



Photo credit: ML Poe, www.uca.edu

Understanding pesticide labeling

By Amir Rezazadeh

Editor's note: This article grants one continuing education unit (CEU) in the Core category toward the renewal of a Florida Department of Agriculture and Consumer Services restricted-use pesticide license when the accompanying test is submitted and approved.

The pesticide label is more than just a piece of paper. It is a legal document recognized by courts of law. The pesticide label is your best guide to using pesticides safely and effectively.

If a pesticide will be part of the pest management plan, understanding the content of the pesticide label is essential for using the pesticide safely and effectively. The information on the pesticide label is based on research, de-

velopment and registration procedures that a pesticide must undergo before being used by a consumer.

There are two common terms you should know regarding pesticide labels:

- 1) The **label** is the information printed on or attached to the pesticide container. To the consumer, the label should be considered as the main source of information on how to use the product correctly, legally and safely.
- 2) The term **labeling** is defined as all the information you might receive accompanying the pesticide from the company. This information may include brochures, flyers, safety data sheets and other information.

Applicators of pesticides should

review the labels of the products before purchasing, mixing, applying, storing or disposing of the pesticide to ensure that they use it correctly, safely and effectively. Information contained on most labels can be divided into four major categories: safety, environmental, product and use.

SAFETY INFORMATION

Child Hazard Warning

On the front panel of every pesticide label, you will see this statement: "KEEP OUT OF REACH OF CHILDREN." It is because poisoning is a major cause of injury to children.

Signal Word

A signal word indicates the acute

toxicity of the product to humans by ingestion. It is displayed in large letters on the front of the label. The signal word is based on the entire contents of the product, not the active ingredient alone. Signal words are defined as follows:

- **CAUTION:** Pesticides that are the least harmful and relatively non-toxic
- **WARNING:** Moderately toxic
- **DANGER/POISON:** Highly toxic

All highly toxic pesticides that cause acute illness through oral, dermal or inhalation exposure have the DANGER signal word and will include the word POISON printed in red with the skull-and-crossbones symbol.

Statement of Practical Treatment

Labels having the signal word DANGER must provide information to medical professionals in case an exposure occurs. An example of wording found in this section: "If swallowed: immediately induce vomiting by touching the back of throat with your finger. Drink 1 or 2 glasses of water and induce further vomiting. Call a physician or poison control center immediately."

The pesticide label should always be taken to the emergency medical facility when an exposure occurs because this section provides proper treatment for exposure to the chemical.

Hazards to Humans and Domestic Animals

This section describes specific hazards, routes of exposure and precautions to be taken to avoid human and animal injury. These statements may also identify which routes of entry (mouth, skin, eyes and lungs) should be protected against. Examples of such statements seen in this section include:

- "Causes eye and skin irritation. Harmful if swallowed, inhaled or absorbed through skin."
- "Avoid breathing vapor or spray mist."
- "Avoid contact with eyes."

Personal Protective Equipment

This section of the label lists specific clothing that must be worn during the handling and mixing processes. Examples of some common statements regarding personal protective equipment (PPE) include:



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- “chemical-resistant footwear plus socks”
- “long-sleeved shirt and long pants”

The PPE listed is the minimum protection that should be worn while handling the pesticide. Different pesticide handling and worker activities also may require different PPE.

ENVIRONMENTAL INFORMATION

This section of the label explains the potential hazards and the precautions you need to know to prevent injury or damage to non-target organisms or to the environment. You will find some general statements on every label, such as “This product is highly toxic to honeybees,” or “Do not apply where runoff is likely to occur.”

PRODUCT INFORMATION

Restricted-Use Pesticide vs. General-Use Pesticide

When the Environmental Protection Agency (EPA) classifies a pesticide as restricted, the label will state “Restricted-Use Pesticide” at the

top of the front panel. To purchase and use restricted-use pesticides, a person must be certified and licensed in the state of Florida.

On the other hand, general-use

pesticides will not harm the applicator or the environment to an unreasonable degree when used according to label direction. General-use pesticides are available to the general public for use.

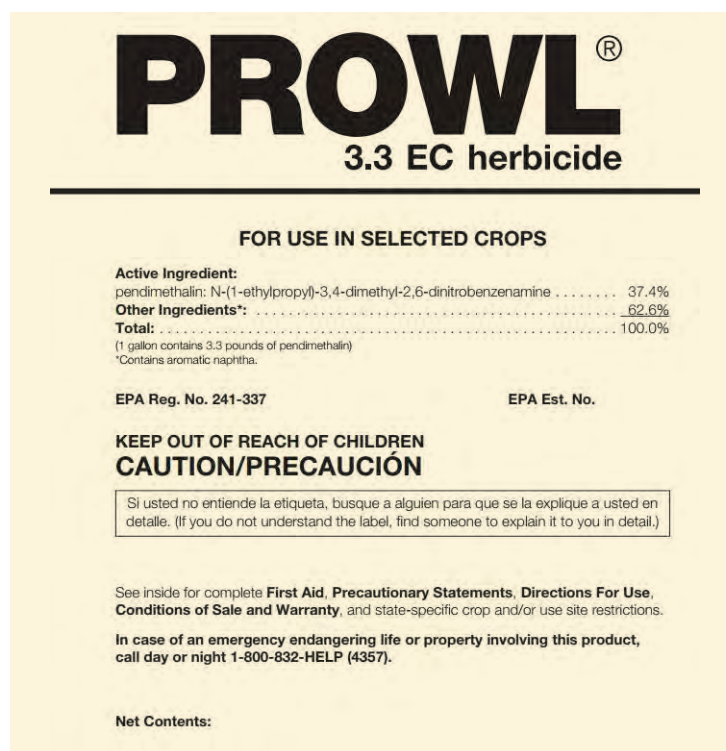


Figure 1.
Front panel
of a pesticide
label

Brand Name

Each manufacturer has a brand name for each of its products. Different manufacturers may use different brand names for the same pesticide active ingredient. For example, Pendulum, Pre-M and Prowl are trade names for the same herbicide active ingredient, pendimethalin. It is not legal to use different brand name pesticides interchangeably even if they contain the same active ingredient. The brand name shows prominently on the front panel of the label (Figure 1, page 32).

Ingredient Statement

The ingredient statement is on the front panel of the label, and it identifies the name and percentage of each active ingredient. The active ingredient, identified by chemical and common name, is the component of the product that performs pest control. The chemical name of the active ingredient is usually complex. For example, the chemical name for pendimethalin is N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine. To aid in communication, EPA approves a common name to substitute for the chemical name.

Inert (inactive) ingredients allow the active ingredient to be formulated into different products and make the product safer, more effective and easier to handle. Non-toxic inert ingredients need not be named, but the label must show the percentage of the total content of them.

EPA Registration Number

This number signifies that the product has met federal registration requirements for all testing phases.

EPA Establishment Number

This number identifies the facility that formulated the product. If there is any concern or question about the product, the facility that made the product can be determined.

Formulation

The formulation of the product can be found on the front panel of the pesticide label. The formulation name may be either spelled out or designated by an abbreviation, such as EC for emulsifiable concentrate, D for dust or W for wettable powder.

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Physical or Chemical Hazards

This section shows special fire, explosion or chemical hazards the product may cause. For example, it will warn you if the product is flammable. Or, if the product is corrosive, it must be kept in a corrosive-resistant container. Examples of statements include:

- “Do not use or store near heat or open flame.”
- “Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.”

USE INFORMATION

Direction for Use

This section of the label is the longest part and begins with the statement: “It is a violation of federal law to use this product in any manner inconsistent with its labeling.” If the product is intended to be used in agriculture, it will have an Agricultural Use Requirements (Figure 2) box included in this section. The Direction for Use section will contain information such as:

- Sites, objects, animals, plants or areas where the product may be applied
- The amount of the product to use. This may be expressed as an amount per unit area, such as per acre or per 1,000 square feet. It may also be listed as an amount to mix per unit volume of water.
- A description of how the product should be applied and by which type of application equipment it is most effectively applied

Storage and Disposal

Most pesticide labels will contain a general statement in this section, such as “do not contaminate water, food, or feed by storage, disposal, or cleaning of equipment” or “store in original containers only.”

The information in this section can be about temperature requirements. For example, minimum and maximum storage temperatures will be provided. Some pesticides can become

ineffective if not stored under suitable temperatures.

Moisture is a critical concern with dry pesticides, including granular materials and wettable powders. If this is the case, the label may have the statement “store in a dry place.”

The label informs the applicator if leftover mixtures can’t be applied to a labeled site and must be disposed of in an approved waste disposal facility. For disposal of liquid pesticide containers, the triple- or pressure-rinse procedure is recommended. Options such as recycling or disposal of punctured containers in a sanitary landfill will be stated in this section.

Source: Applying Pesticides Correctly, 7th Edition, by F. Fishel

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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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.
DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours . Exception: if the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.
PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
<ul style="list-style-type: none"> • Coveralls • Chemical-resistant gloves made of waterproof materials, such as barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, or viton ≥ 14 mils • Shoes plus socks

Figure 2. Example of Agricultural Use Requirements on a pesticide label

CEU test: 'Understanding pesticide labeling'

To receive one Core continuing education unit (CEU), read "Understanding pesticide labeling" in this issue of Citrus Industry magazine. Answer the 20 questions on the magazine's website (www.CitrusIndustry.net) or mail the answers and application information to the address at the end of this test. You must answer 70 percent of the questions correctly to receive one Core CEU. The article and test set are valid for up to one year from the publication date. After one year, this test will no longer grant a CEU.

1. The active ingredient in Lorsban 75WG is listed as chlorpyrifos: 0,0-diethyl 0-(3,5,6-trichloro-2-pyridinyl)-phosphorothioate. What does the term "chlorpyrifos" represent?
A. The brand name B. The chemical name C. The common name D. The trade name
2. Which statement about pesticide label names and ingredients is true?
A. The active and inert ingredients must be listed by chemical name.
B. Various manufacturers use different trade names, even though the products contain the same active ingredient.
C. The common names are those accepted officially by the manufacturer.
D. Inert ingredients are responsible for the pesticide activity.
3. What is the purpose of the signal word?
A. Give the user an indication of the relative acute toxicity of the product to humans and animals.
B. Inform the user of what type of personal protective equipment to wear.
C. Inform the user of how toxic the pesticide is to wildlife and the environment.
D. Tell the user what type of first-aid treatment to seek in case of exposure.
4. The route-of-entry statement on a label, "Extremely hazardous by skin contact — rapidly absorbed through the skin," would most likely appear with which signal word?
A. DANGER B. WARNING C. CAUTION D. No signal word required
5. Which is true about statements of practical treatment?
A. They are not associated with signal words.
B. It is not important to have the pesticide label in case of a poisoning emergency.
C. Statements about inducing vomiting are not found on the label.
D. All DANGER labels contain a note to physicians describing appropriate medical procedures.
6. Directions for mixing and loading a pesticide are usually found under:
A. Agricultural use requirements B. Directions for use
C. Environmental hazards D. Precautionary statements
7. What is the brand name in Figure 1?
A. PROWL B. Pendimethalin C. BASF D. 3,3 EC herbicide
8. What is this product signal word in Figure 1?
A. DANGER B. WARNING C. CAUTION D. POISON
9. What are the two main classifications of pesticides by the Environmental Protection Agency (EPA)?
A. Organic and inorganic B. General use and unclassified use
C. Regulated and unregulated D. General use and restricted use
10. Which label signal word indicates that the pesticide is considered to have moderate acute toxicity?
A. DANGER-POISON B. DANGER C. WARNING D. CAUTION
11. "This product is highly toxic to bees" is an example of which type of precautionary statement?
A. Acute toxicity hazards B. Environmental hazards
C. Physical or chemical hazard D. Agricultural use requirement

Test continues on page 36.

12. Which statement will the front panel of every pesticide label bear?
- A. DANGER-POISON
 - B. ONLY FOR USE BY CERTIFIED AND LICENSED APPLICATORS AND THOSE UNDER THEIR DIRECT SUPERVISION
 - C. KEEP OUT OF REACH OF CHILDREN
 - D. NOT FOR SALE OR USE TO THOSE UNDER THE AGE OF 18
13. What is the common name of the active ingredient in Figure 1?
- A. Pendimethalin B. Prowl C. N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine D. A and C
14. How much active ingredient does the product in Figure 1 contain?
- A. 62.6% B. 37.4% C. 100% D. 3.3%
15. What is the formulation of the product in Figure 1?
- A. Wettable powder B. Emulsifiable concentrate C. Dust D. Granule
16. The statement "Do not use or store near heat or open flame" is usually found under which section?
- A. Physical or chemical hazards B. Directions for use C. Storage and disposal D. All
17. What is the EPA registration number for the product in Figure 1?
- A. 241-337 B. 4357 C. 800-832 D. 27709
18. Which statement is true about storage of pesticide containers?
- A. You can store pesticide in any type of container if it is tightly secured.
 - B. Bags of wettable powders should be left open to fresh air to maintain efficacy.
 - C. All pesticides can be stored at the same temperature.
 - D. Moisture is a critical concern with dry pesticides.
19. What is the restricted-entry interval (REI) found on the label in Figure 2?
- A. 24 hours B. 48 hours C. one week D. one month
20. The "Do not contaminate water, food, or feed by storage, disposal, or cleaning of equipment" statement goes under which section?
- A. Storage and disposal B. Directions for use C. Physical or chemical hazards D. Environmental hazards

Please circle the number below to rate this article and test:

Not very useful	1	2	3	4	5	6	7	8	9	10	Very useful
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Pesticide License Number: _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

Return the completed test via mail or email to:

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If you have questions regarding this form, test or CEUs, email Amir Rezazadeh at amir2558@ufl.edu or call 772-462-1660. Please allow two weeks to process your CEU request.