

SAFETY FIRST

Safe and effective use of pesticides

Story and Photography by Douglas A. Spilker, Ph.D.

Pesticides can be very valuable tools for pest control, but they need to be used properly and treated with respect. Pesticides are designed to be toxic to the pests they target, whether they are insects, weeds, or other unwanted pests.

WHAT IS A PESTICIDE?

A pesticide is any chemical (natural, organic, or synthetic) used to control, prevent, kill, suppress, or repel pests. "Pesticide" is a broad term that includes insecticides (insect control), herbicides (weed control), fungicides (disease control), rodenticides (rodent control), miticides (mite control), and even products that kill snails and slugs (molluscicides).

Before using any pesticide, carefully consider whether or not it is necessary and if a nonchemical solution might be just as effective. For example, reducing overhead irrigation may work just as well reducing black spot on roses as routine fungicide sprays.

Most pests cannot be entirely eliminated, even with pesticides. If you decide a pesticide is necessary, use it as part of an integrated pest management (IPM) program that also includes nonchemical methods. A combination of measures will provide the most satisfactory and long-term pest control.

CHOOSING THE RIGHT PESTICIDE

The first step to choosing a pesticide is identifying the troublemaker. If you do not have the confidence to do yourself, get assistance from your local cooperative extension office or other reliable source. If a pesticide is needed, carefully read product labels and select one that is labeled to control your pest and specific site. For instance, not all pesticides labeled for use on ornamental plants can be used on edible plants, nor can "outdoor use only" products be used indoors.

When selecting a pesticide, remember that most pesticides control only certain stages of a pest's life cycle. Some insecticides kill only the larval stage (e.g. caterpillars), whereas others may only affect adults. Many fungicides are preventive and will not help plants already infected. Likewise, pre-emergence herbicides (e.g. crabgrass preventers) kill germinating weeds, but not established ones, while



“Paneling” is not only on walls!

Have you ever notice pesticide bottles with their walls sucked in, and labels falling off? “Paneling” occurs when the pressure inside a plastic bottle becomes less than the outside air pressure, causing the walls of the bottle to partially collapse inward. This results in a product package with a distorted shape and badly puckered or loose label.

In most cases, this happens because the plastic walls of the bottle are permeable to the vapor of one of the non-pesticidal ingredients and allow it to escape. It is best not to purchase “paneled” bottles, since the composition of the product may have changed. However, if this occurs in storage, test the spray solution on a small test area and observe for any adverse effects before using it broadly.

← Pesticides should be stored in a locked cabinet to prevent access by children.

➤ Use extreme caution when measuring and mixing pesticide concentrates. Wearing gloves is a minor inconvenience that provides valuable protection.

post-emergence herbicides (e.g. glyphosate) are only effective on actively growing weeds.

FIRST READ THE LABEL

Read and understand all labeling before buying, using, storing, or disposing of a pesticide. The label is a legal document required for every pesticide registered in the United States by the Environmental Protection Agency. Always keep the product in the original package so you have the correct instructions with the product. Some of the information on the label includes:

- Brand name
- Active ingredients
- Sites where pesticide can be used
- Pests controlled
- How much to use and how to mix
- How and when to apply
- Required protective clothing (e.g. gloves)
- Signal word indicating the potential short-term toxicity to people (DANGER, WARNING, or CAUTION)
- Precautionary statements defining hazards to people, domestic animals, or the environment
- Emergency and first aid information
- How to properly store and dispose of the pesticide or its container

It is illegal to use a pesticide in any way not permitted by the labeling. A pesticide can only be used on the plants and sites listed in the directions for use. Follow all directions for use, including information concerning safety, mixing, storage, and disposal. It is important to wear any protective clothing specified even though you may find it uncomfortable. However, most home and garden products are relatively safe and unlikely to cause injury to people if label directions are carefully followed.

PREPARATION OF SPRAY SOLUTIONS

Proper measuring of concentrated pesticide formulations is essential for effectiveness and user safety. The application rate of most liquid products is expressed as a ratio of fluid ounces of concentrate per gallon of spray solution. Never use a higher dose than directed by the label. You will not see better results and you will be wasting pesticide, time, and money while potentially causing plant injury. Only mix as much as you will use in one application. Apply according to label directions to plants or sites as listed on the label until the spray tank is empty. Do not store any leftover pesticide solution.



Do not dump excess, unwanted, or old pesticides down the drain, onto the soil, into ditches, storm drains, or in the trash. The only legal way to dispose of pesticides is to take them to your local household hazardous waste disposal facility. Although empty pesticide containers may be disposed of in the trash without rinsing, it is better to rinse the container when you are using up the last remaining pesticide in the container, and add the rinsate to the sprayer.

Pesticide product labeling is the main method of communication between a pesticide manufacturer and pesticide users. If pesticide use is deemed necessary to control a pest problem, study the label before use to ensure you are using the product appropriately, for the right pest, and heeding all the required precautions. 🐞

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