

Reading Pesticide Labels and PPE

SLIDE 1:

This is Steve Johnson, University of Maine Cooperative Extension, bringing you information on Reading Pesticide Labels and Personal Protective Equipment. It is possible to receive a Maine Board of Pesticides Control recertification credit for this presentation. As this presentation is approximately a half hour, another presentation would also have to be viewed. Additionally, a test must be passed with a minimum of 80 percent correct answers on each presentation. While there is no charge for viewing this information, there is a charge for taking each test, whether the tests are passed or not.

SLIDE 2:

What is a pesticide?

Pesticides are not limited to insecticides, but include herbicides, fungicides, and various other substances used to control pests. A pesticide is any substance or mixture of substances intended for:

- preventing,
- destroying,
- repelling, or
- mitigating any pest.

Plant regulators,
defoliants, and
desiccants are included.

SLIDE 3:

What is a pest?

Pests are living organisms that are present where they are not wanted. Pests are not limited to insects but include:

- insects,
- mice, other animals,
- unwanted plants (such as weeds),
- fungi,
- microorganisms such as bacteria and viruses.

European corn borer larvae as shown would constitute a pest.

Reading Pesticide Labels and PPE

SLIDE 4:

Do household products contain pesticides?

Yes, many household products are pesticides. All of these common products are considered pesticides:

- Cockroach sprays and baits

- Insect repellents for personal use.

- Rat and other rodent poisons.

- Flea and tick sprays, powders, and pet collars.

- Kitchen, laundry, and bath disinfectants and sanitizers.

- Products that kill mold and mildew.

- Some lawn and garden products, such as weed killers.

- Some swimming pool chemicals.

The common products shown here are pesticides.

SLIDE 5:

What substances are not regulated as pesticides?

The U.S. definition of pesticides is quite broad, but it does have some exclusions:

Drugs used to control diseases of humans or animals are excluded.

Chemicals used to control diseases of humans, diseases of pets and diseases of livestock are not considered pesticides. These chemicals are regulated by the Food and Drug Administration.

Fertilizers, nutrients, and other substances used to promote plant survival and health are not considered plant growth regulators and thus are not pesticides.

Biological control agents such as beneficial insects or predatory insects are exempted from regulation by EPA as they are not considered pesticides.

The ladybug larvae as shown would not be regulated as a pesticide.

SLIDE 6:

Pesticide labels explain how to use pesticides safely. Before applying pesticides, workers must know what the label says. The label is the law! Labels are legal documents providing directions on how to mix, apply, store, and dispose of a pesticide product. The label is to give the user information about the product.

Reading Pesticide Labels and PPE

As a pesticide applicator, you are legally responsible for reading, understanding and following the label directions. The Personal Protective Equipment or PPE section describes the minimum amount of PPE a handler or applicator must wear when using this pesticide. Following PPE instructions will minimize this worker exposure.

When should you read the pesticide label?

You should read the label before purchasing the pesticide to ensure the pesticide is registered for your intended use. You must make sure there are no restrictions that would prohibit its use.

You should read the label before mixing and applying the pesticide. Understand how to mix and safely apply the pesticide and to know the first aid if it is needed should an accident occur.

You should read the label before you store pesticides. Pesticides can break down and contaminate storage areas. They also can be fire hazards.

You should read the label before disposing of any unused pesticide and empty containers.

The information on the pesticide labels is grouped under headings to make them easier to find. Pesticide labels contain specific sections that will be discussed

Slide 7:

Pesticide labels have the product Brand Name:

The brand name is displayed on the front panel of the product label. This brand name of the product label shown is Bravo Zn. Products containing the same chemical may have different brand names, depending on which company made the chemical.

Slide 8:

Pesticide labels have the product type listed under the brand name. The product type of the label shown is an agricultural fungicide.

Reading Pesticide Labels and PPE

Slide 9:

Pesticide labels have the Common Name of the chemical.

Most pesticides also have an official common name. The common name of the chemical on the label shown is chlorothalonil. The common name will be the same for every brand name.

Slide 10:

Pesticide labels have a Scientific Name of the chemical.

The scientific name of a chemical describes the chemical components and structure of the pesticide. The common name of the chemical on the label shown is tetrachloroisophthalonitrile. The scientific name will be the same for every brand name.

Slide 11:

Pesticide labels have an Ingredients Statement.

Every pesticide label must list the amount of each active ingredient and the total amount of inert ingredients, listed as other ingredients, in the product.

This section provides the common and/or chemical name and amount of each active ingredient and the total amount of inert ingredients in the container.

Slide 12: Active Ingredient

The active ingredient is the chemical or chemicals responsible for controlling the pest individually listed on the label by common name and/or chemical name and percentage in the product. In the label shown, the active ingredient is chlorothalonil or tetrachloroisophthalonitrile and is 38.5 percent.

Slide 13: Inert Ingredients are not required to be individually listed, but their percent of the content must be. In the label shown, the inert ingredients are 61.5 percent.

Slide 14: The Formulation of the label shown is 4.17 pounds of chlorothalonil per gallon of Bravo Zn.

Slide 15: Pesticide labels have a Child Hazard Warning Statement

Every pesticide container must bear the statement "KEEP OUT OF REACH OF CHILDREN" on the front label. Look for it above the signal word.

Reading Pesticide Labels and PPE

Slide 16: Signal Word

The signal words and symbols indicate the toxicity of the product to humans. The signal words – danger, warning or caution – appear on every label depending on its relative toxicity. If two products control the same pest, signal words can be used to choose the least toxic chemical to control the pest.

Signal words are DANGER POISON, DANGER, WARNING, CAUTION or NONE if the material is relatively nontoxic

Products labeled "DANGER POISON" and accompanied by a skull and crossbones symbol are highly toxic by any route of entry into the body. *Peligro*, the Spanish word for danger, must also appear on the label. Pesticides with DANGER POISON as a signal word are classified as “restricted use” and can only be purchased and applied by a licensed certified pest control applicator.

Products labeled "DANGER" without the word "POISON" or the skull and crossbones symbol can cause severe skin injury or irreversible eye damage. *Peligro*, the Spanish word for danger, must also appear on the label. The warning labeled product is moderately toxic – likely to cause acute illness from oral, dermal, or inhalation exposure or moderate skin or eye irritation.

Products labeled "WARNING" are moderately toxic or may cause moderate skin or eye irritation. *Aviso*, the Spanish word for warning, must also appear on the label.

Products labeled "CAUTION" are slightly toxic and may cause slight eye or skin irritation. The caution signal word indicates that the product is only slightly toxic or relatively nontoxic.

The signal word on the label shown is “WARNING.”

Slide 17: The Environmental Protection Agency or EPA categorizes every pesticide as "unclassified" or "restricted." The label will state "Restricted Use Pesticide" in a box at the top of the front panel when a pesticide is classified as restricted. The one shown is not. Below this heading will usually be a statement describing why the pesticide is restricted such as "due to acute toxicity to birds and mammals", for example. Restricted use

Reading Pesticide Labels and PPE

pesticides are used only by certified applicators or, under certain circumstances, person under their direct supervision. Unclassified pesticides can usually be applied without a license by private purchasers of over-the-counter products for use on their own property.

Pesticide labels have an EPA Registration Number. Every pesticide must be registered with the Environmental Protection Agency. The registration number on the front panel of the label is written as "EPA Registration No. and a series of numbers. This assures that the product has been reviewed properly, has been approved for use according to label instructions, has been registered and its label was approved for sale by the Environmental Protection Agency. Make sure the product you purchase has a number. "Homebrew" pesticides or materials that do not have this EPA Registration Number are not legal pesticides. The EPA Registration Number of the product shown is 5034-204-100.

Slide 18: Pesticide labels have an EPA Establishment Number.

The establishment number is a code to identify the factory that manufactured the chemical and must be on every pesticide container and is assigned by the EPA. Usually it appears under the registration number. The EPA Establishment Number of the product shown is 5034-TX-001 and 070898-AR-001.

Slide 19: Pesticide labels have a Net Contents statement

The label lists the net contents, by weight or liquid volume, contained in the package. This can be expressed in ounces, pounds, liters, or other units. The net contents of the product shown is 2.5 gallons.

Slide 20: Pesticide labels have the Name and Address of the Manufacturer.

The name and address of the company that made or distributed the product must be on the label. Companies will also provide you with a materials safety data sheet or MSDS upon request.

Slide 21: Pesticide labels have a First Aid Statement or Statement of Practical Treatment.

The statement of practical treatment must tell you how to avoid the hazards the product poses. Within the precautionary statement or elsewhere on the label, emergency first aid measures must be stated. The First Aid section explains first aid treatments if the pesticide is swallowed, inhaled or comes in contact with eyes, skin or clothing. Make sure to have the pesticide label

Reading Pesticide Labels and PPE

with you when calling a poison control center or physician or for going for treatment to an emergency room. The label must also state what types of exposure require medical attention. Since the label has specific instructions and information the physician will need, it is important to have the pesticide label available when calling the hotline or when taking someone to the hospital.

Slide 22: Twenty-four hour emergency numbers are usually provided on the label. This is done for information and assistance. The number on the label shown is 1-800-888-8372.

Slide 23: Pesticide labels have Precautionary statements: Hazards to humans and domestic animals. This section describes ways the product may be hazardous and how to avoid the hazard, such as protective clothing or ventilation requirements. If the pesticide is highly toxic, this section must also inform physicians of the proper treatment for poisoning. This section states what PPE must be worn

Slide 24: Pesticide labels have Precautionary statements for Environmental Hazards.

This section describes the product's potential to harm wildlife, fish, wetlands, water, or endangered species.

Slide 25: Pesticide labels have a Misuse Statement. Chemical companies are required by law to do extensive testing on a product before it may be placed on the market. They must meet all labeling requirements providing that the labeling information is correct. To use a pesticide product in any manner inconsistent with its labeling is a violation of federal law.

Slide 26: Pesticide labels have a Directions for Use Section

Slide 27: This section describes in detail the worker protection requirements including required PPE or personal protection equipment.

Slide 28: This section also gives the REI or the restricted entry interval. This is when people and animals may re-enter a treated area after an application. It gives a listing of where the product should be applied.

Reading Pesticide Labels and PPE

Slide 29: In the label shown it is for crops not animals. One of the labeled crops as shown is potatoes. This product is not for animal use.

Slide 30: The label shows what pest the product is registered to control. In the label shown one of the labeled pests is late blight (*Phytophthora infestans*). As it is not on the label, this product is not labeled for control of PVY for instance or Potato Virus Y.

Slide 31: The label will show how much to apply. In the label shown, the starting rate is 1 1/8 pints per acre. Use only the amounts recommended, and follow the directions exactly.

Slide 32: Included in the application instructions are:
How to apply the product and how often to apply the product.

Slide 33: Also included in the label, there may be specific use restrictions listed.

Slide 34: In the label shown, the product is limited to 21.5 pints of Bravo Zn per acre per year.

Slide 35: On the application instructions, there will also be a preharvest interval listed. This is how soon the crop can be harvested after an application as shown on the label. You have to wait 7 days from the application of this product which is Bravo Zn.

Slide 36: Pesticide labels have a Storage and Disposal Section. This section explains how to best store the product and what to do with the unused portion of the product and the empty container. Be aware that temperature can affect product quality and environmental safety. Improper storage can cause some pesticides to lose their effectiveness. It can also cause an explosion or fire. The label contains directions for proper storage and disposal.

Slide 37:

I will now cover some aspects of Personal Protective Equipment for Pesticide Handlers. Wearing the clothing and personal protective equipment specified on a pesticide label is important to prevent or minimize exposure. Personal Protective Equipment protects the body against splashes that may

Reading Pesticide Labels and PPE

occur while pouring concentrates from a container, as well as spray drifts that may land on the applicator under certain conditions.

Wearing the proper clothing and equipment is just as important as using the right machine for the job. Personal protective equipment (PPE) must be provided by the employer when required. The employer is responsible for cleaning and maintaining the personal protective equipment as well as insuring each handler wears it and uses it correctly. Each handler needs to be provided with a clean place to put on and remove personal protective equipment and to store personal clothing. The employer must take action, if necessary, to prevent heat-related illness while wearing the personal protective equipment. The employer needs to insure that any handler does not take home personal protective equipment that has been exposed to pesticides.

Slide 38:

Personal protective equipment is available from safety supply firms, mail order companies and many retail outlets. Head, face and eye shields, protective clothing and gloves for handling pesticides are frequently available from pesticide sellers as well.

SLIDE 39:

Personal protective equipment must be properly cleaned and maintained. Clean, inspect and repair personal protective equipment according to the manufacturer's instructions before each use. Dispose of personal protective equipment that is non-reusable or cannot be cleaned. Wash and store personal protective equipment separately from personal clothing. What is seen here is a set of rules or instructions on how to launder pesticide handler clothing.

SLIDE 40:

Become familiar with the types of pesticides used in the farming operation. Knowing the types of pesticides used determines the protective clothing and equipment needed to handle them. This information is on the pesticide label. Consider the nature of the pesticides and the proximity of the chemical to points of entry on your body—dermal (through the skin), oral (through the mouth) or inhalation (through the lungs). Dressing for the job and understanding the potential risks of pesticide exposure are a must for anyone that handles, mixes, loads, or applies chemicals.

Reading Pesticide Labels and PPE

SLIDE 41:

Protective clothing can be divided into two groups: disposable and reusable. Reusable clothing is usually made of laminated woven or nonwoven fabric like rubberized rainwear. Research has shown that this type of equipment provides excellent protection against all types of pesticides, including spills of liquid concentrates. Advantages are that it is reusable and can be cleaned. However, it is expensive, heavy, and uncomfortable in warm weather. Disposable protective clothing is usually made of spun bonded (nonwoven) fabrics that do not absorb pesticides as quickly as woven materials. The most popular type of spun bonded disposable clothing is the Tyvek™ suits. This type provides an effective barrier to several pesticide sprays and dusts. Reusable protective gear looks similar what is shown. Some are bib front and some are not.

SLIDE 42:

An alternative to clothing in the previous slide is an apron as shown. Pesticide users can lessen the likelihood of frontal exposure by wearing chemical-resistant aprons. Pesticides bearing the signal word DANGER and products with chronic toxicity potential may require an apron in addition to other protective clothing to be worn. Chemical-resistant aprons are available in materials such as butyl, neoprene, and nitrile.

SLIDE 43:

Respirators protect lungs from chemicals. Respirators are selected based on the chemicals used. Information detailing what type of respirator to use is located on the pesticide label. Anyone going to work wearing a respirator must first have a medical check up. Some people may not be able to work wearing respirators. Every respirator must be purchased to fit the person wearing it. Many things can affect how a respirator fits, and each person is different. Test your respirator before mixing or spraying chemicals. If it fails, stop your work immediately. What is shown is a chemical cartridge-type respirator with a partial face mask fitted with two replaceable cartridges. These cartridges contain an absorbent material (often activated charcoal) that purifies inhaled air and filters dust particles. Cartridge respirators are effective against all but the most toxic vapors. They provide added protection when spraying toxic pesticides; as toxic chemicals in confined areas, or hand spraying certain crops. Always use NIOSH-approved respirators.

Reading Pesticide Labels and PPE

SLIDE 44:

Shown is a dust mask. This is not for pesticide application.

SLIDE 45:

Protective eyewear should be carefully selected, fitted and cleaned. When handling and applying chemicals, wear splash goggles or full-face shield, as shown in this slide. Face shields should not be worn without splash goggles underneath it. Never wear contact lenses when handling ammonia or other farm chemicals as water may be needed to irrigate chemical spills in the eyes. Eyewear should meet or exceed the current impact-resistance specification of the American National Standards Institute or ANSI.

SLIDE 46:

An option is to have an eye wash solution, as shown here, available.

SLIDE 47:

Hand protection is important as a farmer's hands might come into contact with chemicals. Cuts and abrasions on the hands may allow toxic chemicals to enter the body. Use appropriate gloves to protect hands.

Pesticide labels frequently specify the use of either waterproof or chemical-resistant gloves. Keep in mind that waterproof materials are not necessarily chemical-resistant. Always wear unlined gloves and never wear cotton, leather or canvas gloves when applying pesticides. Polymers used for chemical-resistant gloves include barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene plastics, and polyvinyl chloride among other materials.

Wearing gloves that match the job provides good hand protection. Only sound, properly fitting gloves should be worn. Tight gloves limit dexterity and are uncomfortable.

Overly large gloves can interfere with work. Gloves should be long enough to cover the entire hand and part of the forearm. Wearing long sleeves will provide an extra barrier for the skin along with the gloves. Wear your sleeve outside the glove to prevent pesticides from getting into your gloves. After using chemicals and before removing your gloves, rinse and clean them thoroughly. After removing the gloves, wash your hands again.

Make sure you have extra gloves on hand. When gloves wear out, throw them away and use another pair. If there is any question about whether the

Reading Pesticide Labels and PPE

gloves leak, do not use them. There is a simple way to test gloves to see if they leak. Fill them with water and squeeze the top. If water comes out, replace the gloves.

Glove thickness is described in units of mils (1 mil = 0.001 inch). In general, barrier effectiveness and resistance to tear and puncture increases with thickness. Commercially available gloves range from 1 to 60 mils. The most commonly used chemical-resistant gloves range from 12 to 22 mils in thickness. Gloves used for handling pesticides should be at least 14 mils in thickness. Shown are nitrile gloves that are 15 and 4 mil. The 15 mil gloves are appropriate for handling pesticides. The 4 mil gloves are appropriate for wearing under the 15 mil gloves.

SLIDE 48:

Foot protection is also important and personal protective equipment is available for feet from many sources. Do not wear leather or canvas shoes or boots; if a pesticide is spilled or sprayed on these materials, they cannot be thoroughly cleaned.

Some pesticide labels state that the only footwear required for applying a certain pesticide is "shoes plus socks." Other labels may direct the applicator to wear "chemical-resistant footwear plus socks." Chemical-resistant boots are typically made of rubber, which may be coated with polyurethane, polyvinyl chloride or blends of these materials. Regardless of how high the boots are, pant legs should be worn outside the boot so that pesticides cannot be funneled down into the boot.

SLIDE 49:

Feet need to be protected when working with pesticides. Boots offer protection when splash hazards are present. When working with pesticides, wear chemical-resistant boots to prevent exposure. Do not wear leather boots. Shown are PVC over boots.

SLIDE 50:

This is Steve Johnson, University of Maine Cooperative Extension, bringing you information on Reading Pesticide Labels and Personal Protective Equipment. It is possible to receive a Maine Board of Pesticides Control recertification credit for this presentation. As this presentation is approximately a half hour, another presentation would also have to be

Reading Pesticide Labels and PPE

viewed. Additionally, a test must be passed with a minimum of 80 percent correct answers on each presentation. While there is no charge for viewing this information, there is charge for taking each test, whether the tests are passed or not.