

and equipment is needed. Review specific warnings and precautions, mixing ratios and instructions, application to harvest period for fruit and vegetables, crops to which the pesticide can or cannot be applied, and other special instructions.

### **You are legally liable for misuse of pesticides on your property**

The registration and use of pesticides are governed by the United States Environmental Protection Agency and the Iowa Department of Agriculture and Land Stewardship. Under the amended Federal Insecticide, Fungicide, and Rodenticide Act (Federal Environmental Control Act of 1972), it is illegal to use a pesticide on a crop unless the crop is listed on the label. It is also illegal to exceed the given rate of application on the label.

Recent court rulings extend your liability to include misuse by commercial applicators you hire. Serious misuse by gardeners usually results from drift, leaching of a pesticide onto non-target plants, or the use of the wrong pesticide.

### **Know first aid procedures**

- Read the "Statement of Practical Treatment" on each label; this can save lives.
- If a pesticide gets on the skin, remove the substance as quickly as possible. Remove all contaminated clothing. Prompt washing may prevent sickness even when the spill is large. Detergents work better than soap in removing pesticides. Don't forget the hair and fingernails.
- If a pesticide is inhaled, get to fresh air right away.
- In case of poisoning, call a physician; have the package or container in your hand and identify what the victim took and how much was taken. Keep calm—you have enough time to act—but don't delay unnecessarily. Poisoning information is also available by contacting your local poison control center listed with other emergency numbers



in the front of your telephone directory. Loosen all tight-fitting clothing. If needed, give artificial respiration immediately—do not stop until victim is breathing well or medical help arrives. Do not administer anything to a poison victim unless you are trained in first aid; otherwise, you may compound the injury.

### **Follow these safety tips**

- Never eat, drink, or smoke while applying pesticides or before cleaning up.
- After applying pesticides, remove your clothes and wash them; then thoroughly wash hands, face, and body.
- Read the directions every time you use a pesticide.
- Work outdoors with good light and ventilation when mixing or loading pesticides.
- Never mix or apply pesticides on windy days.
- If you splash or spill a pesticide while mixing or loading, stop immediately—remove contaminated clothing and wash thoroughly, then clean up the spill.

Originally produced by the Department of Horticulture at Virginia Polytechnic Institute and State University, in cooperation with the Chemical, Drug, and Pesticide Unit, of the Virginia Cooperative Extension Service. Funded by ES USDA Smith Lever 3(d) National Water Quality Initiative Funds. Adapted for use in Iowa by Iowa State University Extension horticulturalists and communication specialists.

File: Hort and LA 2

5/03

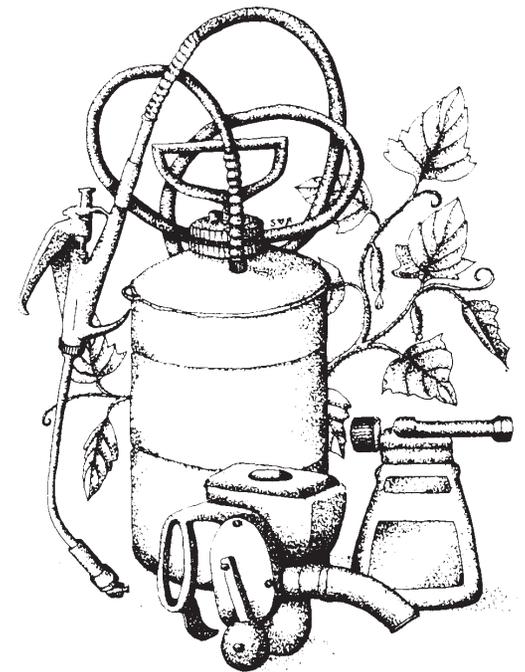
Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Stanley R. Johnson, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.

... and justice for all  
The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Many materials can be made available in alternative formats for ADA clients. To file a complaint of discrimination, write USDA, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964.

RG 204 Reprinted March 1997

REIMAN  
GARDENS  
IOWA STATE UNIVERSITY

# Apply Pesticides Safely



IOWA STATE UNIVERSITY

University Extension

Understanding the proper use of pesticides is imperative to their effectiveness and to your safety.

- When applying pesticides, use the protective clothing and equipment the label recommends.
- To prevent spilling chemicals, always check application equipment for leaking hoses or connections and plugged, worn, or dripping nozzles before adding pesticide.
- Before applying, clear all people, pets, and livestock from the area.
- To minimize drift, apply pesticides only on calm days, preferably in morning. If moderate winds come up while you are working, stop immediately. Also, reduce drift by spraying at a low pressure using a large nozzle opening.

### Use the right equipment

The same sprayer equipment should not be used for both weed control and insect control. No matter how well a tank is rinsed after use, a residue can be left in the tank and in the gaskets, hoses, and parts. If the same tank is then used with an insecticide to spray a plant, it is possible to kill the plant with the herbicide left in the tank. The safest policy is to maintain two sprayers—one for herbicides and another for insecticides and fungicides. Label them clearly according to use. Always wash after each use.

A wide variety of pesticide application equipment is available, including sprayers (aerosol, trigger, compressed air, trombone, wheel-driven, hand, or garden hose), pumps (hand, compressed air, bucket, or garden hose), dusters, and granular applicators.



### Mix according to directions

Read the label carefully. If mixing is required, use the recommended proportions—measure carefully and mix thoroughly. If the label recommends a spreader/sticker (surfactant),

use one. This helps the chemical stick to the leaves and makes it more effective, thus reducing the need to re-apply.

### Apply evenly

The pesticide should be sprayed uniformly no more than 3 to 4 feet to the side of the person spraying. The spray pattern should be directed so that the person applying the pesticide does not walk through the spray. Spraying should be continuous and uninterrupted, giving uniform coverage with a minimum of overlap (overlapping can cause an excess of pesticide in certain areas).



When using application devices with poor metering capabilities, such as hose end sprayers, uniform coverage is difficult to achieve. If you are using such a device, cut the application rate of the pesticide in half; apply first in an east-west pattern, then in a north-south direction to give more even coverage.

While applying a herbicide for weed control, the sprayer should not be slowed down or stopped at each weed. An uninterrupted spray over the entire area to be treated is effective for weed control if the herbicide is correctly mixed and the sprayer is properly calibrated.

When the mixture on the label is in teaspoons or tablespoons per gallon and the plants are upright, such as shade trees, fruit trees, shrubs, and vegetables, spray the leaves until the pesticide solution starts to drip from the leaves. Don't forget to spray the underside of leaves for good coverage.

### Avoid vapor damage

Vaporization is the evaporation of an active ingredient during or after application. Drifting vapors can cause injury. High temperatures increase vaporization. Some products are very volatile and can drift for miles under favorable conditions. Do not apply volatile pesticides

when it is windy or when temperatures following application will reach 85°F.

### Clean up

Thoroughly clean all equipment and yourself immediately after use. Do not store mixed pesticides. If some of the mixed material is not needed, spray it over an area that it will not harm. Check the pesticide label to determine safe areas. Thoroughly clean all spray equipment inside and out with clean water. Don't forget to flush the hoses and nozzles. Be careful that the cleaning water does not damage crops. Do not dump the rinse water in one place where it will be concentrated and may become a pollutant. Spray the rinse water over a broad area so that the pesticide will be further diluted. NEVER RINSE PESTICIDES DOWN THE DRAIN!

### Store and dispose of pesticides properly

Gardeners should store all pesticides in their original containers, in a locked cabinet. Do not store pesticides in the home. Containers should be protected from temperature extremes; some can be damaged upon freezing, others can be altered by heat.

Empty containers are best placed in refuse cans destined for a sanitary landfill. Wrap containers in newspaper and secure before disposal. Empty bottles should be rinsed out first, pouring the rinse water into the spray tank. Rinse three times, allowing 30 seconds to drain between each rinse. Never use empty pesticide containers for other uses; never allow children to play with empty containers. If possible, break the containers before disposal. Do not burn paper containers. Leftover unused pesticide products must be disposed of at a municipal Hazardous Waste Clean-up Day or hazardous waste facility.

### Read the label before spraying

Be sure you know the proper application and safety measures. Check what protective clothing