

Integrated Pest Management Program - IPM Manual for Home & Garden Pests in B.C. - Chapter 2

Integrated Pest Management

IPM Manual for Home and Garden Pests in British Columbia

Chapter 2: Pesticide Characteristics and Legislation

Learning Objectives

When you have completed this chapter, you should be able to:

Describe the main federal regulations that apply to pesticides.

1. Describe the five categories of pesticides in the *Integrated Pest Management Act* Regulation.
2. Describe the certification requirements for sale and application of domestic pesticides in BC.
3. Describe when pesticide use permits, pest management plans, vendor licences and service licences are required.
4. Describe storage and display requirements for domestic pesticides.
5. List key requirements for safe transport of pesticides.
6. Describe approved methods of disposing of left-over pesticides.

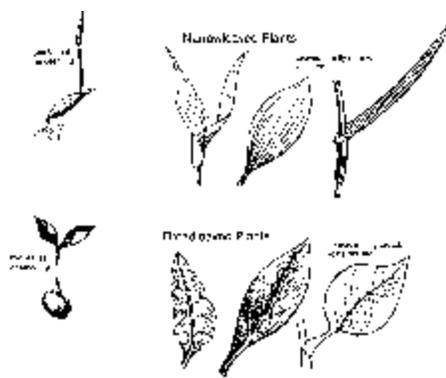
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Introduction

There are many types of pesticides. This chapter gives an overview of how pesticides are classified, common ways they are formulated and how they are labelled. Specific laws regulating pesticide use are also described in this chapter. These laws are aimed at protecting people and the environment because most pesticides are toxic substances.

Types of Pesticides

Pesticides are grouped according to the type of pests they are used for. Thus insecticides are for controlling insects, and herbicides are for controlling plants.



Some pesticides have broad-spectrum (or non-selective) activity, meaning they control many species, whereas others, called selective pesticides, only work on certain species. For example, a broad-spectrum herbicide kills any plant, whereas a selective herbicide kills only certain broad-leaved plants and not grasses.

How a pesticide works on the pests is called the mode of action. Some pesticides are stomach poisons, meaning the pest has to eat it to be affected. Others act upon contact, meaning the pest dies if it comes into contact with the pesticide.

How long the pesticide remains active against pests after it is applied is called its residual effect.

Some pesticides remain active for days or weeks, while others, such as soap or oil sprays, act only on pests hit by the spray and have no residual activity after the spray has dried. Pesticides with residual effects are also persistent, meaning they remain active in the environment for a period of time, even if rain or wind has carried them away from the target site.

A few Domestic pesticides have systemic activity. This means that the pesticide is absorbed into the plant and moves through the plant tissues. A systemic insecticide can move throughout a tree to kill sucking insects on the leaves, while a systemic herbicide applied to the leaves can move down to the roots to kill the plants. The properties of commonly used home and garden pesticides are described in Section III.

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Pesticide Names

Pesticides are usually referred to by either the common name of the active ingredient (the ingredient that has the pesticidal effect), or by the trade name of a particular product. For example, Roundup® is the trade name of a herbicide product that contains the active ingredient glyphosate. Active ingredient names are used in this manual to reduce confusion, because the same active ingredient can be used in many different products. For example, there are over 490 products registered in Canada for home and garden use that contain pyrethrins, a group of compounds extracted from a type of daisy. Some pyrethrin products are dusts, while others are liquids. Some are for garden use, while others are for use on pets, depending on how they are formulated. In addition to the active ingredients, product formulations also contain other ingredients. These include carriers for the active ingredients, such as water, oil, solvents, inert powders, and other substances that improve the way a product mixes with water or makes it stick to plants once it is sprayed.

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Pesticide Labels

Pesticide product labels are legal documents with instructions and precautions that must be followed. See the examples of two pesticide labels: (1) and (2). The labels show certain essential information the user needs to know before buying, using or disposing of the product. These are:

1. **Guarantee:** This states the common name of the active ingredients and the amount in the product. This is usually shown as a percentage of the total weight (for example, 20%) or the weight of the active ingredient per volume of product (for example, 200 grams per litre of a liquid).
2. **Use and Classification:** The type of pesticide, such as herbicide, fungicide, or insecticide, is stated on the label. Pesticides meant for household use also have the word DOMESTIC in bold face type on the container label. This refers to the federal classification system for pesticides, which has three categories of use: Domestic, Commercial and Restricted classes. Domestic class products are the only ones that should be sold for household and garden used. These often have the same kinds of active ingredients found in Commercial pesticides, but the active ingredient is usually more diluted and therefore less toxic. There is a wide range in the toxicity of Domestic pesticides, however, and some of these are dangerous if handled incorrectly.

Federal Categories of Pesticides

Domestic: Includes ready-to-use products and small-sized containers of concentrates more suitable for the small areas of use around homes and gardens.

Commercial: These include more toxic pesticides as well as products in large size containers intended for commercial users (such as landscape services or agricultural growers). They are to be used by commercial applicators who have the knowledge and training to handle such products.

Restricted: These are products that are more hazardous or involve special requirements for use. They are not for home and garden users; even commercial users must be certified to use these.

Formulation: The type of formulation inside the container is usually stated under the trade name on the label. This may be written out or abbreviated. It is essential to check the formulation before buying a pesticide to ensure that it contains the type of product required. For example, dust formulations are often confused with wettable powder formulations.

Formulation Abbreviation on Labels

Dusts (D or DU): These dust products are used as they come from the container and are not mixed with water.

Granules (G or GR): The pesticide is incorporated into tiny beads made of clay or other material, such as mixed fertilizer-herbicide products for lawns.

Pellets (PE): The pesticide is incorporated into larger pieces than granules, such as rodent bait pellets.

Wettable powders (WP): These are especially formulated to be easy to mix into water and are intended to be used to make a spray.

Emulsifiable concentrates (EC): This is the most common type of liquid concentrate formulated so that it can be mixed with water to make a spray.

Aerosols (A): These are ready-to-use sprays in small, pressurized containers, such as wasp and hornet sprays.

3. **Precautionary Symbol:** This is shown on a label if the product may be hazardous to handle or use. The most common symbol seen on Domestic pesticides is the skull-and-crossbones, which means "poison." Other symbols warn of flammable, explosive or corrosive properties.

Note: symbols surrounded by a stop sign outline denote high or extreme danger.

4. **Directions for Use:** These contain the manufacturer's directions for using the product, including what pests it controls, what type of plants or sites it can be used on and mixing instructions, if mixing is required.

5. **Precautions and First Aid:** These sections describe protective clothing or equipment required and other safety precautions for protecting the environment and non-target organisms. The First Aid section contains instructions for treating a victim of accidental poisoning. This information is not included on labels of products with such low toxicity that first aid would not be required.

	Danger	Warning	Caution
Poison			
Flammable			
Explosive			
Corrosive			

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Pesticide Legislation

Because most pesticides are toxic materials, there are specific laws regarding their use aimed at protecting people and the environment. Pesticide legislation includes laws:

- protecting fish and wildlife
- governing safe transport and disposal
- specifying how pesticides can be sold

There are also laws to protect the consumer from false claims about what a product will control and to ensure that label information is accurate and complete.

The pesticide dispenser should be able to explain how these laws protect the customer, and how the customer and store must protect the environment.

Note: Legal requirements only are outlined in this chapter. Additional pesticide safety guidelines are described in [Chapter 3](#).

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Federal Registration

Under the *Pest Control Products Act*, all pesticides must be approved by Health Canada before use or sale in Canada. Approval by Health Canada is shown by a Pest Control Products (PCP) registration number on the label. A product without this number or with only an United States EPA number on the label cannot be legally sold or used in Canada.

The *Pest Control Products Act* requires a broad range of tests to determine effects on non-target organisms, potential for movement in the environment, and that the pesticide is effective when used as directed.

Under the federal act, pesticides are assigned to one of three classes, which is indicated on their label:

Domestic: generally lower toxicity product formulations that are sold in small containers for home and garden use.

Commercial: generally more toxic products and concentrates that are sold in larger amounts for commercial use.

Restricted: uses are restricted due to hazard and are for use by certified applicators only.

Pesticides must be labelled with specific use directions and with warnings of hazards. A label is a legal document and an applicator must follow all label directions.

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Federal Requirements to Protect Fish and Birds

There are federal laws for the protection of fish and birds. For example, it is unlawful to apply or dispose of pesticides in a way that may harm fish, such as releasing a pesticide into a lake or stream. Vegetation growing along the edges of lakes and streams also must be protected. These provide shade and food for fish.

Pesticides must not be applied to fields used as feeding or resting areas by migratory birds. It may be necessary for a dispenser to tell a customer that a pesticide cannot be applied near a lake or stream, or in a way that may harm birds. Some pesticides have specific precautions on the label about toxicity to fish or birds. These must be used with extra care, or avoided altogether, where there is risk of harm to wildlife.

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British Columbia *Integrated Pest Management Act*

The *Integrated Pest Management Act (IPM Act)* contains legal requirements for the sale, transportation, storage, mixing and application of pesticides. Administering this act is the responsibility of the BC Ministry of Water, Land & Air Protection.

Ministry of Environment staff investigate complaints of pesticide misuse. They issue Pesticide Licences and inspect storage sites of pesticide vendors and service companies to ensure compliance with the regulations.

Sections in the Integrated Pest Management Act most relevant to pesticide sales are described in the following paragraphs. Refer to the *IPM Act* and the *IPM Act Regulations* for complete legal definitions and details.

Pesticide Classification

In the *IPM Act*, pesticides are divided into five classes of pesticides. Each class has different requirements for sale and use. Most pesticides are for use only by farmers and professional, certified pesticide applicators and not for the domestic, home and garden user.

Permit-Restricted Class Pesticides

There are only two pesticides in this class. One is for forest use; the other is used as a pigeon repellent by pest control service companies. Neither of these pesticides is for domestic use. Before pesticides in this class may be purchased or used, the proposed use must be assessed by a panel of pesticide experts and, if approved, a use permit issued. Pesticides in this class must be applied by certified pesticide applicators.

Restricted Class Pesticides

Pesticides in this class have the word "Restricted" on the label. They may only be purchased and used in British Columbia by certified pesticide applicators. None of these pesticides is for domestic use.

Commercial Class Pesticides

This group of pesticides have labels indicating that they are for Commercial, Agricultural, or industrial use. They are not intended for domestic use. Pesticide applicators applying these materials on a fee for service basis must have, or be directly supervised by, certified pesticide applicators. People selling these products must hold a "Pesticide Dispenser — Commercial" certificate.

Domestic Class Pesticides

This group of pesticides say "Domestic" on the label. They are intended for use by non-professional, domestic users, in or around buildings and gardens. They are generally sold in small containers so the contents can be used up in one or two seasons of use.

Excluded Class Pesticides

Excluded class pesticides are excluded from British Columbia's licensing requirements and may be sold and used by uncertified people. Pesticides in this class are listed in the table below.

Note: It is important for pesticide applicators and dispensers to keep in mind that Excluded pesticides are not necessarily the least toxic control option for a given pest problem. People may mistakenly think that they are the preferred control method because they can be sold by unlicensed stores. Information in this manual will help applicators and dispensers select appropriate control methods. See the introduction to [Chapter 7](#) for a definition of preferred pesticide.

Table 2. Excluded Pesticides

The following is a partial list of Excluded pesticides. For a complete list, refer to [Schedule 2](#) of the *Integrated Pest Management Act* Regulations.

(D) indicates that only Domestic formulations are excluded
(C) indicates that only Commercial formulations are excluded
(D, C) indicates that only Domestic and Commercial formulations are excluded
(D, C, R) indicates that Domestic, Commercial and Restricted formulations are excluded

Animal Repellents

capsaicin (D, C, R)
polybutene bird repellents (D, C)
other animal repellents (D, C) (except thiram)

Fungicides

sulphur, including lime sulphur, sulphide sulphur and calcium polysulphide (D)

Herbicides

acetic acid (D)
corn gluten meal (D, C)
fatty acids (D)

Insecticides

bacillus thuringiensis kurstaki (Btk) (D)
boron compounds (D)
boron compounds with up to 5% copper for insect control and wood preservation (C)
d-phenothrin (D)
insect bait stations (D)
insect pheromones (D, C)
insect repellents (D)

methoprene (D)
mineral oils for insect and mite control (D)
n-ocetyl bicycloheptene dicarboximide (D)
pesticides in aerosol containers (D)
pesticides registered under the federal act for application to pets (D, C)
piperonyl butoxide (D)
pyrethrins (D)
resmethrin (D)
rotenone (D)
silica aerogel, also called silica gel, amorphous silica & amorphous silica gel (D, C)
silicon dioxide, also referred to as "diatomaceous earth" (D, C)
soaps (D, C)
tetramethrin (D)
trans-allethrin, also referred to as d-cis, trans allethrin (D)

Moss Killers

fatty acids (D)
ferrous sulphate (D, C)
soaps (D, C)

Moth Balls / Flakes

naphthalene for fabric protection (D)
paradichlorobenzene for fabric protection (D)

Plant Growth Regulators (D)

Slug Control

ferric phosphate (D, C)

Wood Preservatives

boron compounds (D)
boron compounds with up to 5% copper for insect control and wood preservation
wood preservatives (D)

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Vendor Licenses

A store where pesticides are sold must have a Pesticide Vendor Licence unless the store sells only Excluded pesticides. Licences are available to stores employing certified pesticide dispensers (see below). A [Licence application form](#) can be downloaded from the internet.

Dispenser Certificates

A vendor must have a certified pesticide dispenser present for the sale of all non-Excluded pesticides. A certified dispenser is someone who has obtained training and passed a certification exam set by the BC Ministry of Water, Land & Air Protection. The dispenser must inform every pesticide purchaser that the pesticide can only lawfully be applied for the purposes described on the label and in accordance with the directions on the label. The dispenser must also offer to provide advice on pest management and safe pesticide use.

When Consulted by a Purchaser

Very often people do not know exactly what pest is causing their problem. The first step in helping a customer select appropriate controls is, therefore, to help the customer correctly identify the pest. Once the pest has been identified, the dispenser should be able to suggest alternatives to pesticides and least-toxic products to aid the customer in making a suitable choice of controls¹. If necessary, the dispenser should check pest control recommendations in Section III of this manual or in the Ministry of Agriculture, Food and Fisheries publication Home & Garden Pest Management Guide for British Columbia², or other sources.

If the purchaser is advised to purchase a pesticide, the dispenser should check the pesticide label to ensure that it is registered for the use and location intended by the customer. The customer should be told of any potential hazards associated with the pesticide and reminded to read the entire label before use and follow all directions carefully.

¹ Store owners should keep in mind that selection of non-chemical controls may not mean the loss of sales. Very often when a customer decides to try non-chemical controls he/she may need to purchase insect sticky traps, pheromone traps, rodent traps, pruning shears, caulking, hose nozzles, soaker hoses, Remy cloth, resistant plant varieties, or other materials.

² Available from Crown Publications



Pesticide Storage at the Vendor Site

Domestic pesticides must be stored and displayed separately from food intended for human or animal consumption. They may be displayed on open shelves, but the vendor should ensure that they are not easily accessible to young children and that, if a spill or leak occurs, the spilled pesticide can be easily contained and will not contaminate other merchandise.

Pest Control Service Licences

A Pesticide User Service Licence is required by anyone providing a service using non-Excluded pesticides. The dispenser may be asked about this requirement. For example, if a person is a landscaper and purchases a pesticide for control of weeds or insects on a customer's property, the dispenser should advise that the landscaper must have a Pesticide User Service Licence.

Integrated Pest Management

Under the *IPM Act*, all non-excluded pesticides used by pest control service companies and all pesticides used on public land³, private land used for forestry, public utilities, transportation or pipelines, must be applied by certified pesticide applicators and used as part of an Integrated Pest Management (IPM) program. The *IPM Act* defines Integrated Pest Management as a process for managing pest populations that includes the following elements:

- a. planning and managing ecosystems to prevent organisms from becoming pests;
- b. identifying pest problems and potential pest problems;
- c. monitoring populations of pests and beneficial organisms, damage caused by pests and environmental conditions;
- d. using injury thresholds in making treatment decisions;
- e. suppressing pest populations to acceptable levels using strategies based on considerations of:
 - i. biological, physical, cultural, mechanical, behavioural and chemical controls in appropriate combinations, and
 - ii. environmental and human health protection;
- f. evaluating the effectiveness of pest management treatments.

Although all pesticides **should** be applied using the principles of IPM, the only Domestic pesticides that must be applied as part of an IPM program, would be those applied to public land or applied by service companies. The pesticide dispenser should inform people buying pesticide for these uses that they must be certified applicators, working for a licence holder and applying the pesticide as part of an IPM program.

³ Public land is land managed by provincial or municipal governments and includes government offices, schools, hospitals and parks.

Transportation

The following are legal requirements in the *IPM Act* for transporting pesticides:

- secure pesticides containers sufficiently to prevent pesticides from spilling or escaping, and from being removed by an unauthorized person
- separate pesticides from other goods to prevent contamination of human or animal food, clothes, household furnishings and other items

In practice, these requirements mean that pesticides should be kept out of the vehicle passenger compartment. They could be transported in a car trunk or in a locked container in the box of a truck. Pesticides should not be transported in the trunk of a vehicle with groceries, clothing, pet food, or other items.

Protection of Wildlife

Under provincial wildlife protection laws, it is illegal to use pesticides to poison wildlife. Recommended types of repellents, barriers and scaring devices are described in Section III. People with serious wildlife problems (such as raccoons, deer, bats or birds) should consult a wildlife officer of the Ministry of Water, Land & Air Protection for recommendations.

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Waste Management Wildlife

The Recycling Regulation of the *Environmental Management Act* requires the producers and consumers of domestic pesticides to take responsibility for the management of their leftovers or wastes. In BC, the Product Care association was formed by businesses to provide a way for consumers to dispose of their leftover products in an environmentally responsible manner. In BC, Product Care operates 40 depots where consumers may dispose of Domestic pesticides. There is no charge to drop off materials that are accepted by the program.

Anyone wanting to dispose of Domestic pesticides with a skull-and-crossbones poison symbol on the label (such as many rodent poisons and liquid concentrates) should be told to take them to the nearest household hazardous waste collection depot. It is illegal to pour such pesticides down the drain or onto the ground where they can contaminate ditches, lakes or rivers. Information on the location of the Product Care depots can be obtained from their [website](#) or by telephoning 1-800-667-4321 or 604-732-9253.

Empty containers of Domestic labelled pesticide may be disposed of in household garbage. Unwanted or waste Domestic pesticides that do not have a poison symbol (skull-and-crossbones) on the label can also be disposed of in the household garbage.

Note: There is no BC regulation that prevents a vendor from accepting the return of an unopened pesticide container from a customer.

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STUDY QUESTIONS

Answers are provided [here](#).

1. For each statement in Column A, choose the best match from Column B.

Column A

___ Excluded pesticide

___ Domestic pesticide

Column B

a. Required by anyone providing a service using non-Excluded pesticides.

b. Required by a store selling non-Excluded pesticides.

___ Pesticide User
Service Licence

c. A pesticide sold in small containers intended for non-professional use.

___ Integrated Pest
Management Plan

d. *Integrated Pest Management Act* classes of pesticides.

___ Permit-restricted,
Restricted Commercial,
Domestic, Excluded

e. No special licence or certification is required for these pesticides.

___ Pesticide Vendor
Licence

f. Required when applying non-Excluded pesticides on public land or as a service.

2. Describe the requirements for storing pesticides in a store that sells both animal feed and Domestic pesticides.

3. What is an Excluded pesticide?

4. What are two legal requirements regarding transportation of pesticides under the *Integrated Pest Management Act* regulation?

5. What are the requirements for disposing of waste Domestic pesticides?

6. A vendor decides to see an aerosol spray product to repel mosquitoes. Does the store need a certified pesticide dispenser on staff?

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