mg/l	0.05 - 0.5 mg/l	0.5 - 2 mg/l	Greater than 2 mg/l
Eye Effects	Corrosive	Irritation persisting for 7 days	Irritation reversible within 7 days	Minimal effects, gone within 24 hrs
Skin Effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation

- Rats inhaling lambda-cyhalothrin for 21 days at the highest dose displayed lower body weight gains for males and decreased food consumption for both male and female rats. Researchers observed the following symptoms of toxicity: paw flicking, erect tails, altered walking, eye tearing, and salivation (3).

- Scientists exposed the skin of rats for 21 days to lambda-cyhalothrin. Two male rats died after 3 applications at the highest dose. No cause of death was determined, but scientists proposed a link to lambda-cyhalothrin exposure. The highest dose was reduced, and at the reduced dose, scientists detected symptoms of toxicity in the rats and decreased body weight gain and food consumption in male rats. They did not detect effects at lower doses (3).

Humans

- Individuals working with lambda-cyhalothrin in laboratories reported symptoms of facial tingling and burning sensations. Symptoms began within 30 minutes of exposure and lasted for 6 hours to 2 days. All incidents involved people handling relatively pure or concentrated lambda-cyhalothrin (2).

- Four field workers out of 38 reported adverse health effects from exposure to lambda-cyhalothrin. Three of the workers reported skin irritation or burning sensations that developed 45-60 minutes after exposure and lasted for 5, 18, and 72 hours. The other worker experienced a skin rash that developed 24 hours after exposure and lasted several days. All workers handled concentrated lambda-cyhalothrin, and three of the four applied diluted solutions (2).

- Lambda-cyhalothrin may cause irritation to the skin, throat, nose, and other body parts if exposed. Skin tingling, burning, and prickling feelings, particularly around the face, are unique temporary symptoms of exposure. Other symptoms may include dizziness, headache, nausea, lack of appetite, and fatigue. In severe poisonings, seizures and coma may occur (8).

Does lambda-cyhalothrin break down and leave the body?

Animals

- Rats exposed to cyhalothrin absorbed approximately half of the dose. Researchers detected the chemical in both urine and feces (2).

- Scientist observed that cyhalothrin is extensively broken down in many different types of mammals (2).

Humans

- Human data are not available regarding the break down and excretion of lambda-cyhalothrin.

Does lambda-cyhalothrin cause reproductive or birth defects?

Animals

- Researchers fed rats cyhalothrin for three generations and did not detect any effects on fertility. At the highest dose, they noted decreased body weights and body weight gains in adult and offspring rats but no signs of nervous system effects. Researchers detected no effects at lower doses (2, 3).

- Researchers exposed pregnant rats to cyhalothrin and observed no effects on fetal development. At the highest dose, they detected decreased body weight gain and food consumption for mother rats. Mother rats exhibited no effects at lower doses (2, 3).

- In a developmental study, scientists exposed pregnant rabbits to cyhalothrin and observed no effects to fetal

development. At the highest dose, they found decreased body weight gain and food consumption in mother rats. Scientists did not detect effects to mother rats at lower doses (2, 3).

Humans

- Data are not available from accidental poisonings, work-related exposures, or other human studies regarding the reproductive and developmental toxicity of lambda-cyhalothrin.

Does lambda-cyhalothrin cause cancer?

Animals

- Laboratory workers fed rats cyhalothrin for 2 years and noted no evidence of carcinogenicity in the study. Workers did observe decreased body weight gain and altered blood chemistry at the highest dose. They did not find effects at lower doses (2, 3).

- Researchers fed mice cyhalothrin for 2 years and at the two highest doses detected an increased frequency in mammary tumors in female mice. The frequency of tumors was not related to the cyhalothrin dose, and the tumor frequency was comparable to that normally observed in the type of mouse studied. Due to the unclear results, cancer could not be linked to cyhalothrin (2, 3).

- Researchers often test chemicals for their ability to change the genetic material of an organism as an indication of the chemical's potential to cause cancer. No evidence exists that lambda-cyhalothrin changes genetic material (2, 3).

Humans

- The U.S. EPA classifies lambda-cyhalothrin as a group D carcinogen (25). This classification means that the ability of lambda-cyhalothrin to cause cancer has not been determined (25). See box on **Cancer**.

- Data are not available from work-related exposures or other human studies regarding the ability of lambda-cyhalothrin to cause cancer.

Cancer: The U.S. EPA has strict guidelines that require testing of pesticides for their potential to cause cancer. These studies involve feeding laboratory animals large *daily* doses of the pesticide over most of the lifetime of the animal. Based on these tests, and any other available information, EPA gives the pesticide a rating for its potential to cause cancer in humans. For example, if a pesticide does not cause cancer in animal tests at large doses, then the EPA considers it unlikely the pesticide will cause cancer in humans. Testing for cancer is not done on human subjects.

What happens to lambda-cyhalothrin in the environment?

- In laboratory studies, alkaline water degraded lambda-cyhalothrin with an approximate half-life of 7 days. Neutral and acidic water did not degrade the chemical. See box on **Half-life**.

- Sunlight breaks down lambda-cyhalothrin in water and soil (2).

- The half-life of lambda-cyhalothrin on plant surfaces is 5 days (10).

Half-life is the time required for half of the compound to degrade.

1 half-life=50% degraded
2 half-lives=75% degraded
3 half-lives=88% degraded
4 half-lives=94% degraded
5 half-lives=97% degraded

Remember that the amount of chemical remaining after a half-life will always depend on the amount of the chemical originally applied.

- A representative soil half-life for lambda-cyhalothrin is 30 days with values ranging from 28-84 days (11). In a field study, lambda-cyhalothrin degraded with a half-life of approximately 9 days (12).

- Lambda-cyhalothrin has a low potential to contaminate ground water due to its low water solubility and high potential to bind to soil (13).

What effects does lambda-cyhalothrin have on wildlife?

- Lambda-cyhalothrin is highly toxic to fish (14). Laboratory studies indicate that cyhalothrin has the potential to accumulate in fish (2).

- Binding of lambda-cyhalothrin to soil and sediment reduces exposure and may lessen the risk to fish. In field studies with lambda-cyhalothrin products, researchers found no significant adverse effects to fish (15, 16).

- Lambda-cyhalothrin is low in toxicity to birds (2).

- Lambda-cyhalothrin is highly toxic to bees when they eat or contact the chemical. However, no increased risk was noted to bees in a field study conducted with a lambda-cyhalothrin product (2).

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West Nile Virus

NJ Health
New Jersey Department of Health

Frequently Asked Questions

What is West Nile virus?
West Nile virus is a viral infection that is spread by the bite of an infected mosquito. Mosquitoes get infected with the West Nile virus by feeding on infected birds. The infected mosquitoes then spread the virus by biting humans and other animals, such as horses. Identified in the United States in 1999, West Nile virus is seen most often during the summer and early fall months.

Who gets West Nile virus?
Anyone can get infected with the West Nile virus. The virus can affect anyone bitten by an infected mosquito. People over the age of 50 and people with weak immune systems are at greater risk of developing severe illness.

How do people get West Nile virus?
The virus is spread by the bite of a mosquito infected with the West Nile virus.

What are the symptoms of West Nile virus?
Many people infected with West Nile virus do not become ill and may not develop symptoms. About 20% of infected people will develop West Nile fever. When symptoms do occur, they may be mild or severe and show up 3 to 15 days after being bitten by an infected mosquito.

- Mild symptoms inlcude flu-like illness with fever, headache, body aches, nausea and sometimes swollen lymph glands or a skin rash on the chest, stomach and back.
- Severe symptoms include high fever, neck stiffness and swelling of the brain (encephalitis) which can lead to coma, convulsions and death. Less than 1% of infected people will develop severe symptoms.

How is West Nile virus diagnosed?
If a health care provider suspects West Nile virus, samples of the patient's blood or spinal fluid will be examined.

What is the treatment for West Nile virus?
There is no specific treatment for West Nile virus. Most people with West Nile fever will recover in approximately seven days. Antibiotics are not effective against viral illnesses and anti-viral drugs have not shown to be effective for treating West Nile virus. Most treatment focuses on supportive therapy to lower fever and ease pressure on the brain and spinal cord. In severe cases, hospitalization may be needed. There is no vaccine for humans.

Can people with West Nile virus pass the illness to others?
The virus that causes West Nile virus is spread only by mosquitoes. West Nile virus is <u>not</u> spread from person to person.

In rare cases, the virus has been spread through blood transfusions, organ transplants, breastfeeding and during pregnancy from mother to baby.

How can West Nile virus be prevented?
The best way to protect yourself from getting West Nile virus is to prevent mosquito bites.

Follow these steps to reduce your risk of being bitten by mosquitoes:

- Wear shoes and socks, long pants and a long-sleeved shirt when outdoors at dusk or dawn when mosquitoes are most active.
- Use an EPA-registered insect repellent such as those with DEET, picaridin, or oil of lemon eucalyptus. These products can be used on skin or clothing. Choose a product that provides protection for the amount of time spent outdoors. Permethrin is another type of insect repellent. It can only be used on clothing. ALWAYS follow the directions on the product label.

Mosquitoes begin to breed in any puddle or standing water that lasts for more than four days. Get rid of mosquito breeding sites around the home.

- Clean out gutters and drains
- Dispose of old tires
- Drain standing water from pool covers. Keep pools chlorinated. Flip over plastic children's pools when not in use.
- Remove all containers that hold water
- Change birdbath water every several days
- Make sure all windows and doors have screens and that all screens are in good condition.

Where can I get more information on West Nile virus?

- Your health care provider
- Your local health department
- NJ Department of Health http://www.nj.gov/health
- Centers for Disease Control and Prevention http://www.cdc.gov/westnile

This information is intended for educational purposes only and is not intended to replace consultation with a health care professional.
Adapted from Centers for Disease Control and Prevention.

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EEE

NJ Health
New Jersey Department of Health

Frequently Asked Questions

What is eastern equine encephalitis (EEE)?
Eastern equine encephalitis (en-sef-AH-ly-tis) is a rare but serious viral infection. This disease is most common in the eastern half of the United States and is spread by the bite of an infected mosquito. EEE can affect humans, horses and some birds. The risk of getting EEE is highest from late July through early October.

Who gets EEE?
Anyone can get infected with the EEE virus. The virus can affect anyone bitten by an infected mosquito.

How do people get EEE?
The virus is spread by the bite of a mosquito infected with the EEE virus.

What are the symptoms of EEE?
Some people infected with EEE do not become ill and may not develop symptoms. When symptoms do occur, they may be mild or severe and show up 3 to 15 days after being bitten by an infected mosquito.

- Mild symptoms such as flu-like illness with fever, headache, sore throat, stiff neck, lack of energy, muscle aches and confusion.
- Severe cases include swelling of the brain (encephalitis) which can lead to coma, convulsions and death.

How is EEE diagnosed?
If a health care provider suspects EEE, samples of the patient's blood or spinal fluid will be examined.

Is there a treatment for people with EEE?
There is no specific treatment for EEE. Antibiotics are not effective against viral illnesses and anti-viral drugs have not shown to be effective for treating EEE. Most treatment focuses on supportive therapy to lower fever and ease pressure on the brain and spinal cord. In severe cases, hospitalization may be needed. It is estimated that 35% of the people who survive EEE will experience mild to severe disability.

Can people with EEE pass the illness to others?
The virus that causes EEE is spread only by mosquitoes. EEE is not spread between horses or from horses to people.

How can EEE be prevented?
Currently, no human EEE vaccine exists; there is an EEE vaccine for horses and birds. The best way to protect yourself from getting EEE is to prevent mosquito bites.

Follow these steps to reduce your risk of being bitten by mosquitoes:

- Wear shoes and socks, long pants and a long-sleeved shirt when outdoors at dusk or dawn when mosquitoes are most active.
- Use an EPA-registered insect repellent such as those with DEET, picaridin, or oil of lemon eucalyptus. These products can be used on skin or clothing. Choose a product that provides protection for the amount of time spent outdoors. Permethrin is another type of insect repellent. It can only be used on clothing. ALWAYS follow the directions on the product label.

Mosquitoes begin to breed in any puddle or standing water that lasts for more than four days. Get rid of mosquito breeding sites around the home.

- Clean out gutters and drains
- Dispose of old tires
- Drain standing water from pool covers and ditches
- Remove all containers that hold water
- Maintain pools, spas and saunas properly
- Change birdbath water every several days
- Make sure all windows and doors have screens and that all screens are in good condition.

Where can I get more information on EEE?

- Your health care provider
- Your local health department
- NJ Department of Health http://www.nj.gov/health
- New Jersey Department of Environmental Protection: http://www.state.nj.us/dep/mosquito
- New Jersey Department of Agriculture: http://www.state.nj.us/agriculture
- New Jersey Mosquito: http://www.njmosquito.org
- New Jersey Mosquito Control Association: http://www-rci.rutgers.edu/%7Einsects/njmca.htm
- Centers for Disease Control and Prevention: http://www.cdc.gov/ncidod/dvbid/arbor/eeefact.htm

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