

# Pesticide Labels

by Reeves Petroff, Extension Pesticide Education Specialist

**Presents detailed analysis of all the information included in a pesticide label.  
Also includes a step-by-step compatibility test for pesticide mixtures.**



## MontGuide

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### **PESTICIDES ARE USED TO CONTROL A VARIETY OF**

pests. The most common pesticides include herbicides to control weeds, insecticides to control insects, and fungicides to control certain plant diseases. The Federal Insecticide, Fungicide, and Rodenticide Act, or FIFRA, is the primary law that regulates the registration, manufacture, sale, transportation, use and labeling of pesticides.

The pesticide label is the main method of communication between a pesticide manufacturer and pesticide users. The information that is printed on or attached to a pesticide container is called the label. Labeling includes the label plus all other information provided by the manufacturer about the product such as brochures, leaflets and other information that may accompany the product.

The pesticide label provides valuable information about the proper handling, use (including rates), potential risks a pesticide may pose, and instructions on how to minimize or avoid those risks. By reading the label you can also learn how you might achieve better control using less pesticide, thereby reducing costs. Every pesticide applicator has the responsibility to read and follow the label information so no harm will result from misuse or mishandling of the pesticide. Pesticides handled in a careless manner can endanger the health of the applicator, other people, animals, plants or the environment.

### **Before You Buy**

Before you consider purchasing a pesticide, you should consider the following:

- What are the target pests and will the pesticide give adequate control?
- What is the highest level of pest population you can tolerate – that is, at what level will the pests cause

so much damage that pesticide application becomes economically beneficial? It may be better to wait until pest populations reach a level just before excessive damage can occur. The idea is to apply a pesticide at the right time to catch the greatest number of pests instead of using multiple pesticide applications to kill a few pests each time. You then limit the number of pesticide applications that you make overall.

- Are there alternative methods of pest control available?
- Can the pesticide be applied safely and legally under the conditions that exist when you apply the product?
- Do you know the areas where the pesticide can and cannot be applied?
- What is the necessary application and safety equipment?
- How much pesticide is needed for the application? You should buy only what you need.
- What are the restrictions for use of the pesticide?
- Could pesticides pose problems for children, pets, non-target plants, insects and animals in the area?

You should always compare different pesticide labels because several different products may control the same pest. A comparison of the labels and product prices will help you select the product that controls the pest and is less toxic and/or less expensive.

### **Parts of the Label**

Under FIFRA, specific information must appear on a pesticide label. Pesticide users have the legal responsibility to read, understand and follow the label directions. Pesticide labels will usually contain the following sections (see page 5 for a sample label):

**1. Classification.** All uses of pesticides are classified on the basis of hazards, the intended use and the pesticide's effect upon the environment. Pesticide use is classified either for "general-use" or "restricted-use." General use pesticides are less likely to harm the user and/or environment when used according to the label. Restricted-use pesticides have a greater potential to harm the environment or the applicator when not used as directed. Training and certification is required for an applicator to purchase, apply or supervise the application of a "restricted use" pesticide.

**2. Product or brand name.** Each manufacturer has a brand name for each product and different brand names from different manufacturers may pertain to the same pesticide active ingredient. For example: Company X may produce a 2,4-D product called D-Lux where Company Y produces a 2,4-D product called D-vine. Pesticide users must use caution in choosing pesticide product by brand name alone. The example label used in this MontGuide (page 5) shows that Carbotox is the brand name where carboxylan is the common name and 2,3-Dihydro-2-22diphenyl-7-benzofuanylmethylcarboxylate is the chemical name.

**3. Type of pesticide.** The label must indicate what type of pesticide the product is or what types of pests it will control. Example: Insecticide, Herbicide, Fungicide.

**4. EPA registration number.** The Environmental Protection Agency registration number indicates that the pesticide has been registered by the EPA and legally may be sold or applied according to label directions. The EPA registration is not a guarantee of safety in all situations. The EPA registration number usually has two parts. The first number identifies the company and the second number identifies the product.

**5. EPA establishment number.** The EPA establishment part identifies the establishment or facility where the pesticide was manufactured. The first number indicates the company and the second the location.

**6. Ingredient statement.** Each pesticide label must include the active and inert ingredients in the product. The list is written to show the active ingredient and the amount of each ingredient. The ingredient statement must list the official chemical names and/or common names for the active ingredient. Inert ingredients need not be named, but the label must show what percent of the total contents they comprise. Check the active ingredients when comparing pesticides, as different brands of pesticides may contain the same active ingredient. By purchasing pesticides according to the common or chemical name you will be sure you are getting the

right active ingredient no matter what the brand name or formulation. When comparing different products with the same active ingredient, be sure to compare the percentage of active ingredient in each product. Often products will contain the same active ingredient, but in different concentrations. Two pesticide products with the same active ingredient and same rate, but with differing concentrations, may show some difference in the amount of control that is achieved.

**7. Net contents.** The net contents statement on the front panel of the pesticide label will tell you how much product is in the container. For example, the label may state, "This product contains 4 pounds of active ingredient per gallon." This is an important statement when figuring the proper pesticide rate based on pounds per acre.

**8. Keep out of reach of children.** This warning statement is required to be on all pesticide containers.

**9. Signal word.** The signal word indicates the approximate toxicity of the pesticide product. Products that are highly toxic must display on the label the signal words DANGER-POISON along with a skull and crossbones symbol. Products that display only the signal word DANGER are corrosive and can cause irreversible eye damage or severe skin injury. Products that display the signal word WARNING are moderately toxic or can cause moderate eye or skin irritation. Products that display the signal word CAUTION are slightly toxic or may cause slight eye or skin irritation.

**10. Name and address of the manufacturer of the pesticide.** Very often there will be a toll-free number listed so that you can directly contact the manufacturer for more information regarding the pesticide.

**11. Statement of practical treatment.** The statement of practical treatment lists the first aid treatment that should be administered to someone accidentally exposed to the pesticide.

**12. Note to physicians.** The note to physicians provides emergency medical personnel with poison treatment information, antidotes, and often provides an emergency phone number to contact for further information.

**13. Precautionary statements.** Precautionary statements identify potential hazards and recommend ways that the risks can be minimized or avoided. Types of precautionary statements include "Hazards to Humans and Domestic Animals," "Environmental Hazards," and "Physical or Chemical Hazards."

- *Hazards to humans and domestic animals.* The signal word is listed, followed by statements indicating which routes of entry (mouth, skin, lungs, eyes) are most

likely to be harmed and those body parts that must be particularly protected. The label will then provide specific actions that can prevent overexposure to the pesticide. Personal protective equipment or PPE required to handle or apply the pesticide will be listed under the heading “Hazards to Humans and Domestic Animals.”

- *Environmental hazards.* The environmental hazards section of the label warns of pesticide risks to wildlife, birds, fish, bees or to the environment and provides practical ways to avoid harm to organisms or the environment.
- *Physical or chemical hazards.* The physical or chemical hazards section of the label will tell you of any special fire, explosion, or chemical hazards the product may pose.

**14. Directions for use.** Directly under this heading is the statement, “It is a violation of federal law to use this product in a manner inconsistent with its labeling.” It is illegal to use a pesticide in any way not permitted by the labeling. A pesticide may be used only on those pests or sites named in this section. You may not use higher dosages or more frequent applications than is allowed. You must follow all directions for use, safety, mixing, diluting, storage and disposal. You must wear the personal protective equipment that is listed on the label. The use directions and instructions are not advice, they are requirements! However, federal law does allow you to use pesticides in some ways not specifically mentioned in the labeling. Just make sure you are not in violation of any state or tribal laws. These certain circumstances are:

- Apply a pesticide at any dosage, concentration, or frequency less than that listed on the label.
- Apply a pesticide against a pest not listed on the labeling if the application is to a site that is listed on the label. For example, if a weed that you want to control is not listed on a herbicide label, but the label indicates that the herbicide may be used on rangelands, then you would not be in violation of the labeling if you applied the product to the weed but only if that weed is on a rangeland site. You would be in violation of the labeling if you applied the product to the weed in a lawn.
- Mix two or more pesticides, if all of the dosages are at or below the recommended rates.
- Use any method of application or equipment that is not prohibited by the labeling.
- Mix a pesticide or pesticides with a fertilizer if the mixture is not prohibited by the labeling. Conduct a compatibility test before you mix. (See page 7 for instructions.)

- Penalties under FIFRA can be as much as \$1000 for each offense. Correct application of a pesticide product is accomplished by following the instructions found in this section of the label. The use instructions will advise you of agricultural use requirements, storage and disposal instructions and general use instructions.

**15. Agricultural Use Requirements.** In 1994, the EPA issued the Worker Protection Standard (WPS) to protect employees on farms and in forests, nurseries and greenhouses from exposure to both general and restricted-use agricultural pesticides. The WPS covers workers in areas treated with pesticides and employees who handle pesticides in the production of agricultural plants or commodities. The Worker Protection Standard is applicable when a WPS-labeled pesticide is used to produce an agricultural commodity. If you are using a pesticide with labeling that refers to the Worker Protection Standard, you must comply with the standard as noted on the label. Otherwise, you may be in violation of Federal law, since it is illegal to use a pesticide in a manner inconsistent with its labeling. Some pesticide uses are not covered by the WPS, even when the Agricultural Use Requirements section is on the labeling. For example, if the pesticide labeling bears an Agricultural Use Requirements section, but the product can also be applied to rights-of-way, the rights-of-way use is not covered by the WPS.

The WPS does NOT cover pesticides applied:

- on pastures, rangelands or livestock,
- for control of vertebrate pests such as rodents, ground squirrels, etc.,
- on the harvested portions of agricultural plants or harvested timber,
- for mosquito abatement or similar government-sponsored wide-area public pest control programs,
- on plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses,
- on plants that are in ornamental gardens, parks, golf courses, and public or private lawns and grounds, and that are intended only for decorative or environmental benefits, (Sod farms are covered by the WPS)
- on plants in golf courses (except those areas set-aside for plant production), or right-of-way areas;
- in a manner not directly related to the production of agricultural plants, including the control of vegetation along rights-of-way and in other non-crop areas, and structural pest control, such as wood preservation.

- for research uses of unregistered pesticides.

This section will also state the amount of time that must pass before workers are allowed to re-enter treated areas. This is known as the restricted entry interval or REI. Also noted may be other intervals between pesticide application and harvest of food crops.

**16. Storage and Disposal.** All pesticide labels contain general instructions for the appropriate storage and disposal of the pesticide and its container.

**17. General Use Instructions.** This section states the pests that the manufacturer claims the product will control, the crop, animal, or site the product is intended to protect, when, where, how, and in what form the product should be applied, the proper equipment to be used, the correct dosage, mixing directions, compatibility with other often-used products, and the minimum time between the applications.

## Using Pesticides

Before you mix a pesticide, you must read the label to determine:

- Protective equipment you should use.
- Compatibility of the pesticide with other products or additives.
- Amount of the pesticide to use.
- Mixing procedure.

Before you apply the pesticide, read the label to determine:

- Safety measures you should follow.
- Procedures to follow to minimize potential harm to people, animals, plants or the environment.
- How to apply the pesticide.
- When to apply the pesticide.
- The limitations about reentering a treated area.
- The minimum number of days that must elapse after the application before vegetables, fruits, or other crops can be harvested).

Before you store or dispose of the pesticide or pesticide container, read the label to determine:

- Where and how to store the pesticide.
- Pesticide label information.
- How to decontaminate and dispose of the pesticide container.
- Where and how to dispose of surplus pesticides.

## Conclusion: Pesticide Label Information

Protection of people and the environment from the potential harmful effects of pesticides is based primarily on three factors:

- Pesticides must be registered by the U.S. Environmental Protection Agency before they can be sold or applied.
- Pesticide labels provide necessary information to pesticide users.
- Pesticides must be used according to label instructions.

The pesticide registration process requires extensive testing for potential adverse health and environmental effects for each registered pesticide. The process of registering a pesticide often takes several years and can cost millions of dollars. Pesticide labels are developed to inform applicators about safe and proper use of the product, warn about potential risks and recommend methods to avoid risks.

The pesticide label should be read, understood and followed before the pesticide is purchased, mixed, applied, stored or disposed of. Anyone possessing, handling, or applying a pesticide is responsible and can be held liable for any damage, loss or unintended consequences that the pesticide may cause.

Handling and applying pesticides requires knowledge, care and good judgment. Every user needs to read, understand, and follow the pesticide label instructions.

For more information, contact:

Cecil Tharp  
103 Animal Bioscience  
MSU Pesticide Education Program  
Montana State University  
Bozeman, Montana 59717-2900  
Phone: (406)994-5067  
Email: [ctharp@montana.edu](mailto:ctharp@montana.edu)

Electronic versions can be downloaded online at [www.pesticides.montana.edu](http://www.pesticides.montana.edu) by selecting 'reference material'.

# 1 Restricted Use Pesticide

Due to Avian Toxicity

## 2 Carbotox

### 3 Insecticide

4 EPA Reg. No. 279-46 EPA Est. 279-607 5

#### Active Ingredient

Caboxyylan\* 6 15.0%

Inert Ingredients 85.0%

100.0%

\*2,3-Dihydro-2-22diphenyl-7-benzo-fuanylmethylcarboxylate

This product contains 4 lbs. of carboxylan per gallon. 7

#### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, birds and other wildlife. Do not apply directly to water. Do not contaminate wells or wetlands. Carboxylan is a chemical which can seep or leach through soil and contaminate ground water. Do not apply where ground water is close to the surface or where soils are highly permeable.

#### DIRECTIONS FOR USE 14

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons either directly or through drift.

#### AGRICULTURAL USE 15 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 green houses, 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, notification of worker, and restricted-entry intervals.

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

PPE required for early entry to treated areas is: coveralls, chemical resistant gloves and shoes plus socks.

#### STORAGE AND DISPOSAL 16

##### Pesticide Storage

Not for use or storage around the house.

Do not store below 35°F.

Keep out of the reach of children and animals.

Store in original containers. Avoid excess heat and moisture. In case of a spill, avoid contact, isolate the area and keep out animals and unprotected persons.

Call ACE: 800-330-000. Confine spill by constructing dams. Do not apply water.

#### Pesticide Disposal

Waste associated with this pesticide are hazardous waste and must be disposed of according to state and local laws. Triple rinse all containers and dispose of according to local regulations.

#### GENERAL INSTRUCTIONS 17

Do not rotate with any crop on soil treated at greater than 3.0 pounds active ingredient per acre for at least 10 months.

DO NOT FLUSH, DRAIN, OR PUMP TANK, LINES OR RINSATE ON NON-CROPLAND SURFACES.

Dispose of residual spray mixture left in tank, in lines or as rinsate by application to cropland as directed on this label.

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

Apply the largest droplets that provide sufficient coverage and control. Use high flow rate nozzles to apply the highest spray volume. Use the lower spray pressures recommended for the nozzles you are using. DO NOT USE PRESSURE TO ACHIEVE HIGHER SPRAY VOLUMES. Change the nozzle instead. Use low-drift nozzles.

#### CROP USE RECOMMENDATIONS

**Alfalfa:** Grasshoppers – Use Carboxylan at ¼ to ½ pint per acre as a foliar spray when insect populations and/or damage reaches economic thresholds. Minimum gallonage requirement is 10 gallons of finished spray per acre with ground equipment and 2 gallons per acre with aircraft.

#### Field Corn, Sweet Corn – Post Plant

**Only:** Corn root worms – Use 2½ fluid ounces of Carboxylan per 1000 linear feet of row (1 quart per acre with 40 inch row spacing). Do not feed forage within 30 days of last application.

#### Small Grains (Wheat, Oats, Barley):

Grasshoppers – Use Carboxylan at ¼ to ½ pint per acre. Apply as a foliar spray when insect populations and/or damage reaches economic thresholds. Apply before heads emerge from boot. Do not make more than two applications per season. Do not feed treated forage to livestock.

#### 8 KEEP OUT OF REACH OF CHILDREN

#### 9 WARNING

10 ACE Corporation Issaquah, MC 00607

#### STATEMENT OF PRACTICAL 11 TREATMENT

**If swallowed:** Drink 1 or 2 glasses of water. Do not induce vomiting. Get medical attention.

**If in the eyes:** Flush with plenty of water for at least 15 minutes. Get medical attention.

**If on the skin:** Wash immediately with soap and water.

**Note to Physician:** Carboxylan is an N-methyl carbamate and a reversible cholinesterase inhibitor. Do not use oximes such as 2-PAM. Start by giving 2 mg. Atropine intramuscularly. If in the eye, instill one drop of homatropine. 12

#### For Emergency Assistance Call

(800) 330-0000

#### PRECAUTIONARY STATEMENTS 13

##### Hazards to Humans (and Domestic Animals)

##### Warning

Poisonous if swallowed. May be fatal or harmful as a result of skin or eye contact or by breathing dust. Causes cholinesterase inhibition. Warning symptoms of poisoning include weakness, headache, sweating, nausea, vomiting, diarrhea, and blurred vision. Atropine sulfate is antidotal.

##### Personal Protective Equipment (PPE):

Applicators and other handlers must wear; long-sleeved shirt and long pants, waterproof gloves, shoes plus socks, and a filtering respirator (MSHA/NIOSH approval number prefix TC-21C).

## COMPATIBILITY TEST FOR PESTICIDE MIXTURES

Under federal law, combining pesticides is legal unless the pesticide labeling of any of the pesticides involved instructs you not to combine them. However, not all pesticides work well when mixed together. They must be compatible – that is, mixing them together must not reduce their safety or effectiveness. The more pesticides you mix together, the greater the chance of undesirable effects.

**WARNING:** Always wear personal protective equipment (PPE) when pouring or mixing pesticides. Perform this test in a safe area away from food and sources of ignition. Pesticides used in this test should be put into the spray tank when completed. Rinse all utensils and jars and pour the rinse water (rinsate) into the spray tank. Do not use utensils or jars for any other purpose after they have contacted pesticides.

**Step 1.** Get a large, clean, clear glass container, such as a quart jar. Use the same water (or other diluent) that you will use when making up the larger mixture. Add the water and each of the products in the same proportions as you will mix them. For example, each quart of pesticide that you add to 50 gallons of final spray mixture is the equivalent of about 1 teaspoon per quart of water. Unless the pesticide labeling states otherwise, add pesticides to the diluent using the “W-A-L-E” plan:

- a. Add some of the diluent first.
- b. Add Wettable and other powders and Water-dispersible granules.
- c. Agitate thoroughly and add the remaining diluent.
- d. Add the Liquid products, such as solutions, surfactants, and flowables.
- e. Add Emulsifiable concentrates last.

**Step 2.** Shake the jar vigorously. Feel the sides of the jar to determine if the mixture is giving off heat. If so, the mixture may be undergoing a chemical reaction and the pesticides should not be combined. Let the mixture stand for about 15 minutes and feel again for unusual heat.

If scum forms on the surface, if the mixture clumps, or if any solids settle to the bottom (except for wettable powders), the mixture probably is not compatible. Finally, if no signs of incompatibility appear, test the mixture on a small area of the surface where it is to be applied.

## RESOLVING INCOMPATIBILITY

**Step 1.** Add 6 drops of compatibility agent and stir well. If mixture appears compatible, allow it to stand for 1 hour, stir well, and check it again. If the mixture appears incompatible, repeat one or two more times, using 6 drops of compatibility agent each time.

**Step 2.** If incompatibility still persists, dispose of this mixture, clean the jar, and repeat the above steps, but add 6 drops of compatibility agent to the water before anything else is added.

**Step 3.** If the mixture is still incompatible, do not mix the chemicals in the spray tank. To overcome this problem you might consider the following alternatives:

- a. Use a different water supply. Hard water can contribute to incompatibility.
- b. Change brands or formulations of chemicals
- c. Change the order of mixing.

Make only one change at a time, and perform a complete test, as described above, before making another change. Do not mix the chemicals in the spray tank if incompatibility cannot be resolved.



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