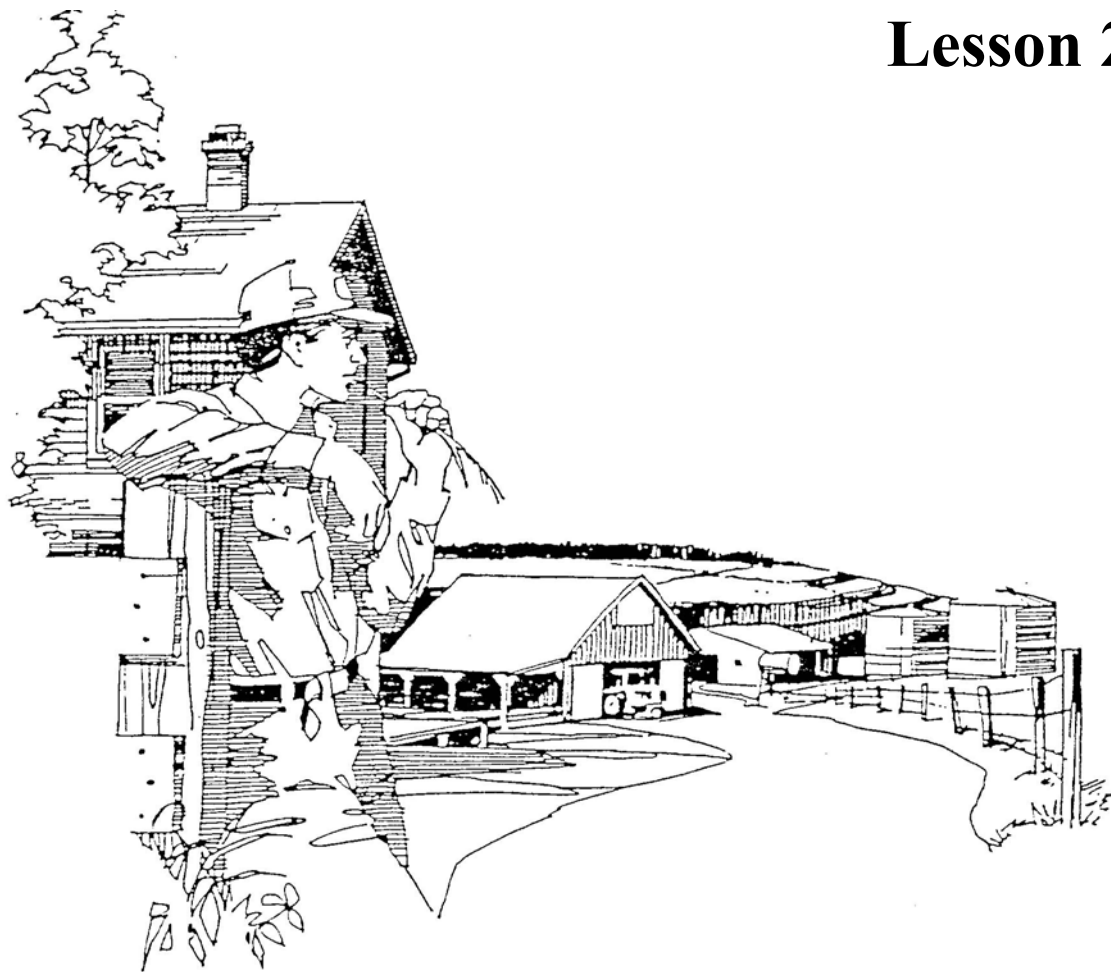


Pesticide Applicator Course for Agricultural Producers

Lesson 2



Pesticide Product Labels

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Lesson 2

Pesticide Product Labels

What You'll Learn!

The purpose of Lesson 2 is to explain the information found on a pesticide label and show you how this information should be used.

By the time you complete this lesson you should be able to:

- list four times when you should refer to a label;
- locate the following information on a pesticide label:
 - trade name or product name
 - guarantee
 - use and classification information
 - formulation
 - precautionary symbols
 - P.C.P. Act Registration Number
 - net contents
 - company name and address
 - directions for use
 - precautions
 - first aid information
 - toxicological information
 - disposal information
- explain the importance of each of the pieces of information listed above.

You'll need to know all these things to qualify for certification.



Legal Document

A pesticide label is extremely important. In fact, it is a legal document. Manufacturers of pesticides are required by law to include specific information on their product labels. Labels must be kept on the container and in good condition. If a label cannot be read or is lost you must contact your supplier for a replacement label and place the new label on the container.

The information on a label has been developed by chemists, toxicologists, pathologists, entomologists, weed specialists, and other experts. It provides:

- **proof that the pesticide is legally registered for use;**
- **information for the grower on the effective, legal, and safe use of the product;**
- **information for the doctor in case of poisoning.**

Always read the label. You are required by law to follow its instructions exactly!

In addition to the information found on a pesticide label, manufacturers often provide extra product information. These materials (e.g., pamphlets, brochures, advertising) complement the label, but do not legally substitute for the label.

Read the Label

There are four times when you should read a pesticide label:

- ***Before you purchase a pesticide.* Read the label before you purchase a pesticide to make sure that the product is registered for your use. This use must be stated on the label. If a use is not listed on the label, it is an improper application and an illegal use of that product.**

Occasionally a new use will not immediately appear on the label. The Pest Management Regulatory Agency of Health Canada or the Newfoundland and Labrador Department of Forest Resources and Agrifoods should be able to confirm a new use.

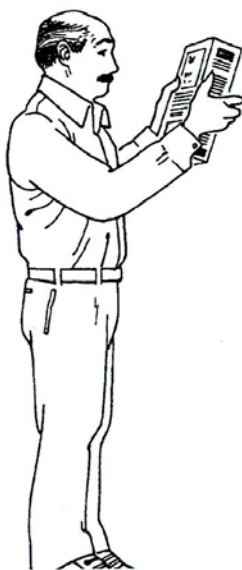
When reading the label before purchasing a product, be sure to check if any special application methods or safety equipment are needed, whether the pesticide can be used safely under your application conditions, and how much pesticide you will need.

- ***Before you mix and apply a pesticide.* Read the label before you mix and apply a pesticide to find out how much to use, when and where you should use it, and how it should be mixed and applied. The label states what the pesticide can be mixed with (compatibility), what protective clothing is required, what the symptoms of poisoning are, and what first aid procedures may be required if an accident occurs.**

Check for any special precautions. Also remember to check for harvest, grazing, or reentry restrictions.

- ***Before you store a pesticide.* Read the label before you store a pesticide to see if there are any special storage instructions you must follow.**
- ***Before disposing of unwanted pesticides or pesticide containers.* Read the label for instructions before disposing of unwanted pesticides or pesticide containers. Proper disposal will prevent health risks and environmental damage. If you have any additional questions or concerns regarding disposal contact the Newfoundland and Labrador Department of Environment and Conservation, Pesticides Control Section.**

More information on storage and disposal can be found in Lesson 7.



Principal Display Panel

Some pesticide labels are easy to understand; others are complicated. It's your responsibility to read and understand the information on the labels of any pesticides you buy.

A typical label has two main parts:

- **the principal display panel**
- **the secondary display panel**

Both the principal and secondary display panels are attached to the pesticide container. If all the required information won't fit on the container, a separate booklet may also be included with the product.

The principal display panel is the most prominent part of the label. It usually has nine essential information items. These include:

- 1. trade name or product name**
- 2. guarantee**
- 3. classification of the product**
- 4. use or purpose**
- 5. precautionary shapes, symbols, and signal words**
- 6. registration number (PCP number)**
- 7. net contents**
- 8. pesticide company's name and address**
- 9. directions to read the label**

Each of these items, numbered 1 through 9 on the label on the facing page, is discussed in detail next.

Principal Display Panel

1 INSECT GONE - 480

4 Liquid Insecticide


3 RESTRICTED

For Insect Control on Cole Crops

2 GUARANTEE:
Monochemical 480 g/L

6 Registration No. 00,000 Pest Control Products Act

! 5

DANGER  **POISON**

! 9 READ THE LABEL BEFORE USING
KEEP OUT OF REACH OF CHILDREN
CALL A DOCTOR IN CASE OF ACCIDENT
(See secondary display panel for First Aid and Danger Statements)
STORE IN A COOL DRY PLACE
PROTECT FROM HEAT

8 Insect Gone Company Limited
2500 No Such Road
Burlington, Ontario H0H 0H0

! 7 10 L

Secondary Display Panel

NOTICE TO USER: This control product is to be used only in accordance with the directions on this label. It is an offence under the **Pest Control Products Act** to use a control product under unsafe conditions.

NATURE OF RESTRICTION: This product is to be stored and displayed apart from food or feed.

RESTRICTED USES

READ ENTIRE LABEL USE STRICTLY IN ACCORDANCE WITH LABEL CAUTIONS, WARNINGS AND DIRECTIONS.

- ! **9 DIRECTIONS:** Use the designated amount of product in the following litres of water per hectare unless otherwise noted.
Ground Application: 200 to 1000 Litres of Water per hectare.

RECOMMENDED APPLICATIONS

| CROP | INSECT | DOSAGE LITRES | REMARKS |
|------------------|----------------------|---------------|---|
| INSECT GONE-480 | | | |
| Broccoli | Cabbage Looper | 1.1 - 2.3 L | Apply 1.1 L on a 7 day schedule beginning when insects or their damage first appears. For severe infestations 1.85 - 2.3 L applied at 7 to 14 day intervals may be necessary. Do not apply to cauliflower, or cabbage later than 7 days before the first harvest, or to broccoli and brussels sprouts later than 14 days before the first harvest. Do not apply by air. |
| Brussels Sprouts | Imported cabbageworm | | |
| Cabbage | Diamondbac | | |
| Cauliflower | Moth larvae | | |
| | Aphids | | |

- ! **10 PRECAUTIONS:** Do not apply under conditions involving possible drift to food, forage or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.

FISH AND WILDLIFE CAUTIONS: Toxic to Fish and Wildlife. Keep out of lakes, streams and ponds. Fish will be killed if their waters are contaminated with this product. Wildlife in contact with treated areas may be harmed. This product is highly toxic to bees exposed to direct treatment or residues on crops. Avoid use during flowering and pollination periods.

- ! **13 CONTAINER DISPOSAL:** Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Wash and destroy container when empty. Never reuse.

KEEP OUT OF REACH OF CHILDREN

DO NOT INHALE ----- **DO NOT GET ON SKIN** ----- **DO NOT TAKE INTERNALLY**

- ! **10** Poisonous if swallowed, inhaled or absorbed through skin. Rapidly absorbed through skin. Do not get in eyes, on skin or on clothing. Wear a mask or respirator of a type suitable for protection against organophosphate insecticides. Wear natural rubber gloves, protective clothing and goggles. Wash hands, arms and face thoroughly with soap and water before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Keep all unprotected persons out of operating areas or vicinity where there may be danger of drift. Vacated areas should not be reentered until drifting insecticide and volatile residues have dissipated. Do not store or transport with feed or food.

- ! **11 FIRST AID INSTRUCTIONS:** In case of contact with skin remove contaminated clothing and wash immediately with soap and water. If in eyes flush with large amounts of water for at least 15 minutes and get medical attention. If swallowed, give 15 ml of salt in a glass of warm water and repeat until the vomit fluid is clear. Have victim lie down and keep quiet. **CALL A PHYSICIAN IMMEDIATELY.**

- ! **12 TOXICOLOGICAL INFORMATION:** Note to Physicians: Emergency Information - Call (415)555-3737. The compound inhibits cholinesterase resulting in stimulation of the central nervous system. This results in a sense of tightness in the chest, sweating, contracted pupils, stomach pains, vomiting and diarrhea. The antidote is atropine sulfate administered in large therapeutic doses repeated as necessary to the point of tolerance. 2-PAM is also antidotal and may be administered in conjunction with atropine. Do not give morphine. Watch for pulmonary edema, which may develop in serious cases of poisoning even after 12 hours. At first sign of pulmonary edema, the patient should be placed in an oxygen tent and treated symptomatically.

LIMITATION OF WARRANTY: Seller's guarantee shall be limited to the terms set out on the label and subject thereto, the buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition. Insect Gone is a Reg. TM of Insect Gone Company Limited.

1. Trade Name or Product Name

The trade name is the name the manufacturer gives to the product. It shows up plainly on the most prominent part of the label. The trade name shown on the sample label is Insect Gone 480.

Be careful when choosing a pesticide by product name. Always check the active ingredient. Although identical names cannot be used on different products, the same basic name with only minor variations can be used for entirely different products. For example, Dithane M-22 contains maneb while Dithane M-45 contains mancozeb.

The trade name often indicates the type of formulation and the amount of active ingredient. For example, Sevin 50WP is a trade name. The formulation is a wettable powder containing 50% active ingredient. The trade name on the sample label shows the product contains 480 grams of active ingredient per litre of formulation.

Be careful: numbers in a product name and the amount of active ingredient may not be the same. Be sure to check the guarantee for the correct amount of active ingredient in any pesticide.

2. Guarantee (Active Ingredient Statement)

All active ingredients used in a pesticide must be listed on the label. The guarantee identifies the active ingredient by its common name. It also indicates how much active ingredient is in the product. This information is given as a percentage or weight of active ingredient in the product.

For example, the guarantee statement on Sevin 50WP is:

Guarantee:
Carbaryl 50%

The guarantee statement on the sample label is:

Guarantee:
Monochemical 480 g/L

Check the guarantee before purchasing a pesticide. By purchasing a pesticide according to the common name, you will get the right active ingredient, no matter what the trade name.

3. Classification

The classification of a product appears on the principal display panel. Each product is classified as "Domestic," "Commercial," or "Restricted."

- a) **Domestic products are classified for to use around the home and garden and can be used with a minimum of protective clothing and equipment.**
- b) **Commercial products can only be used by commercial applicators. Many products used for agricultural are classified as Commercial. For example, some formulations of 2,4-D, atrazine, benomyl and diazinon are classified as Commercial. Products in this class may be labeled as Commercial, Agricultural, Horticultural, or Industrial. Commercial products should not be sold to or used by home gardeners.**
- c) **Restricted products are more hazardous to humans, plants, animals, or the environment. Some restricted products used in agriculture include formulations of parathion, azinphos-methyl (Guthion), methamidophos (Monitor), or carbofuran (Furadan). Check the label to determine which products are restricted. The classification on the sample label shows the product is restricted.**

On Restricted products the pesticide label will also state the Nature of Restriction. This portion of the label includes warnings of particular hazards or special requirements associated with product use.

For example, the Nature of Restriction on the sample label says, "This product is to be stored and displayed apart from food or feed."




4. Use

The use of a product refers to the type of pest it is intended to control. This use (e.g., as an insecticide, a herbicide, or a fungicide) will always be clearly stated on the principal display panel of a pesticide label. For example, the sample label indicates the product is an insecticide.

5. Precautionary Shapes, Symbols, and Signal Words





The principal display panel of a pesticide label often has a precautionary shape, symbol, and signal words. This information quickly identifies the degree of danger and the primary type of hazard associated with the product.

Precautionary shapes identify the signal words and the hazard rating associated with the use of a product. Three precautionary shapes appear on pesticide labels: the stop sign, the diamond, and the triangle. The signal word and the hazard rating of each is shown below.

| | Shape | Signal Word | Hazard Rating |
|------------------|--|--------------------|-----------------------------|
| Stop sign |  | Danger | Very hazardous |
| Diamond |  | Warning | Moderately hazardous |
| Triangle |  | Caution | Slightly hazardous |











Danger is the signal word associated with the stop sign precautionary shape on the sample label. Its hazard rating is very hazardous.

Precautionary symbols inside the shapes identify the primary type of hazard associated with the use of a product. Four precautionary symbols appear on pesticide labels: "skull and crossbones," "fire," "exploding container," and "corroded hand in liquid." The type of hazard represented by each is shown below:

| Symbol | Type of Hazard |
|--|--|
|  | The pesticide is poisonous if swallowed, inhaled, or contacted by skin. |
|  | The pesticide is flammable. |
|  | The pesticide is explosive. Aerosols and pressurized products can explode. |
|  | The pesticide is corrosive to the skin and can cause chemical burns on contact. |

The "skull and crossbones" precautionary symbol on the sample label means the product is poisonous.

There are ten different combinations of precautionary shapes and symbols found on pesticide labels. They are shown in the chart on the following page.

| INTERPRETATION OF SYMBOL COMBINATIONS | | | |
|---|---|--|---|
| POISON HAZARD: |  |  |  |
| | DANGER POISON | WARNING POISON | CAUTION POISON |
| acute oral LD50 | < 500 | 500 - 1,000 | 1,000 - 25,000 |
| acute dermal LD50 | 1000 | 1,000 - 2,000 | 2,000 - 5,000 |
| respirator | yes | advisable in confined spaces | advisable in confined spaces |
| eye protection | yes | yes | advisable - may be eye irritant |
| possible detrimental effects | fatal or irreversible | nonfatal chronic irreversible | nonfatal chronic reversible |
| petroleum distillates | 10% or more (except pressurized products) | - | - |
| FLAMMABILITY HAZARD |  |  |  |
| | DANGER EXTREMELY FLAMMABLE | WARNING FLAMMABLE | CAUTION FLAMMABLE |
| non pressurized products flashpoint | < 20° F | 20° - 50° F | 50° - 80° F |
| pressurized products | 2" flame 6" from orifice results in flame projection over 18" | 2" flame 6" from orifice results in flame projection from 6 - 18" | - |
| EXPLOSIVE HAZARD aerosols and pressurized products (domestic) | | |  |
| CORROSIVE HAZARD |  |  |  |
| | DANGER CORROSIVE | WARNING CORROSIVE | CAUTION CORROSIVE |
| mineral acids or alkali material | 10% or more | 5-10% | 1-5% |
| organic acids | 20% or more | 5-20% | 1-5% |
| available chlorine -in liquids -in solids | - - | 10% or more | 1-10% 1% |
| pH | - | to 0.5 or over 13.5 | .5-2.5 or 11.5 -13.5 |

There can often be more than one precautionary symbol on a product label. In such cases, the most severe hazard will be emphasized with signal words, such as "DANGER", or "WARNING". The following signal words may appear on the label if a product is especially hazardous to eyes.

DANGER CORROSIVE TO EYES

DANGER EYE IRRITANT

WARNING EYE IRRITANT

No symbol will be present if the danger is very low.

6. Registration Number (PCP number)

The registration number tells you the product can be used in Canada. This number must be shown on the principal display panel of every pesticide label. It may appear as REG. NO. 13287 P.C.P. ACT or Registration Number 13287 Pest Control Products Act. Any pesticide used in Canada must have a P.C.P. Act Registration Number. The higher the number, the more recently the product was registered.

The registration number on the sample label reads Registration No. 00,000 Pest Control Products Act.

American products have an E.P.A. (Environmental Protection Agency) number. It is not legal to use products labelled with E.P.A. numbers in Canada.

7. Net Contents

The principal display panel of the label must also tell you how much product is in the container. This measurement must be given by metric weight (e.g., 2.75 kg) or by metric volume (e.g., 10 litres.)

The net contents indicated on the sample label is 10 litres.

8. Pesticide Company's Name and Address

The name and address of the company which registered the product must appear on the principal display panel. You can contact the company at this address for more information on the product.

The company which registered the product represented by the sample label is:

**Insect Gone Company Limited
2500 No Such Road
Burlington, Ontario
H0H 0H0**

9. Directions to Read the Label

A statement directing users to “**READ THE LABEL BEFORE USING**” should be displayed prominently on the principal label display panel.

Quiz 2.1

This page contains a sample copy of a pesticide label, principal display panel. Use the information found on this label to answer the questions which follow.

1. What is the trade or product name?

2. What is this product's P.C.P. Act Registration Number?

3. What is the active ingredient in this product?

4. How much active ingredient is guaranteed in this product?

5. What type of formulation is this product?

6. Who is the manufacturer of this product?

7. What is the net contents of the product package?

8. What is the classification of this product?

9. Does the precautionary symbol on this product mean the product is slightly poisonous, moderately poisonous, or very poisonous?

After completing the quiz, check your answers against those in the Answer Key at the end of the lesson. If any of the questions gave you trouble, review the quiz label to find the correct answers. Then continue with Lesson 2.

((BOOKLET))

Control Plus brand 70 WP Insecticide

Contains Triochemical

AGRICULTURAL

Guarantee: Triochemical.....70.35% by weight

WARNING



POISON

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**REGISTRATION NO. 95,000
PEST CONTROL PRODUCTS ACT**

**The Pesticide Company
21 Nowhere St.
Somecity, NL, X1X 1X1**

**IN CASE OF SPILLS, POISONING OR FIRE TELEPHONE EMERGENCY
RESPONSE NUMBER: 1-888-111-1111**

NET CONTENTS: 340 g

Secondary Display Panel

The secondary display panel usually contains seven essential information items. These include:

10. **directions for use, use area, and limitations**
11. **precautions**
12. **first aid**
13. **toxicological information**
14. **disposal**
15. **Notice to User**
16. **Notice to Buyer**

Each of these items, numbered 10-16 on the label on the following page, is discussed in detail next.

10. Directions for Use, Use Area, and Limitations

These directions tell you how to use the product. They must be followed exactly. Failure to follow directions could lead to crop damage, poor pest control, danger to your health, damage to the environment, or confiscation of your crop due to excess pesticide residues.

Directions may include:

- **where the pesticide may be used**
- **which crops or animals the pesticide can be used on**
- **which pests it will control**
- **when it can be applied**
- **rates of application. DO NOT EXCEED LABEL RATES.**
- **proper equipment to be used**
- **mixing instructions**
- **compatibility with other products**
- **phytotoxicity and other possible injury**
- **which adjuvants may be mixed with the pesticide. Adjuvants can only be included in a pesticide application when the label says they can. Specific directions will be on the label. For example, one label says, "Always add Agral 90 at the rate of 1 L for every 1000 L of spray solution."**

Secondary Display Panel Insect Gone Label

! 15 NOTICE TO USER: This control product is to be used only in accordance with the directions on this label. It is an offence under the **Pest Control Products Act** to use a control product under unsafe conditions.

NATURE OF RESTRICTION: This product is to be stored and displayed apart from food or feed.

RESTRICTED USES

! 11 READ ENTIRE LABEL USE STRICTLY IN ACCORDANCE WITH LABEL CAUTIONS, WARNINGS AND DIRECTIONS.

! 10 DIRECTIONS: Use the designated amount of product in the following liters of water per hectare unless otherwise noted.
Ground Application: 200 to 1000 Litres of Water per hectare.

RECOMMENDED APPLICATIONS

| CROP | INSECT | DOSAGE LITRES INSECT GONE-480 | REMARKS |
|-------------|----------------|----------------------------------|---|
| Broccoli | Cabbage Looper | 1.1 - 2.3 L | Apply 1.1 L on a 7 day schedule beginning when insects or their damage first appears. For severe infestations 1.85 - 2.3 L applied at 7 to 14 day intervals may be necessary. Do not apply to cauliflower, or cabbage later than 7 days before the first harvest, or to broccoli and brussels sprouts later than 14 days before the first harvest. Do not apply by air. |
| Brussels | Imported | | |
| Sprouts | cabbageworm | | |
| Cabbage | Diamondbac | | |
| Cauliflower | Moth larvae | | |
| | Aphids | | |

! 11 PRECAUTIONS: Do not apply under conditions involving possible drift to food, forage or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.

FISH AND WILDLIFE CAUTIONS: Toxic to Fish and Wildlife. Keep out of lakes, streams and ponds. Fish will be killed if their waters are contaminated with this product. Wildlife in contact with treated areas may be harmed. This product is highly toxic to bees exposed to direct treatment or residues on crops. Avoid use during flowering and pollination periods.

! 14 CONTAINER DISPOSAL: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Wash and destroy container when empty. Never reuse.

KEEP OUT OF REACH OF CHILDREN

DO NOT INHALE

DO NOT GET ON SKIN

**DO NOT TAKE
INTERNALLY**

! 11 Poisonous if swallowed, inhaled or absorbed through skin. Rapidly absorbed through skin. Do not get in eyes, on skin or on clothing. Wear a mask or respirator of a type suitable for protection against organophosphate insecticides. Wear natural rubber gloves, protective clothing and goggles. Wash hands, arms and face thoroughly with soap and water before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Keep all unprotected persons out of operating areas or vicinity where there may be danger of drift. Vacated areas should not be reentered until drifting insecticide and volatile residues have dissipated. Do not store or transport with feed or food.

! 12 FIRST AID INSTRUCTIONS: In case of contact with skin remove contaminated clothing and wash immediately with soap and water. If in eyes flush with large amounts of water for at least 15 minutes and get medical attention. If swallowed, give 15 ml of salt in a glass of warm water and repeat until the vomit fluid is clear. Have victim lie down and keep quiet. **CALL A PHYSICIAN IMMEDIATELY.**

! 13 TOXICOLOGICAL INFORMATION: Note to Physicians: Emergency Information - Call (415)555-3737. The compound inhibits cholinesterase resulting in stimulation of the central nervous system. This results in a sense of tightness in the chest, sweating, contracted pupils, stomach pains, vomiting and diarrhea. The antidote is atropine sulfate administered in large therapeutic doses repeated as necessary to the point of tolerance. 2-PAM is also antidotal and may be administered in conjunction with atropine. Do not give morphine. Watch for pulmonary edema, which may develop in serious cases of poisoning even after 12 hours. At first sign of pulmonary edema, the patient should be placed in an oxygen tent and treated symptomatically.

! 16 LIMITATION OF WARRANTY: Seller's guarantee shall be limited to the terms set out on the label and subject thereto, the buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

Insect Gone is a Reg. TM of Insect Gone Company Limited.

- **pre-harvest intervals, pre-slaughter intervals, grazing restrictions, reentry intervals, frequency of use. These intervals allow time for the pesticide to break down on or in the crop or in the meat. Following the directions regarding these intervals prevents the poisoning of grazing animals and prevents excess residues on food or in feed or animal products.**

Directions on the sample label indicate the product is intended for insect control on cole crops; specifically broccoli, brussels sprouts, cabbage and cauliflower. Directions also state the product must be used strictly in accordance with label cautions, warnings and directions. Recommended applications are also provided.

The directions may also indicate if the pesticide can be applied by aircraft. A pesticide may only be applied by aircraft if the label states so.

Pesticides cannot be applied by chemigation (in irrigation water) unless the label states specific instructions for chemigation.

11. Precautions

Precaution statements are required on all labels. They are designed to protect people and the environment. They caution applicators explaining how to reduce hazards when mixing, applying, storing, and disposing of the product.

The most important warnings are stated in capital letters. These warnings on the sample label read:

**KEEP OUT OF REACH OF CHILDREN.
CALL A DOCTOR IN CASE OF ACCIDENT.
STORE IN A COOL DRY PLACE.
PROTECT FROM HEAT.**

Other typical warnings on labels include:

MAY BE FATAL IF SWALLOWED.
Do not get in eyes, on skin, on clothing.
Rapidly absorbed through skin.
Wash thoroughly after use.
Do not smoke when using this product.
Wear protective clothing, natural rubber gloves, and goggles when handling.
Do not reuse container.
Toxic to fish. Do not contaminate water.
Highly toxic to bees.
Avoid use on excessively hot days or in confined spaces.
Use only at recommended rates.

Precautionary statements on labels are not uniform. Many variations may be found. Some labels provide a lot of detail. Consider the following precaution: "Wear an approved respirator for organophosphate insecticides, while handling and when spraying or entering newly sprayed areas."

Other labels are very general. For example: "Avoid breathing spray drift."

Precautions on the sample label are shown below.

**READ ENTIRE LABEL USE STRICTLY IN ACCORDANCE WITH
LABEL CAUTIONS, WARNINGS AND DIRECTIONS.**

Poisonous if swallowed, inhaled or absorbed through skin. Rapidly absorbed through skin. Do not get in eyes, on skin or on clothing. Wear a mask or respirator of a type suitable for protection against organophosphate insecticides. Wear natural rubber gloves, protective clothing and goggles. Wash hands, arms and face thoroughly with soap and water before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Keep all unprotected persons out of operating areas or vicinity where there may be danger of drift. Vacated areas should not be reentered until drifting insecticide and volatile residues have dissipated. Do not store or transport with feed or food.

You need to consider all of the following when determining protective equipment and other precautions:

- **precautionary statement**
- **precautionary symbol**
- **your exposure to the pesticide**
- **general guidelines**

Remember: it's better to take extra precautions rather than too few!

Occasionally a special warning will be highlighted in a box on the label. For example, the warning on the sample label reads:

WARNING
Safety data and registration of this product are under review. Directions for use and cautionary statements should be carefully followed. Read the label before using.

Another warning on a pesticide label reads:

WARNING
Experimental feeding studies in rats have demonstrated that the active ingredient in this product can produce birth defects and other adverse effects in the developing fetus of rats. Women capable of bearing children should be particularly careful when handling this product. Occupational exposure to this product will be reduced by strict adherence to the handling precautions and use directions provided.

Read all label information. Be aware of hazards and carefully follow all precautions.

12. First Aid

First Aid information is on the secondary display panel of a label. It gives specific instructions of what to do in the event of poisoning or injury caused by the product. You should read this section carefully *before* using the product. Make sure you have everything you may need in your first aid kit. You'll learn more about what's required in your first aid kit in Lesson 5.

The first aid instructions on the sample label read:

In case of contact with skin remove contaminated clothing and wash immediately with soap and water. If in eyes, flush with large amounts of water for at least 15 minutes and get medical attention. If swallowed, give 15 mL of salt in a glass of warm water and repeat until the vomit fluid is clear. Have victim lie down and keep quiet. CALL A PHYSICIAN IMMEDIATELY.

If the toxicity of the product is very low, first aid information may not be on the label.

13. Toxicological Information

Toxicological information refers to symptoms of poisoning. Be familiar with the poisoning symptoms of the products you use. Antidote and other information may affect the treatment of poisoning. This information is important for doctors who are treating someone who's been poisoned. You'll learn more about this subject in Lesson 5.

The toxicological information from the sample label is shown below.

TOXICOLOGICAL INFORMATION: Note to Physicians: Emergency Information - Call (415)555-3737. The compound inhibits cholinesterase resulting in stimulation of the central nervous system. This results in a sense of tightness in the chest, sweating, contracted pupils, stomach pains, vomiting and diarrhea. The antidote is atropine sulfate administered in large therapeutic doses repeated as necessary to the point of tolerance. 2-PAM is also antidotal and may be administered in conjunction with atropine. Do not give morphine. Watch for pulmonary edema, which may develop in serious cases of poisoning even after 12 hours. At first sign of pulmonary edema, the patient should be placed in an oxygen tent and treated symptomatically.

14. Disposal

Pesticide labels may tell you how to dispose of empty containers or unused products to prevent accidental poisoning or environmental contamination. You must follow these directions if present on a label. Also follow provincial regulations. Details on the disposal of pesticides and containers are provided in Lesson 7.

Disposal directions on the sample label read:

CONTAINER DISPOSAL: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Wash and destroy container when empty. Never reuse.

15. Notice to User

The Notice to User statement on commercial and restricted class labels is a legal statement that indicates that you must use the product as indicated on the label.

16. Notice to Buyer

The Notice to Buyer is not on all labels, but may be present as a Seller's Guarantee on commercial and restricted class labels. This statement indicates that the Seller's guarantee is limited to the instructions on the label, and the buyer accepts the risks associated with the use of the product.

Now try Quiz 2.2 to see if you understand the pesticide label.

Quiz 2.2

The next few pages contain a sample copy of a pesticide label. Use the information found on this label to answer the questions which follow. This is not a complete label! As with all crop protection products read the entire label before use.

(BOOKLET)

Control Plus brand 70 WP Insecticide

Contains Triochemical

AGRICULTURAL

Guarantee: Triochemical.....70.35% by weight



WARNING

POISON

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**REGISTRATION NO. 95,000
PEST CONTROL PRODUCTS ACT**

**The Pesticide Company
21 Nowhere St.
SomeCity, NL, X1X 1X1**

**IN CASE OF SPILLS, POISONING OR FIRE TELEPHONE EMERGENCY
RESPONSE NUMBER:1-888-111-1111**

NET CONTENTS: 340 g

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful if inhaled or absorbed through the skin. Avoid breathing vapors or spray mist. Avoid contact with eyes, skin or clothing. Keep away from domestic animals. Wear long sleeved shirt, long pants and chemical resistant gloves during mixing, loading, applying, and clean-up and repair activities. Workers should not enter treated areas for 12 hours following application. Discard clothing that has been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining personal protective equipment. Keep and clean personal protective equipment separate from other laundry and household items. Users should wash their hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if clothing becomes contaminated by pesticides. Then wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing them as soon as possible, wash thoroughly and change into clean clothing. Do not apply Control Plus brand 70 WP Insecticide directly to water, or to areas where surface water is present. Do not contaminate water when disposing of equipment wash water or rinsate. Do not contaminate water used for irrigation or domestic purposes.

ENVIRONMENTAL PRECAUTIONS:

A buffer zone of 20 meters for application by ground boom sprayer, should be established between the last spray swath and the edge of aquatic systems such as rivers, lakes, ponds, streams and other bodies of water. A buffer zone of 2 meters for application by ground boom sprayer should be established between the last spray swath and the edge of terrestrial habitats such as hedgerows, windbreaks, woodlots, vegetative strips and other vegetation. Triochemical is toxic to honey bees exposed to direct treatment. Do not apply when bees are present in the area to be treated.

FIRST AID:

Contact a physician **IMMEDIATELY** in all cases of suspected poisoning. Transport patient to a physician or hospital **IMMEDIATELY** taking container, label or product name and Pest Control Products Act Registration Number with you when seeking medical attention.

IF SWALLOWED: Call a physician or Poison Control Center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, by administering syrup of ipecac. This should only be given upon the instruction of a Poison Control Centre or doctor, and if the patient is alert! If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person.

If in Eyes: **IMMEDIATELY** flush eyes with plenty of water.

If on Skin: Wash thoroughly with soap and water.

If Inhaled: Move from contaminated area and call a physician.

TOXICOLOGICAL INFORMATION :

There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient.

STORAGE CONDITIONS:

Do not store in or around the home. Store unused product in a cool, ventilated, dry, locked area. Do not allow prolonged storage in areas where temperatures frequently exceed 46°C (115°F). Never transfer this product to another container for storage.

DISPOSAL:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty rinsed container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in the event of a spill and for clean up of spills.

NOTICE TO USER: This control product is to be used only in accordance with the directions on this label. It is an offense under the Pest Control Products Act to use a control product under unsafe conditions

NOTICE TO BUYER : Seller's guarantee shall be limited to the terms set out on the label and, subject thereto, the buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

DIRECTIONS FOR USE :

METHOD OF APPLICATION : Apply by ground only. Do NOT apply by air.

APPLICATION TIMING :

Begin application when insect populations reach recognized economic threshold levels. Consult the provincial extension service, or professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area.

MIXING INSTRUCTIONS

1. Fill tank $\frac{1}{4}$ full with the required amount of total spray volume of water.
2. Add Control Plus brand 70 WP Insecticide at recommended rates for the pest and crop type and begin agitation.
3. Allow to mix in tank for 2 minutes or until thoroughly mixed before applying.

ROW CROPS

Apply a minimum spray volume of 200 L/ha by ground unless otherwise directed under specific crop directions. For best results, it is important to obtain thorough and uniform spray coverage of the plant. Use higher dosage rates for heavy infestations or dense foliage. The specific length of residual control depends on environmental factors, plant growth, dosage rate, and degree of insect infestation.

To clean the sprayer after use, drain and flush with water. Use rinsings on crop according to label instructions or dispose of in an approved manner (See Storage and Disposal).

FIELD CROPS

To achieve optimum pest control, it is important to obtain thorough and uniform spray coverage of the plant. Choose a spray volume appropriate for the stage of growth or height of crop and amount of foliage that will provide thorough coverage throughout the canopy. Use higher dosage rates for heavy infestations or dense foliage. The specific length of residual control depends on environmental factors, plant growth, degree of insect infestation and dosage rate. To clean the sprayer after use, drain and flush with water. Use rinsings on crop according to label instructions or dispose of in an approved manner (See Storage and Disposal).

INTEGRATED PEST MANAGEMENT (IPM) USE OF THIS PRODUCT

Control Plus brand 70 WP Insecticide can be effectively utilized in IPM programs. Control Plus brand 70 WP has been shown to leave substantial populations of many beneficial insects and spiders after use. The lower rates allow for maximum beneficial survival and faster rebound of beneficial populations.

RESISTANCE MANAGEMENT:

Appropriate resistance management strategies should be followed. To delay insecticide resistance:

- Where possible, rotate the use of this pesticide with pesticides from different groups that are registered to control the same pests.
- Insecticide use should be based on an integrated pest management (IPM) program that includes crop scouting and record keeping and considers cultural, biological, and other pest control practices.
- Monitor treated pest populations for resistance development.
- Contact the local extension specialist or certified crop advisor for any additional pesticide resistance-management and IPM recommendations for the specific site and pest problems in the area.
- For further information or to report suspected resistance, contact The Pesticide Company at 1-800-111-1111.

COLE CROPS

Spray Volume for Cole Crops : Apply in a minimum spray volume of 200 L/ha by ground application.

| SITE | PEST | RATE: GRAMS Control Plus /HA | SPECIFIC DIRECTIONS | RESTRICTIONS AND PRECAUTIONS: Cole Crops |
|--|--------|---------------------------------------|--|--|
| COLE CROPS Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kale, Kohlrabi, Mustard Greens, Mustard, Spinach, Rape Greens | Aphids | 56-86 | Begin applications when economic threshold levels have been reached. Thorough coverage is important to obtain optimum control. | <ul style="list-style-type: none"> • For any of the pests listed, use the highest rate under heavy pest pressure. • Do not make more than 5 applications per season. • Do not apply more than once every 7 days. • Do not apply less than 7 days before harvest. • There are no rotational crop plant back restrictions for this product. |

FIELD CROPS

Spray Volume for Pome Fruits : Apply in a minimum finished spray volume of 500 L/ha by ground application.

| SITE | PEST | RATE: GRAMS Control Plus/HA | SPECIFIC DIRECTIONS | RESTRICTIONS AND PRECAUTIONS: Pome Fruits |
|------------------------------------|-----------------------|--------------------------------------|--|--|
| FIELD CROPS Wheat, Barley | Aphids Leafhoppers | 80-120 | Begin applications when economic threshold levels have been reached. Adequate coverage is essential for optimum control. Consult your local extension service for recommendations. | <ul style="list-style-type: none"> • For any of the pests listed above, use the highest rate under heavy pest pressure. • Do not make more than 4 applications per season. • Do not apply more than once every 12 days. • Do not apply less than 7 days on barley before harvest. • Do not apply less than 15 days on wheat before harvest. |
| | Wheat moth | 120-240 | | |
| | Grasshoppers | 67-240 | | |

Control Plus is a trademark of the The Pesticide Company

Quiz 2.2

1. **Is this product suitable for use in fixed wing aircraft?**

2. **For field crops in general, how much water should be used with the rates given on the label?**

3. **Should you wear a respirator when applying this pesticide?**

4. **How long should you wait before making a second application of this product in orchards - field crops?**

5. **Place a checkmark beside each of the following crop/pest combinations on which you can use this product.**

Wheat/wheat moth _____

cranberries/cranberry girdler _____

rutabagas/aphids _____

broccoli/cabbage looper _____

broccoli aphids _____

Rape Greens/diamondback moths _____

wheat/Grasshopper _____

6. **How many days must you wait after application before you can harvest the following crops (pre-harvest interval)?**

broccoli ___

wheat ___

Barley ___

7. What is the correct rate of application for the following crop/pest combinations?

cabbage /aphids _____

barley/leafhoppers _____

wheat/wheat moth _____

barley/grasshopper _____

8. What is the antidote for triochemical?

9. What protective clothing and equipment should be worn when handling this product?

10. How long must you wait before entering a treated area without protective clothing (reentry time)?

11. Can you use this product on food crops grown in a greenhouse?

12. What should you do if the product has been swallowed?

13. Should you reuse empty containers from this product?

After completing the quiz, check your answers against those in the Answer Key at the end of the lesson. If any of the questions gave you trouble, review the sample label to find the correct answers. Then go on to Lesson 3.

Material Safety Data Sheets

A Material Safety Data Sheet or MSDS can be obtained from the supplier and provides additional information on pesticides including the following:

- 1. Chemical Company and Product Identification**
- 2. Compositions Information**
- 3. Hazards**
- 4. First Aid Measures**
- 5. Fire-Fighting Measures**
- 6. Spill Information**
- 7. Handling and Storage**
- 8. Exposure Controls/Personal Protection**
- 9. Physical and Chemical Properties**
- 10. Stability and Reactivity**
- 11. Toxicological Information**

The MSDS does not take the place of the label. It is important to compare the different pieces of information found on the MSDS and the label. For example, the label gives very detailed information on usage such as mixing instructions while the MSDS does not. The MSDS gives LD₅₀ values while the label does not.

Looking Ahead

In Lesson 2 you have learned to locate and interpret the thirteen pieces of information found on a pesticide label. You have also learned why each piece of information is important. Lesson 3 will cover the laws that affect you as a pesticide applicator.

Answer Key

Quiz 2.1

1. What is the trade or product name?

Control Plus brand 70 WP Insecticide

2. What is this product's P.C.P. Act Registration Number?

95,000

3. What is the active ingredient in this product?

triochemical

4. How much active ingredient is guaranteed in this product?

70.35%

5. What type of formulation is this product?

Wettable powder

6. Who is the manufacturer of this product?

The Pesticide Company

7. What is the net contents of the product package?

340 grams

8. What is the classification of this product?

Commercial (Agricultural)

9. Does the precautionary symbol on this product mean the product is slightly poisonous, moderately poisonous, or very poisonous?

Moderately Poisonous

Quiz 2.2

1. Is this product suitable for use in fixed wing aircraft
no
2. For row crops in general, how much water should be used with the rates given on the label?
200 L/ha
3. Should you wear a respirator when applying this pesticide?
yes (the label states that the product is harmful if inhaled, avoid breathing vapors or spray mist)
4. How long should you wait before making a second application of this product in orchards?
12 days
5. Place a checkmark beside each of the following crop/pest combinations on which you can use this product.
wheat/wheat moth x
cranberries/cranberry girdler
rutabagas/aphids
broccoli/cabbage looper
broccoli/aphids x
rape greens/diamondback moths
wheat/grasshopper x
6. How many days must you wait after application before you can harvest the following crops (pre-harvest interval)?
broccoli 7
wheat 15
barley 7

7. What is the correct rate of application for the following crop/pest combinations?

| | |
|--------------------|-------------------------|
| cabbage/aphids | <u>56-86 grams/ha</u> |
| barley/leafhoppers | <u>80-120 grams/ha</u> |
| wheat/wheat moth | <u>120-240 grams/ha</u> |
| barley/grasshopper | <u>67-240 grams/ha</u> |

8. What is the antidote for triochemical?

there is no specific antidote

9. What protective clothing and equipment should be worn when handling this product?

long sleeved shirt, long pants, chemical resistant gloves

10. How long must you wait before entering a treated area without protective clothing (reentry time)?

12 hours

11. Can you use this product on food crops grown in a greenhouse?

no

12. What should you do if the product has been swallowed

drink 1-2 glasses of water & induce vomiting

13. Should you reuse empty containers from this product?

no