

MANUAL FOR PESTICIDE JUNIOR OPERATOR'S CERTIFICATION

JUNIOR OPERATOR'S CERTIFICATION

December 2018



Department of Energy & Environmental Protection
Bureau Materials Management & Compliance Assurance
Pesticide Program

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www.ct.gov/deep/pesticides

Any person who applies pesticides or assists in the application of pesticides commercially in Connecticut, in other than a supervisory capacity, must have a junior operational certificate (also called a junior operator license). This means that any person who is hired to do pesticide application work for a commercial company will need an operational certificate. **An operational certificate does not allow an individual to go into business for himself;** a supervisory certificate is required for this.

Every company applying pesticides commercially must have a certified supervisory applicator. **That individual must either be present at the site during pesticide application or provide specific written instructions to the certified operator.** The operator must not apply pesticides without the written instructions. If, during the course of making an application, a treatment is required or requested that is not included in the written instructions held by the operator, the operator must not perform that treatment until he has obtained written instructions pertaining to the new application.

Any person not employed by a commercial business (examples: golf course, property management, and government employees), but applying any restricted-use pesticide must also have an operator's certification and instructions from a certified supervisor.

Governmental Operational Certification

No fee shall be charged to any federal, state or municipal employee who applies pesticides as part of his or her duties as a governmental employee provided that any certificate for which a fee is not charged shall be automatically void if the holder is no longer a government employee.

Testing

In order to obtain a junior operational certification an applicant must be at least 18 years of age and pass a written examination covering the material in this manual. The applicant must be able to read and comprehend pesticide label information and demonstrate knowledge of the safe and proper use, application, handling and storage of pesticides. There will be a pre-registration license fee of two hundred dollars (\$200.00). **If you fail the test for a junior operational certificate you must wait a minimum of thirty days before you can take the examination again.** Any questions can be directed to the Pesticide Management Division at (860) 424-3369.

Renewal

The junior operator's certificate must be renewed prior to the expiration date that appears on the certificate. The Department of Energy & Environmental Protection (DEEP), Pesticide Management Program will mail renewal information to the certified junior operator prior to the expiration of the certificate. **If your address changes you must notify the Pesticide Management Program of you change of address within 30 days in accordance with state regulation 22a-66-5(e).**

To possess a junior operator's certificate is a privilege. Remember that it can be suspended or revoked if pesticides are misused or if pesticide laws and regulations are not followed.

WHAT ARE PESTICIDES

Pesticides are poisons developed to control pests that cause problems for man. Pesticides act after the pest comes in contact with the poison or swallows the poison. Included among pesticides are insecticides (to kill insects), herbicides (to kill plants), fungicides (to kill fungi) and rodenticides (to kill rodents).

Pesticides are registered for use first by the federal government through the Environmental Protection Agency (EPA) and then by the Connecticut Department of Energy & Environmental Protection (DEEP), Pesticide Management Program. Pesticides may be registered as **general-use**, which means they can be purchased and used by anyone without a certificate or permit, **providing they do not use them in a commercial application.**

When general-use pesticides are to be used commercially, an operational or supervisory certificate is required by the applicator. Some pesticides are registered as **restricted-use** and can be purchased by applicators that hold a commercial supervisory certificate. An operational certificate holder **cannot** purchase restricted-use pesticides. There are also some pesticides registered for **permit-use**, which means a special permit must be obtained from the DEEP, Pesticide Management Program in order to use them. If a pesticide is not registered with the EPA and the DEEP, it cannot be lawfully applied in Connecticut.

WHEN ARE PESTICIDE MOST DANGEROUS?

Pesticides are most poisonous when they are in the concentrated form, just as they come from the manufacturer. Before application, these concentrated materials are diluted (mixed with water or oil). This means that you should be extra careful when mixing pesticides. That is the very time that you will be most likely to inhale poisonous fumes or dust or accidentally come into contact with the concentrated pesticide.

WHAT DO I DO IN CASE OF A SPILL?

You must be careful not to spill any of the concentrated pesticide, and if an accident does happen, to clean it up immediately. Spilled pesticides and pesticide mixtures should never be washed down storm drains or into the street. They should be absorbed and disposed of properly. Before you go out on a job ask your supervisor for equipment that you can use in case of spills. This would include waterproof gloves and boots, an absorbent material that can be used to soak up the poison (Speedy Dri, activated charcoal or kitty litter), soap, water and a shovel. Once the poison is soaked up by the absorbent material, it can be shovelled into a container. Detailed information on the best way to clean up a spill should be obtained from your supervisor before an accident occurs. Do not depend on luck. Think ahead. **All Spills** need to be reported immediately to DEEP, Oil and Chemical Spills Response Division at (860) 424-3338.

You should avoid mixing pesticides for an application in the customer's house or yard. **Do not mix pesticides near a pond or stream.** If a spill occurs in these areas, there is a chance for serious damage to people or wildlife.

WHO IS APT TO BE POISONED WITH PESTICIDES?

Children. The greatest number of poisoning cases by far, involves young children. They will crawl anyplace, climb anywhere, and put anything into their mouths. If pesticides are available, they will put them into their mouths. The only way to keep children from contacting poisonous pesticides is to keep the material locked up when not in use and to make sure equipment and chemicals are never left unattended. Put all pesticides away safely before you clean up.

When a pesticide bag or container is emptied into the tank, it is not completely empty. There will still be small amounts of pesticide left on the bottom and the sides. There have been many cases of children being injured or killed from playing with "empty" bags and containers of pesticides.

HOW CAN I TELL IF I AM BEING POISONED?

Pesticides can enter the body through the skin, inhalation into the lungs, or by swallowing. The most common cause of pesticide poisoning for applicators is through skin contact. Some pesticides enter the body through the skin quite readily. Certain parts of the body absorb pesticides more quickly. A pesticide spilled on the groin area can be absorbed nearly as rapidly as through swallowing the poison. Most of the pesticide spilled on your skin is absorbed in the first few minutes. If you spill a pesticide on your self, immediately take off any clothing that is wet. Wash your skin with soap and water and put on clean clothing. If a pesticide gets in your eye, wash out the eye with plenty of clean water. Then call a doctor. It is best to avoid direct contact with pesticides by wearing the proper protective clothing. The pesticide label will tell you what protective equipment is necessary.

Pesticide poisoning may occur rapidly after one exposure (acute poisoning), or it may occur over a longer period of time (chronic poisoning). If you are not adequately protected from the pesticide, your body may slowly absorb small amounts each time you apply pesticides. These small quantities can accumulate in your body causing damage over a period of time.

The symptoms of pesticide poisoning may be similar to those of the flu or other diseases. These symptoms may include headaches, dizzy spells, nervousness, cramps, nausea, vomiting, blurred vision or excess sweating. If you feel sick, stop spraying and consult your supervisor. If you or one of your co-workers shows signs of pesticide poisoning, get to a doctor immediately. Be able to provide the doctor with label information so the doctor will know what treatment to use.

HOW CAN I PROTECT MYSELF?

You can protect yourself from pesticide poisoning only if you are careful. One moment of carelessness can cost a life or cause serious injury.

If you apply pesticides outdoors, be careful of drift, especially when there is a wind. Wind will blow pesticides long distances into places and onto things that you never intended. Babies have been sprayed, honeybee colonies destroyed, valuable plants damaged; all from not paying attention to where a spray was actually going. Be sure to notify people who may be subject to drift to bring in their wash or the children's toys so they will not be wet with spray. Not only will this ensure everyone's safety, but it will prevent angering customers or neighbors who will most likely file a complaint with the DEEP.

If you apply pesticides indoors, make sure you do not apply them where children or pets will contact these poisons. Do not apply pesticides unless the label states you can use them for that intended purpose. Be particularly careful treating in kitchens or eating facilities, and where infants, handicapped or elderly people may be exposed to the chemicals. If you are not sure if an application is safe, consult your pesticide supervisor before continuing.

Never eat, drink or smoke while applying pesticides as this can increase the chance of being poisoned. Wash your hands thoroughly with soap and water before taking a break to do these things or before using the toilet.

Regularly check your pesticide application equipment. Check nozzles periodically to be sure they are functioning properly. Check hoses to be sure there are no leaks or weak spots. Keep your application equipment clean so if anyone touches it, they will not be contaminated. Always clean application equipment thoroughly when changing pesticides to prevent cross contamination. Release the pressure in your tank to prevent accidental discharge of pesticide.

Be sure to wear any protective clothing or gear required by the pesticide label. Protective clothing may include waterproof gloves, boots, goggles, face shield, neck and head covering, and respirators. You should always try to wear pants and long sleeved shirts when spraying to prevent skin contact with pesticides. Protective clothing should be worn during the entire use process. This includes when carrying containers, mixing pesticide solutions, applying the pesticide, and when putting away the pesticide.

HOW CAN I PROTECT OTHERS?

Never put any pesticide in an unlabeled container. Even if a friend or relative asks for some pesticide, do not pour any into a bottle or can for them. People have been hospitalized and killed from drinking or using pesticides that they had mistaken for something else. Do not be responsible for injury or death to others because of thoughtlessness or a moment of carelessness. Pesticides are meant to kill pests, not people. Leave them in the original, labeled containers.

Proper disposal of pesticides and empty containers is another means of protecting others. If you use up a pesticide completely, rinse the original pesticide container out with water three times and add this water to the spray tank. If you do this three times you will lessen the possibility that anyone will touch the concentrated pesticide that might be left in the container.

Because there will be small amounts of poisonous chemicals left in the “empty” bags, jars, or cans, you should dispose of these containers with care. Take them back with you to the office or warehouse so they may be disposed of properly. Puncture the cans and crush them so they cannot be used again. However, **do not puncture aerosol cans** because the gas left in the can may cause it to explode. Empty containers should never be disposed of on site. You should consult your supervisor to determine the best way to get rid of empty containers and leftover materials in the spray tank. The best method of preventing excess mixed pesticides is to mix up only as much spray material as you need to use for that day.

Learn about available Integrated Pest Management (IPM) programs to reduce the amount of pesticides needed.

WHAT IS INTEGRATED PEST MANAGEMENT?

IPM is a planned system that uses many pest control techniques to reduce the number of pests present. The purpose of IPM is to reduce pesticide use and still keep pests controlled. An important part of IPM is to prevent pests from becoming a problem. This can be accomplished by making the environment unfavorable to pests. Two examples of environmental modifications are:

Use proper liming, watering, fertilizing and mowing height to maintain healthy turf for lawn IPM. When the turf is healthy, the environment for pests is unfavorable, so weeds, diseases, and insects cause less damage.

Since carpenter ants prefer an environment of decaying or moist wood, IPM control techniques may include household repairs to replace all moist and decaying wood. Environmental modification should also include removal of shubbery contacting the siding of an infested building, since this may be the route of entry for the carpenter ants.

Some pests can be tolerated in small quantities. In order to determine if a pest population will cause damage, a manager can monitor the pests. This is done by counting the number of pests and making a decision about whether they will cause significant damage. When it is determined that the pests are causing significant damage, a supervisor may then make the decision to apply pesticides.

WHY USE INTEGRATED PEST MANAGEMENT?

Chemical pest controls have had widespread use. Many chemicals were applied as a preventive method regardless of present or predicted pest infestations. These pesticide practices increased the risk of damaging beneficial organisms (non-target organisms). Frequent usage of any single pesticide can also increase the resistance of the pest to that control agent. Pesticide use can leave harmful residues and some pesticides have been found to infiltrate and pollute groundwater used for drinking. IPM can help protect man and other non-target organisms and decrease our dependence on toxic chemicals.

WHY SHOULD I READ THE LABEL?

The print on the label is often small and hard to read, but every word is there for a purpose. One of the most important things you can do is read the label. You should do it each time you get a new bag or container of pesticide. The new container may look the same, but often the directions may be changed or there may be another kind of pesticide using a similar trade name.

WHAT SHOULD I LOOK FOR ON THE LABEL?

The label on the pesticide container tells what the pesticide is, what it is used for, how to mix it, what pests it will control, what plants and animals may be particularly harmed if one is careless, protective equipment needed for proper handling and use, hazard statements, environmental hazards and compatibility with other pesticides or fertilizers.

There is a sample of a pesticide label included on the next page of this manual. Use the sample label to find the following information:

- #1. **Trade Name** The trade name is usually in large print on the label. On the sample label in this manual the trade name is **Dylox 6.2**.
- #2. **Type of Pesticide** The type of pesticide may be an insecticide, a fungicide, an herbicide, or rodenticide. The sample label indicates that the type of pesticide is an insecticide in the statement **Granular Insecticide**.
- #3. **Kind of Formulation** The kinds of formulation of pesticides include dusts, wettable powders, granules, spray baits, pressurized cans (bombs) or emulsifiable concentrates. On the sample label the kind of formulation is a **granular**.
- #4. **Active Ingredients** All active ingredients are listed. This includes a common name and a chemical name, which is often printed in parentheses. The active ingredient in the sample label is **Dimethyl (2,2,2-trichloro-1-hydroxy—ethyl)phosphonate**.
- #5. **Net Contents** The net contents are a measure of weight or volume. In the sample label the net contents equal **30-pound bag**.
- #6. **EPA Registration Number** The EPA Registration Number is identification for the product assigned by the U.S. Government Environmental Protection Agency (EPA). On the sample label the EPA Registration Number is **3125-406**.
- #7. **Hazard Statement** The Hazard Statement included on all pesticide labels states “keep out of reach of children”. Also included are **Signal Words**, which group pesticides into categories according to their toxicity to animals, people and the environment. There are three signal word categories: The most dangerous pesticides are labeled **DANGER** and may also say **POISON** and have a skull and crossbones symbol. These pesticides are highly toxic. You should be extremely careful with these pesticides for they can easily kill you and those around you. The next most dangerous pesticides have the word **WARNING** on the label. These are moderately toxic. The word **CAUTION** on the label means the pesticide is the third most dangerous, or slightly toxic. On the sample label the signal word is **CAUTION**.

#8. Directions for Use On the sample label the Directions for Use section tells you that this pesticide may be used on turf. It tells you how much pesticide to apply, and when to apply it. Some pesticide labels contain a reentry statement, which notifies the applicator when a treated area can be safely reoccupied. **The pesticide should never be used under any conditions that are not listed on the label.**

#9 Storage and Disposal The storage and disposal portion of the label tells you under what conditions to store pesticides and how to dispose of pesticides safely. Find the Storage and Disposal section on the sample label.

#10 Environmental Hazards The environmental hazards statement includes any possible risks or dangers the pesticide may cause to the environment. The sample label states that this pesticide is toxic to fish, birds, wildlife. It also states to be careful to not to contaminate water or crops used for food or forage.

1 Dylox[®] 6.2

2 & 3

Granular Insecticide

For Control of White Grubs, Mole Crickets, Sod Webworms, and Cutworms.

ACTIVE INGREDIENT:

4 4 Dimethyl (2,2,2-trichloro-1-hydroxy-ethyl)phosphonate 6.2%

INERT INGREDIENTS: 93.8%
100.0%

FAST-ACTING

Treats 10,000 sq ft for White Grubs and Mole Crickets

Treats 15,000 sq ft for Sod Webworms

6

STORE IN A DRY PLACE

5

EPA Reg. No. 3125-406 30-Pound Bag

STOP - Read the label before use.

Keep out of reach of children.

7 CAUTION AVISO

PRECAUCION AL USUARIO: Si usted no puede leer o entender inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente. (TO THE USER: If you cannot read or understand English, do not use this product until the label has been explained to you.)

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: May be harmful if swallowed. Do not take internally. Do not breathe dust. Avoid contact with eyes, skin or clothing. Wash contaminated clothing before re-use. Wash thoroughly after handling and before eating or smoking. Keep children and pets off treated areas until this material is washed into the soil and the grass is dry. Do not contaminate feed or foodstuffs. Do not use treated areas or clippings from treated areas for feed or forage.

STATEMENTS OF PRACTICAL TREATMENT

If swallowed: Call a physician or Poison Control Center immediately. Induce vomiting by giving victim 1 or 2 glasses of water and touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious or convulsing person. **If in eyes:** Flush eyes with plenty of water. Get medical attention. **If on skin:** Remove contaminated clothing and wash affected area with soap and warm water. Wash clothing before re-use. **If inhaled:** Remove victim to fresh air. Apply artificial respiration if indicated. Get medical attention immediately.

To Physician: Prolonged exposure will cause cholinesterase depression. Atropine Sulfate is antidotal. 2-PAM is also antidotal and may be administered in conjunction with atropine.

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ENVIRONMENTAL HAZARDS

Do not contaminate water by cleaning of equipment or disposal of wastes. This product is toxic to fish, birds, and wildlife. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Use only as directed on this label. Do not use on crops used for food or forage.

DIRECTIONS FOR USE 8

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

IMPORTANT: Read these entire Directions for Use and Conditions of Sale before using DYLOX 6.2 Granular Insecticide.

CONDITIONS OF SALE: THE DIRECTIONS ON THIS LABEL WERE DETERMINED THROUGH RESEARCH TO BE THE DIRECTIONS FOR CORRECT USE OF THIS PRODUCT. THIS PRODUCT HAS BEEN TESTED FOR A RANGE OF WEATHER CONDITIONS SIMILAR TO THOSE WEATHER CONDITIONS THAT ARE ORDINARY AND CUSTOMARY IN THE GEOGRAPHIC AREA WHERE THE PRODUCT IS USED. INSUFFICIENT CONTROL OF PESTS AND/OR INJURY TO THE CROP TO WHICH THE PRODUCT IS APPLIED MAY RESULT FROM THE OCCURRENCE OF EXTRAORDINARY OR UNUSUAL WEATHER, OR FROM FAILURE TO FOLLOW LABEL DIRECTIONS. IN ADDITION, FAILURE TO FOLLOW LABEL DIRECTIONS MAY CAUSE INJURY TO OTHER CROPS, ANIMALS, MAN, OR THE ENVIRONMENT. BAYER OFFERS, AND THE BUYER ACCEPTS AND USES, THIS PRODUCT SUBJECT TO THE CONDITIONS THAT EXTRAORDINARY OR UNUSUAL WEATHER, OR FAILURE TO FOLLOW LABEL DIRECTIONS ARE BEYOND THE CONTROL OF BAYER AND ARE, THEREFORE, THE RESPONSIBILITY OF THE BUYER.

NOTE: Not for use on turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes.

SURFACE FEEDING INSECTS

Sod Webworms are capable of destroying large areas of turf. They live through the winter as a worm and change to a moth in May. Eggs are deposited very soon throughout the lawn and new worms hatch in May. By killing this first "brood" it is possible to reduce the worm population of later broods and therefore reduce turf damage.

How to Apply: Turf should be free of troublesome thatch which encourages insects. Rake or de-thatch the area and remove the debris to expose insect hiding places. Water the lawn and cut to proper height. Apply granules as recommended and sprinkle the area to move the insecticide down to the soil surface where insects feed.

Dylox® 6.2

How Much to Apply: For control of Sod Webworms (Lawn Moth Larvae), and Cutworms apply at the rate of 2 pounds per 1,000 sq ft of turf. (30 lb. bag treats 15,000 sq ft) Refer to chart for respective spreader settings. Make sure your spreader is calibrated for this product before application.

When to Apply: Treat in the spring (mid-May to June) or when your "Lawn Program" calls for a surface insect control application. Repeat as the program indicates or as needed for control. Sod Webworm may have 4 generations of larvae which will require additional treatments at 30 to 40 day intervals during the summer months. Therefore, repeat as needed for continued protection of lawn. Lightly sprinkle the area after treatment as soon as possible to move the insecticide into the zone of insect infestation. Do not allow children or pets on treated areas until material has been sprinkled in and the grass is dry.

Surface Feeding Insects - 2 lb/1,000 Sq ft	
Spreader	Setting
Cyclone Pro	4
Cyclone-Roto	3
Lely B'Cast	2.5
Lesco B'Cast	H
Prize CB-85, CBT-85	4.5
Scott-Drop	4
Scotts R7X	H
Spyker Pro	4
Greenview (Model 105)	6.5
Earthway (Model 2600)	8
Sears Broadcast	3.5
Sears Drop	6
(30 pounds will treat 15000 Sq ft at this rate)	

WHITE GRUB LARVAE AND MOLE CRICKET CONTROL IN THE TURF

For Root Feeding "White Grub" insect larvae of Japanese Beetle, European Chafer & Southern Chafer apply 3 lb per 1,000 sq ft of turf. For Mole Crickets, apply 3 lb per 1000 sq ft. Make sure your spreader is properly calibrated to apply this product. Irrigate the turf after treatment as soon as possible to wash the insecticide into the root zone where the insects are feeding. Apply when the White Grub Larvae are young and actively feeding near the soil surface in mid-July and early August. Consult your Agricultural Extension Service for the best time to treat for "Grubs" in your area. A second treatment at the same rate may be needed for mature large sized grubs.

HOW TO APPLY: IMPORTANT . . .

Do not attempt to control White Grubs or Mole Crickets in turf that has over 1/2 to 3/4 inch thatch build up since heavy thatch will prevent the insecticide from penetrating down to the area where the insects are feeding. Therefore, troublesome thatch must be removed before treating for White Grubs or Mole Crickets. If thatch is not removed before treatment, poor "Grub" and Mole Cricket control will result.

Bayer Corporation
Professional Care
Box 4913
Kansas City, MO 64120-0013
(800) 842-8020
<http://bayerprocentral.com>
DX 0201 BPC Printed in U.S.A.

Root Feeding Insects - 3 lb/1,000 Sq ft)	
Spreader	Setting
Cyclone Pro	4.75
Cyclone-Roto	3.5
Lely B'Cast	2.9
Lesco B'Cast	J
Prize CB-85, CBT-85	5
Scott-Drop	4.5
Scotts R7X	J
Spyker Pro	4.7
Greenview (Model 105)	7.5
Earthway (Model 2600)	10
Sears Broadcast	4
Sears Drop	7
(30 pounds will treat 10000 Sq ft at this rate)	

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

STORAGE: Store in its original container in a cool, dry, locked place out of reach of children.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill.

HOUSEHOLD: Do not re-use empty bag. Wrap and put in trash.

M-7976 2/17/94

IMPORTANT

Before using this product, read and carefully observe the directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.



APPENDIX**Pertinent Connecticut General Statutes and Regulations for individuals holding an operational certificate:**

Section 22a-47(f) of the Connecticut General Statutes is the definition of the term commercial applicator” which includes supervisors and operators.

Section 22a-47(f) of the Connecticut General Statutes states, “Commercial applicator means any individual, whether or not he is a private applicator with respect to some uses, who uses or supervises the use of (1) any restricted use pesticides or (2) any pesticide on property not owned or rented by him or his employer.”

Section 22a-54(b) explains the difference between a supervisory certificate holder, who is the decision maker, and the operational certificate holder, who applies pesticides only under the instructions of the supervisor.

Section 22a-54(b) of the Connecticut General Statutes states, “There shall be two classifications for commercial applicators, supervisory and operational. Supervisory certification shall be required for commercial applicators who are responsible for deciding whether or not pesticides are to be employed, how they are to be mixed, where they are to be employed, what pesticides are to be used, the dosages and timing involved in the pesticide use and the methods of application and precautions to be taken in the use of such pesticides. Operational certification shall be required for commercial applicators who actively use pesticides in other than a supervisory capacity”.

Section 22a-54(c)(1) states that you must have the correct type of certification for the job you are performing. To apply for certification you must contact the DEEP, Pesticide Management Program. To receive certification you must demonstrate knowledge of proper pesticide use by passing an examination.

Section 22a-54(c)(1) of the Connecticut General Statutes states, “No person shall engage in commercial application of pesticides within this state at any time without a certificate issued in accordance with the provisions of this section. No person shall engage in the private application of restricted use pesticides without a certificate issued in accordance with the provisions of this section. Application for such certificate shall be made to the commissioner and shall contain such information regarding the applicant's qualifications and proposed operations and other relevant matters including, but not limited to, a knowledge of integrated pest management and the role of honey bees in agriculture, pesticides that are especially toxic to honey bees, and methods of application which minimize damage to honey bees, as the commissioner may require.”

Regulation Section 22a-66-5(b) is self- explanatory.

Section 22a-66-5(b) of the Regulations of Connecticut State Agencies states “No person under 18 years of age shall be issued a pesticide certification or license.”

Regulation Section 22a-66-5(g) states that a supervisory license holder must either be present at the time of pesticide application or must send written instructions with the operator doing the application.

Section 22a-66-5(g) of the Regulations of Connecticut State Agencies states “No commercial application of pesticides shall be made unless a person holding a valid supervisory certificate: (1) is present at the time of application where such presence is required by the labeling; or (2) where labeling does not require the presence of a certified supervisory applicator at the site of application, the certified supervisory applicator must either be present at the time of application or must provide written instruction to the certified operator that shall include the certified supervisor's name and certification number, the certified operator’s name and certification number, the pest to be controlled,

the pesticide to be used, directions for use of the pesticide, and be available if and when needed.”

Regulation Section 22a-66-5(h) states the criteria for determining who is required to possess an operator’s certification.

Section 22a-66-5(h) of the Regulations of Connecticut State Agencies states "An operator's license shall be required for commercial applicators who actively use pesticides in other than a supervisory capacity including but not limited to:

- (1) a person who applies, mixes or handles pesticides in other than completely closed containers.
- (2) a person who comes in contact with pesticides through drift for more than brief periods.
- (3) a person who assists with the application of pesticides under the supervision of a holder of a supervisory license."

Statute Section 22a-63(a) states the penalties for violations of the Connecticut Pesticide Control Act.

Section 22a-63(a) of the Connecticut General Statutes states “Any registrant, commercial applicator, uncertified person who performs or advertises or solicits to perform commercial application, wholesaler, dealer, retailer or other distributor who knowingly violates any provision of this chapter, subsection (a) of section 23-61a, or sections 23-61b to 23-61d, inclusive, shall be fined not more than five thousand dollars, or imprisoned for not more than one year or both.”

Important Phone Numbers:

CONNECTICUT POISON CONTROL CENTER - 800-222-1222

DEEP EMERGENCY RESPONSE and 24-Hour Spill Reporting - (860) 424-3338

DEEP PESTICIDE MANAGEMENT DIVISION - (860) 424-3369

The Department of Energy & Environmental Protection is an equal opportunity/affirmative action employer, offering its services without regard to race, color, religion, national origin, age, sex, or disability. In conformance with the Americans with Disabilities Act, the DEEP makes every effort to provide equally effective services for persons with disabilities. Individuals with disabilities needing Auxiliary aids or services should call (860-424-3369).

THE UNIVERSITY OF CONNECTICUT COOPERATIVE EXTENSION SERVICE

PESTICIDE FACTS

Fact Sheet No. 1

Laundering Pesticide Contaminated Clothing

By Candace L. Bartholomew Extension Agent, Pesticides*

The problem of how to launder pesticide contaminated clothing has puzzled many as pesticide use has become widespread. What is the best method? What water temperature should be used? Is there a difference in detergent performance? Must you be careful about washing contaminated clothes with other clothing?

Use the pesticide label as a guide for knowing which chemicals are more toxic. Key words on all pesticide labels identify the toxicity of the product (Figure 1).

Key Word	Toxicity	Examples*
DANGER POISON	Highly toxic/ concentrated	Counter Disyston Parathion Furadan Dyfonate Lasso
WARNING	Moderately toxic	Diazinon Glyphosate Phosmet Dicamba
CAUTION	Slightly toxic	Ammate Sevin Atrarine Malathion

*Toxicity of the pesticide may vary depending upon the formulated product. Use the key word as an indication of the toxicity level.

Figure 1

Clothing contaminated with highly toxic and concentrated pesticides must be handled most carefully, as these pesticides are easily absorbed through the skin. If the

clothes have been completely saturated with concentrated pesticides, discard them. Clothing contaminated by moderately toxic pesticides do not warrant such drastic measures. Hazards are less pronounced in handling clothing exposed to low toxicity pesticides. But...the ease of pesticide removal through laundering does not depend on toxicity level-it depends on the formulation of the pesticide. For example, 2,4-D amine is easily removed through laundering because it is soluble in water; 2,4-D ester is much more difficult to remove through laundering.

Disposable clothing helps limit contamination of clothes because the disposable garments add an extra layer of protection. This is especially important when you are in direct contact with pesticides, such as when mixing and loading pesticides for application.

Laundering Recommendations

Wash contaminated clothing separately from the family wash. Research has shown that pesticide residues are transferred from contaminated clothing to other clothing when they are laundered together. Know when pesticides have been, used so all clothing can be properly laundered.

Prerinsing contaminated clothing before washing will help remove pesticide particles from the fabric.

Prerinsing can be done by:

1. presoaking in a suitable container prior to washing;
2. prerinsing with agitation in an automatic washing machine;
3. spraying/hosing garment(s) outdoors.

Prerinsing is especially effective in dislodging 'the particles from clothing when a wettable powder pesticide formulation has been used.

Clothing worn while using slightly toxic pesticides may, be effectively laundered in one to three machine washings. It is strongly recommended that multiple washings be used on clothing contaminated with more toxic or more concentrated pesticides to draw out excess residues. Burn or bury clothing contaminated with concentrated, highly toxic pesticides. Always wear rubber gloves when handling highly contaminated clothing to prevent pesticide absorption into the body.

Washing in hot water removes more pesticide from the clothing than washing in other water temperatures. Remember...the hotter, the better. Avoid cold water washing! Although cold water washing might save energy, cold water temperatures are relatively ineffective in removing pesticides from clothing.

Laundry detergents, whether phosphate, carbonate, or heavy duty liquids, are similarly effective in removing pesticides from fabric. However, research has shown that

*Reviewed by Anita Malone, home economist for New Haven County, and slightly revised by Candace Bartholomew, Agricultural Agent for Tolland County, with permission from The University of Nebraska at Lincoln. The original authors of this fact sheet are: Carol Bryan Easley, Instructor: Textiles, Clothing and Design, John Laughlin, Professor of Textiles, Clothing and Design; Roger Gold, Extension Specialist: Environmental Programs; University of Nebraska at Lincoln.



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heavy duty liquid detergents are more effective than other detergents in removing emulsifiable concentrate pesticide formulations. Emulsifiable concentrate formulations are oil-based and heavy duty liquid detergents are known for oil-removing ability.

Laundry additives, such as bleach or ammonia, do not contribute to removing pesticide residues. Either of these additives may be used, if desired, but caution must be used. *Bleach should never be added to or mixed with ammonia*, because they react together to form a fatal chlorine gas. Be careful-*don't mix ammonia and bleach!*

If several garments have become

contaminated, wash only one or two garments in a single load. Wash garments contaminated by the same pesticide(s) together. Launder, using a full water level to allow the water to thoroughly flush the fabric.

During seasons when pesticides are being used daily, clothing exposed to pesticides should be laundered daily. This is especially true with highly toxic or concentrated Pesticides. It is much easier to remove pesticides from clothing by daily laundering than attempting to remove residues that have accumulated over a period of time.

Pesticide carry-over to subsequent laundry loads is possible because

the washing machine is likely to retain residues which are then released in following laundry loads. It is important to rinse the washing machine with an *empty load*, using hot water and the same detergent, machine settings and cycles used for laundering the contaminated clothing.

Line drying is recommended for these items. Although heat from an automatic dryer might create additional chemical breakdown of pesticide residues, many pesticides break down when exposed to Sunlight. This also eliminates the possibility of residues collecting in the dryer.

**When Laundering
Pesticide Contaminated
Clothing...REMEMBER**

READ the pesticide *LABEL* for information.

DISPOSABLE PESTICIDE CLOTHING provides extra protection.

PRERINSE clothing by:

- *presoaking in a suitable container;
- *agitating in an automatic washing machine;
- *spraying/hosing the garment(s) **outdoors**.

WASHING machine settings:

Hot water temperature (140° F/60° C), Full water level, **Normal** (12 minutes) wash cycle.

REWASH the contaminated clothing two or three times, if necessary.

Wash *A FEW* contaminated garments at a time using lots of water.

Wash *SEPARATELY* from *FAMILY* laundry.

DISCARD (burn or bury) clothing if thoroughly sat-

urated or contaminated with highly toxic pesticides.

LAUNDER CLOTHING DAILY when applying pesticide daily.

RINSE MACHINE thoroughly after laundering contaminated clothing.

LINE DRY to avoid contaminating the automatic dryer.

BE AWARE of when pesticides are being used so that clothing can be appropriately laundered.

PESTICIDE FACTS

Fact Sheet No. 2

Protecting Groundwater From Pesticide Contamination

By Candace L. Bartholomew Extension Agent, Pesticides*

Groundwater is the source of water for wells and springs. It is widely used for household and other water supplies. About half the people in the United States depend on groundwater as a source of drinking water. Ninety percent of them are rural residents.

Groundwater forms when water moves below the earth's surface and fills in empty spaces in and around rocks and soil. In the past few years contamination of groundwater with pesticides has featured prominently in the news media. As a pesticide user it is your responsibility to take any and all precautions necessary to protect groundwater from contamination by pesticides.

Pesticides are usually applied to or near the surface of the ground. Five major factors determine whether they will reach groundwater:

- the practices followed by the pesticide applicator,
- the presence (or absence) of surface water from rain or irrigation,
- the characteristics of the pesticide being used,
- the type of soil in the area of application,
- the location of the groundwater
- the distance from the surface and the type of geological formations above it.

Good application practices include careful attention to the pesticide label. Pesticide labels have been developed to provide instruction on how to use the material for the best control of pests with the least risk of environmental contamination. The proper timing and placement of pesticides are very important.

Mix and calibrate accurately. Avoid the temptation to use more product than the label directs. Overdosing will

not do a better job of controlling the pests, it will only increase both the cost of pest control and the chance that the material may reach groundwater. Calibrate equipment carefully and recheck it often. Measure chemical concentrates and diluents accurately.

Avoid spills when mixing and loading. Use a backflow preventer or back-siphoning preventer when drawing mix water directly from a well or a pond.

Dispose of wastes properly. Improper disposal of empty containers, equipment rinse water, or unused chemical can cause localized groundwater problems. Triple-rinse or pressure-rinse containers and pour the rinse water into the spray tank. Leftover product in your spray tank must be disposed of in a manner consistent with the product label. Avoid having leftover tankmix in the first place by mixing only the quantities you need. Do not drain rinse water from equipment into ditches, streams, ponds, lakes or other water sources.

Prolonged heavy rain or excessive irrigation will produce excess surface water. If there is more water on the soil than the soil can hold, the water with pesticides in it is likely to move downward to the groundwater. Use weather forecasts, personal observations and irrigation scheduling to predict when excess surface water may be a problem.

Consider using Integrated Pest Management practices to reduce the amount of pesticides necessary to achieve pest control.

Agricultural chemicals vary in the potential for moving to groundwater. Three properties of pesticides which may influence such movement are:

Solubility. Chemicals vary greatly in water solubility; the greater the water solubility, the more potential for movement of the product to groundwater.

Soil adsorption. Some chemicals become tightly bound to soil particles and do not move in the soil, some are not so strongly adsorbed, and are more likely to move.

Persistence. Some chemicals break down quickly; other, persistent materials take a long time to break down. The more persistent ones are more likely to reach groundwater over time.

Three major soil characteristics affect chemical movement:

Soil Texture. This is an indication of the proportions of sand, silt, and clay in the soil. Pest control products tend to be adsorbed mostly on clay and organic matter. Coarse, sandy soils generally allow water to move rapidly downward and offer few opportunities for adsorption. Finer textured soils generally allow water to move at much slower rates, and they contain more silt and organic matter to which pesticides and other chemicals may be adsorbed.

Soil Permeability. This is a general measure of how fast water can move downward in a particular soil. The more permeable soils must be carefully managed to prevent any form of chemical from reaching groundwater.

Soil Organic Matter. This influences how much water the soil can hold before movement occurs. Increasing organic matter will increase the water-holding capacity of the soil. Some pesticides may also be adsorbed into organic matter.

The distance of groundwater from the surface and permeability of



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geologic layers is another important factor. If the groundwater is within a few feet of the soil surface, and geologic layers are highly permeable, groundwater contamination is more likely to occur than if groundwater occurs at greater depths and below im-

pervious geologic layers.

For more information on Integrated Pest Management Practices contact your local Extension Service. For information on soil types contact your local Soil Conservation Service.

*This information adapted from *Protecting our Groundwater A Growers Guide*. 1987. American Farm Bureau Federation, National Agricultural Aviation Association, National Agricultural Chemicals Association, U.S. Department of Agriculture, Extension Service.

Write, phone or visit the office nearest you for information, programming and printed material.

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