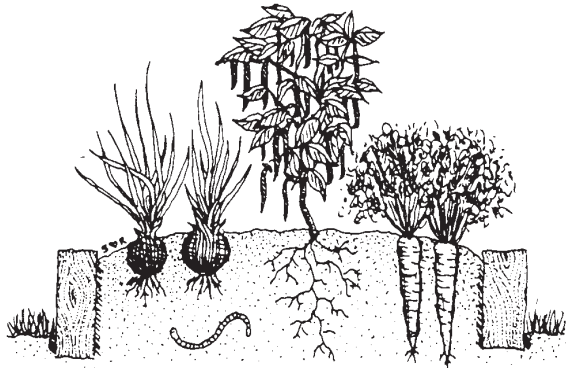


## Good cultural practices will help reduce the need for pesticides.

Use the following guidelines to keep your plants healthy.

- Select plants adapted or native to your area.
- Control weeds – use mulches and hand-pulling where possible.
- Water adequately – overwatering and underwatering can be equally damaging to plant health.
- Do not crowd plants – planting too close weakens plants and increases disease.
- Fertilize properly – too little fertilization causes weak plants that are more susceptible to insects and disease. Too much fertilizer can damage plants and pollute groundwater.
- Add organic matter, such as compost, to the soil – rich soil produces healthier plants.
- Control pests before they become established – hand-remove insects or diseased leaves as soon as you see them.



Pesticides can be valuable gardening tools, but they must be selected with personal and environmental safety in mind. As with other tools, it is important to use the right pesticide for the job. Care and planning before purchasing pesticides can ensure safe and proper use.

For more information on selection, planting, cultural practices, and environmental quality, contact your local Virginia Cooperative Extension office. If you want to learn more about horticulture through training and volunteer work, ask your Extension agent about becoming an Extension Master Gardener. For monthly gardening information, subscribe to *The Virginia Gardener Newsletter* by sending your name and address and a check for \$5.00 made out to “Treasurer, Virginia Tech” to The Virginia Gardener, Department of Horticulture (0349), Virginia Tech, Blacksburg, VA 24061. Horticultural information is available on the Internet by connecting with Virginia Cooperative Extension’s website at <http://www.ext.vt.edu>.

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This publication was revised by Joyce Latimer, Extension specialist, Horticulture. Virginia Tech Pesticide Programs ([www.vtpp.org](http://www.vtpp.org)) contributed to the content of this publication.



[www.ext.vt.edu](http://www.ext.vt.edu)

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Virginia  
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# Choosing Pesticides Wisely



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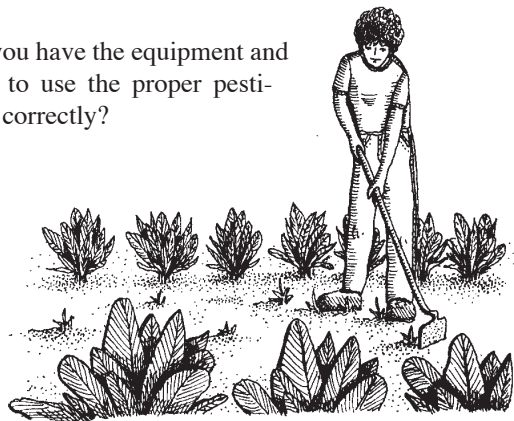
## Choosing Pesticides Wisely

Healthy plants are less susceptible to attack by pests, and good cultural practices can reduce pest outbreaks.

### Do you really need a pesticide?

Before you purchase any pesticide, you should answer some important questions.

- Is the damage actually caused by a pest? Could it be due to the weather or a cultural practice, such as over- or underwatering, improper fertilization, or herbicide damage?
- If it is a pest, what kind is it?
- Are there nonchemical ways to control it? Is the damage severe enough to warrant chemical control?
- Is pesticide use cost-effective? Or would the chemical treatment cost more than the plant is worth?
- Can the pest be controlled by a chemical at this stage of its life cycle, or would application at a different time be more effective?
- Do you have the equipment and skill to use the proper pesticide correctly?



Remember, just because you see insects does not mean that insects are a problem. Proper identification of the problem is essential before you select any type of control. There are many excellent resources available to help you identify pests or pest-caused problems, including your local Extension office, trained professionals at nurseries and garden centers, and reference books dealing with plant pests and diseases.

### Which pesticide will meet your need?

If you determine a pesticide is needed, read the pesticide labels carefully. You must choose a product that is specifically labeled for use on the plants you wish to protect and effective against the pest you want to control. *Never use a pesticide on a food-bearing plant unless the label directs such use.* The general term *pesticide* includes insecticides, fungicides, herbicides, rodenticides, etc. You must determine which product is appropriate to combat your problem. For example, an insecticide is effective only against insect pests, and some insecticides target only a certain type of insect. An insecticide alone will not solve a weed or disease problem. However some pesticide products contain two or more active ingredients. For instance, a formulation for rose care may contain an insecticide and a fungicide.

### Which pesticide is best for your situation?

Avoid problems by taking the time to carefully study your pesticide needs. Your local Extension agent or a certified nursery employee can help with pesticide recommendations, as well as help you tailor the application to the intended site. Personal and environmental safety are prime concerns.

*Consider the site.* Read the label of each product under consideration to be sure that it can be used in the place and the manner you intend. For example, if the label indicates that the material is toxic to fish, do not use it on plants along the border of a pond. If the label requires that you wait two weeks from the time that you spray until you harvest, it should not be used on vegetables or fruits that are almost ripe. Consider all uses of the site you plan to treat. Protect children, pets, and wildlife by careful pesticide selection and use.

*What application equipment and personal protective equipment does the label require?* Do you have the gear? If not, are you willing to purchase, use, and maintain it? Do you want a pesticide that must be mixed and loaded into a sprayer, or will a pre-mixed, “ready-to-use” product in a spray bottle better suit your needs?

*Minimize waste.* You should purchase only the amount of pesticide you expect to use in one season. Most pesticides have a limited shelf life. If pesticides are stored, they must be protected from extreme heat and cold, and

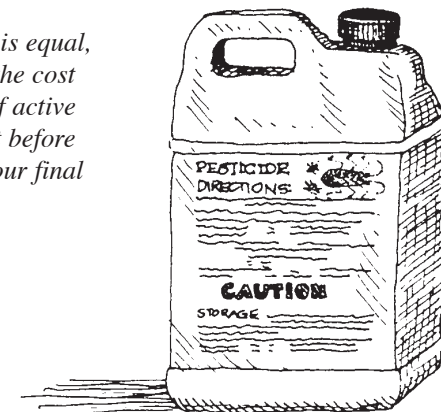
kept in a secure, locked place. Read the storage section of the product label prior to purchase, and do not buy a product that you cannot store as directed. Also, remember that pesticides must be kept in their original container with the label intact.

*Choose the least toxic product.* Compare pesticides based on how hazardous they are. The signal word on the label indicates a product’s toxicity. For example, products marked CAUTION are less toxic than those marked WARNING, and should be considered first.

*Environmental hazards are reported on the label.* Be especially cautious with pesticides containing warnings regarding impact on water.

*Carefully read the disposal directions.* Be sure you can properly dispose of any unused or unwanted pesticide as well as the pesticide’s container according to the manufacturer’s recommended method.

*If all else is equal, compare the cost per unit of active ingredient before making your final selection.*



## IMPORTANT!

**If you must use a pesticide, read the label carefully to be sure that it is intended for use on the type of plant or place you wish to protect and to control the type of pest you have identified. Pesticide users are legally bound to follow label directions. You should read a pesticide label thoroughly before purchase, before each use, and prior to storage or disposal.**