

Reading and Understanding Pesticide Labels

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PESTICIDE LABELS are legal documents, regulated by the U.S. Environmental Protection Agency (U.S. EPA) and the Idaho State Department of Agriculture. Any pesticide product or device sold in the United States must have a label. The label's purpose is to provide use directions and reduce risks to humans, domestic animals, wildlife, and the environment.

All pesticide labels must contain certain content and follow a standard format. The label explains how to use, store, and dispose of the product. It includes safety information that you need to know before purchasing and applying the pesticide.

What determines a pesticide label's content?

A product's label is based on potential risks associated with use of the product. Risk depends partly on the product's chemical characteristics and toxicity, but also on how it is used. Risks include the following:

- Personal safety risks to applicators and handlers
- Human exposure risk through diet, inhalation, dermal (skin), drinking water, and general exposure from lawns, golf courses, parks, pets, schools, swimming pools, etc.
- Effects on nontarget species (domestic animals, wildlife, pollinators, other beneficial insects, and plants)
- Effects on the environment (water, soil, and air)

To get approval to sell a pesticide product, manufacturers must conduct the following studies to assess these risks.



Why read the label?

The label will help you solve your pest problem. You'll be able to:

- Get the results you want by buying the right product.
- Save money by buying only what you need.
- Use the product correctly to maximize pest control.

The label is for safety.

- Each pesticide has different risks, so each product has specific instructions and safety precautions. The only way to know how to safely use a product is to read its label.
- If you don't follow the instructions, you may endanger yourself, other people, domestic animals, wildlife, desirable plants, and/or the environment.
- The label tells you what to do if the product gets in your mouth, lungs, or eyes, or on your skin.
- It is illegal to use a pesticide in a manner inconsistent with its label. You may be liable for damage caused by improper use.

Read the label *before you buy* and *before you apply*. It takes just a few minutes, but can save money, time, and trouble.

- The pesticide undergoes rigorous field testing to ensure that it will control the pests listed on the label. This prevents unnecessary pesticide exposure from use of ineffective pesticides.
- The pesticide is tested on nonhuman subjects to determine potential human health risks. The results of these tests affect how the pesticide may be used and what personal protective equipment (PPE) is required. Aggregate human exposure risks are calculated by evaluating exposure through food, drinking water, and residential uses. Cumulative human exposure risks are calculated by taking into account exposure to multiple similar pesticides.
- Occupational risk assessments consider risks to farmworkers and others who are exposed to pesticides through their work. This research determines the amount of time that must pass before workers can enter into the treated area. This is called the restricted entry interval (REI).
- The pesticide is evaluated for risks to the environment, such as water, aquatic life, pollinators, wildlife, and other beneficial organisms. This research may lead to special label restrictions regarding how the product may be used.
- The pesticide's chemical properties are evaluated, along with how it moves in the soil, plants, water, and air. This evaluation determines the label's precautionary statements regarding drift, runoff, and other movement of the pesticide.
- The pesticide is tested on each food and feed crop to be listed on the label to ensure that residue remaining at the time of harvest or slaughter does not exceed the legal limit (the tolerance value). These tests determine which food or feed crops can be added to the label and the period of time required between pesticide application and harvest.

The U.S. EPA registers all pesticides nationally and reviews the manufacturer's data to determine that a pesticide does not present unreasonable risks.

Mandatory versus advisory statements

The "directions for use" section often contains both mandatory and advisory statements. It is important to know the difference.

Mandatory statements are requirements. They give specific directions based on the pesticide's risks. Mandatory statements are direct and use words such as "Do not," "Must," "Shall." For example: "Handlers must wear chemical-protective gloves," "Applicators shall apply the mixed product immediately after adding a nonionic surfactant."

Advisory statements are not requirements. They provide information and advice about safe and efficient practices. These statements are written in descriptive terms, using words such as "should." For example: "Applicators and handlers should wash before handling food, eating, drinking, or smoking."

Parts of the label

Front of the label

The following information must appear on the front of the label (figure 1):

- 1. Product or brand name.** This is the name given by the manufacturer to the specific pesticide product. Several manufacturers may make products containing the same active ingredient, but each will have its own brand name.
- 2. Net contents/net weight.** This statement tells the weight or volume of product in the container. Before applying a pesticide, multiply the area (square feet or acres) to treat by the recommended application rate for the target site and pest. This is the amount of product you will need. Use the net contents/net weight to help you determine how much to purchase. By buying only what you need, you can avoid having to store or dispose of extra pesticide.
- 3. Pesticide product type.** This statement indicates the type of pesticide and its use (for example, a herbicide to control broadleaf weeds in agricultural crops and nonagricultural areas).
- 4. Ingredient statement.** This statement lists all ingredients as a percentage of the total packaged product, thus indicating how concentrated the product is. The active ingredient is the chemical responsible for controlling the pest. It may be listed by its common name and its more complex chemical name. The percentage of inert ingredients is also given. These ingredients include solvents, surfactants, stabilizers, or dyes that make the product easier to handle and apply.

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1 CAVERN® 68

2.5 gallon net contents

Broadleaf Herbicide

3 For selective control of broadleaf weeds in certain agricultural crops and non-agricultural areas

4 ACTIVE INGREDIENT:

2,4-D dma
(Dichlorophenoxyacetic acid, dimethylamine salt)...67.8%

INERT INGREDIENTS:32.2%
Total 100.0%

5 RESTRICTED USE PESTICIDE

Due to very high potential for secondary environmental damage and water contamination. For sale to and use only by certified applicators or persons under their direct supervision and only for those persons uses covered by certified applicator's certification. Direct supervision for this product is defined as the certified applicator being physically present during application mixing, loading, repair and cleaning of application equipment.

6 KEEP OUT OF REACH OF CHILDREN

7 DANGER PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

8 STATEMENT OF PRACTICAL TREATMENT

IF ON SKIN: Wash skin with plenty of soap and water. Remove contaminated clothing. Get medical attention.

IF SWALLOWED: If patient is conscious and alert, give 2 to 3 glasses of water or milk to drink. If available, give one tablespoon of Syrup of Ipecac to induce vomiting. Alternatively, induce vomiting by touching back of throat with finger. Do not make an unconscious person vomit. Get medical attention.

IF IN EYES: Flush with water for at least 15 minutes. Get medical attention, **PREFERABLY AN OPHTHAMOLOGIST.**

IF INHALED: Move to an uncontaminated area. Get medical attention.

NOTE TO PHYSICIAN

This product contains a phenoxy herbicidal chemical. There is no specific antidote. All treatments should be based on observed signs and symptoms of distress in the patient. Overexposure to materials other than this product may have occurred.

9 EPA Reg. No. 264-2 EPA Est. No. 264-MO-1

10 Group 4 Herbicide

11 Maristreet ag products, Inc.

PO Box 19325, NW Elizabeth Drive Court
Pontiac, North Carolina 27715

5. Restricted use pesticide statement. This statement appears if the product is a restricted use pesticide. This determination is usually based on the product's individual human toxicity or on chemical properties that may impact the environment. These pesticides may be purchased and applied only by people with a pesticide license. Pesticides without this statement are considered "general use pesticides" and do not require a license.

6. Child hazard warning. The front of every pesticide label states, "Keep Out of Reach of Children."

7. Signal word. The signal word indicates the acute toxicity (toxicity that occurs 24–48 hours after exposure) and hazard of the pesticide to humans and animals. It is a quick way to determine the toxicity.

- "Danger Poison" represents the most toxic of all pesticides. These products also carry the risk of severe eye damage or skin irritation. This signal word must be accompanied by a skull and crossbones graphic and the Spanish word for danger, "Peligro."
- "Warning" represents moderate toxicity. The Spanish word for warning, "Aviso," must accompany this signal word.
- "Caution" represents slight toxicity.
- Some pesticides do not contain a signal word because their acute effects on humans and animals are nontoxic.

8. First aid statement. This statement describes emergency first aid in case of exposure to the product (oral, skin, inhalation, eye). For more toxic pesticides, the first aid statement must be on the front of the label, with additional first aid information elsewhere. For less toxic products, the first aid statement may be in a different location. It is a good idea to review the first aid statement before using a pesticide.

Front or back of label

The following items must appear on either the front or back of the label (figure 1). This information is very important, but it is not related to toxicity, so it is not required to be on the front.

9. EPA registration number and establishment number. Each pesticide product sold in the United States has a unique registration number, somewhat comparable to a person's Social Security number.

Figure 1. Front of pesticide label showing content that must be on the front of the label (items 1–8) and either the front or the back (items 9–11).

The first part of the number is the manufacturer or company identification number, and the second part is the product identification number. The registration number makes it easy to inquire about a specific product, even if other products have a similar name. The establishment number identifies the manufacturing plant where the pesticide was produced, which is useful if you have concerns about product quality.

10. Mode-of-action numerical classification.

The pesticide mode-of-action number identifies the product's resistance group. Repeatedly using products from the same group increases the probability that the pest will develop resistance to those and other pesticides in the group. It is recommended that applicators rotate pesticide mode-of-action groups every time they apply pesticides. Always identify the pesticide's mode-of-action group before you purchase a product. The mode-of-action group numerical code usually is on the front of the label in the upper right-hand corner, although this location is not a requirement.

11. Company name and address. This information refers to the pesticide manufacturer or the company responsible for registration, sale, and distribution of the pesticide. This information is useful if you have questions about the product.

Other required content

12. Precautionary statements. This section (figure 2) contains information about potential hazards related to the product's use, including risks to humans, domestic animals, other nontarget organisms, wildlife, and the environment. These statements are based on product risk assessments. This section also lists the PPE required when using the product. Some precautionary statements relate to the product's specific chemical properties. These statements may outline actions needed to eliminate risk of runoff, drift, or problems with hot or cold temperatures. The precautionary statements contain the following:

- a. Personal protective equipment (PPE)
- b. Physical or chemical hazards (not shown)
- c. Environmental hazards
- d. Bee hazards



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12 PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Danger. Corrosive. Causes irreversible eye damage. Harmful if swallowed. May be fatal if absorbed through the skin. Avoid breathing vapors or spray mist. Do not get in eyes, on skin or on clothing.

a PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear: coveralls over short-sleeved shirt and short pants, waterproof gloves, chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposure and protective eye wear. A chemical-resistant apron must also be worn when cleaning equipment, mixing or loading.

c ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. For terrestrial uses, do not apply directly to water, or to areas where surface water is present.

d BEE HAZARDS

This product is highly toxic to honey bees exposed to direct treatment on blooming crops or weeds. Apply from late evening to early morning or when bees are not foraging.

13 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read entire label before using this product.

a GENERAL WEED LIST: beggarticks, bullthistle, coffee-weed, common cocklebur, common burdock

Apples, Pears b	Rate c	Directions
Annual broadleaf weeds	3 pints	For control of weeds on the orchard floor, apply using coarse sprays and low pressure in sufficient volume of water to obtain thorough wetting of weeds. Treat when weeds are small and actively growing.

d RESTRICTIONS AND LIMITATIONS FOR USE IN ORCHARDS

- e** Do not make more than 2 applications per year.
- f** Do not harvest stone fruit within 40 days of application.
- Do not enter or allow entry into treated areas during the Restricted Entry Interval (REI) of 48 hours.
- g** Do not graze animals for 7 days following application.

h MIXING INSTRUCTIONS

Add about one-half the water to the mixing tank, then add CAVERN® 68 Broadleaf Herbicide with agitation and finally the rest of the water with agitation.

i APPLICATION PROCEDURES

Apply by air or ground equipment in sufficient gallonage to obtain adequate coverage. Use 2 or more gallons per acre for aerial application and 10 or more gallons of water per acre for ground application.

Figure 2. Interior page of pesticide label showing other required content (items 12 and 13).

13. Directions for use. This large section (figure 2) tells how to mix and apply the product. This information is derived from product testing required for registration. Directions may be different for each crop or site where the product may be applied. Most of these instructions are mandatory. Information includes:

- a. What pest(s) the product is registered to control
- b. To what sites or crops the product may be applied
- c. Correct application rate
- d. How much total product can be applied to a site or crop during a growing season. The label may tell how often to apply the product and/or limit the number of applications or amount applied per season.
- e. How soon the crop can be harvested after a pesticide application (the preharvest interval, or PHI)
- f. How long people must wait before reentering a treated area after the pesticide application (the restricted-entry interval, or REI). This statement gives either a specific amount of time (such as 48 hours) or a general statement such as, “Do not enter treated area until sprays have dried.”
- g. How much time must lapse after pesticide application before livestock may be allowed to graze the area (the grazing interval)
- h. How to mix the product
- i. How to apply the product

14. Storage and disposal. This section (figure 3) tells how to store and dispose of the product and container.

15. Agricultural use requirements and Worker Protection Standard. The federal Worker Protection Standard (WPS) requires this section on certain products (figure 3). It is surrounded by a “box” and lists notification requirements, the REI, and required PPE for early reentry. Information for greenhouse applications is included, if appropriate.

16. Nonagricultural use requirements. This “box” (figure 3) appears on nonagricultural product labels, for example, pesticides used on lawns, golf courses, ornamental plantings, and structures (except greenhouses). It contains important PPE and safety instructions, in addition to that provided under “Precautionary statements.”

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14

STORAGE AND DISPOSAL

STORAGE

Do not contaminate water, food or feed by storage or disposal. Store in original container in a dry, secure storage area. Keep container tightly closed when not in use.

PESTICIDE DISPOSAL

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate ground water.

CONTAINER DISPOSAL

Triple rinse or equivalent. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or incineration.

15

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval (REI). The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow entry into treated areas during the restricted entry interval (REI) of 48 hours.

16

NONAGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). For ornamental turf uses (golf courses, cemeteries, parks and other turf grass areas), do not enter treatment areas until sprays have dried. Do not allow people (other than applicator) or pets on treatment area during application.

Figure 3. Interior page of pesticide label showing other required content (items 14–16).

Some labels may have both the agricultural use box and the nonagricultural use box.

Find it fast

Always read the entire label first. Use this guide as a quick reference to review specific information.

What do you want to know?	Where to look	Why is it important?
Will this control the pest I have?	Directions for use (figure 2)	Buying the wrong product wastes money and will not solve your problem.
Can I use it where I have the problem?	Directions for use (figure 2)	It is illegal and dangerous to use a product on a crop or site that is not on the label.
Do I need a license?	Restricted use statement (figure 1)	Only licensed applicators can purchase restricted-use pesticides.
How much should I buy?	Directions for use (figure 2) Net contents/net weight (figure 1)	Buying the right amount saves money and eliminates the need for storage and disposal.
How toxic is this product?	Signal word (figure 1)	Using toxic products without proper precautions is dangerous.
Should I wear special clothing? How else can I protect myself?	Precautionary statements (figure 2) Agricultural or nonagricultural use requirements (figure 3)	Applying pesticides without proper protection exposes you to toxic materials.
What should I do if it gets on my skin or in my eyes, mouth, or lungs?	First aid statement (figure 1)	First-aid measures are pesticide-specific. What is right in one case may be harmful in another.
How can I minimize risks to people, animals, and the environment?	Precautionary statements (figure 2)	Using a product incorrectly increases the risk of harm to people, animals, and/or the environment.
How much should I apply?	Directions for use (figure 2)	Using too little risks not controlling the pest and developing pesticide resistance; using too much is dangerous and illegal.
When and how often should I apply the pesticide?	Directions for use (figure 2)	Reapplication may be necessary, but timing is important, and most products have limits on reapplication.
How should I mix and apply the pesticide?	Directions for use (figure 2)	Proper mixing and application minimize risk and maximize pest control.
How long must I wait before eating treated crops or livestock?	Directions for use (figure 2)	Eating treated plants/animals too soon may expose you to higher residues that have not been tested. It is illegal to do this.
How long until I can enter the area after application?	Directions for use (figure 2) Agricultural or nonagricultural use requirements (figure 3)	The pesticide residues may still be too high for safe entry, for several hours or days following application.
How long until livestock can graze the area?	Directions for use (figure 2)	The pesticide residues on the forage may still be too high and cause illegal pesticide levels in meat, milk, eggs, or other animal products consumed.
What if I still have problems with this pest?	Mode-of-action numerical classification (figure 1)	It is best to use a pesticide with a different classification number to prevent pest resistance.
How should I store extra pesticide?	Storage and disposal (figure 3)	Improperly stored pesticides can be spilled, used for the wrong purpose, or accidentally ingested.
How should I dispose of the product and package?	Storage and disposal (figure 3)	Proper disposal keeps discarded pesticides from endangering people or contaminating soil and water.
What if there's a problem with the product?	Company name and address (figure 1) EPA registration number and establishment number (figure 1)	Tracing a product to its source could prevent others from experiencing the same problem.

Conclusion

Pesticide labels are the main way for manufacturers to communicate safety and other information to users. The scientific data collected during pesticide research determines what is on the label. The purpose is to protect users, consumers, and the environment.

Always read the label directions before purchasing a pesticide. The label will help you decide whether you need a pesticide and which pesticide is best for your situation. The label provides important information on mixing, applying, storing, and disposing of the pesticide. Reading and following label directions is part of good pesticide stewardship. It protects human health, pollinators, wildlife, and the environment. And, it is the law.

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