

Colorado Dept. of  
Agriculture,  
Conservation  
Services Division  
700 Kipling Street  
Suite 4000  
Lakewood, CO 80215  
303-239-4100

### Keys to Herbicide Use

1. Select the correct herbicide
2. Select proper safety equipment
3. Correctly apply herbicides through calibration
4. Mix and handle herbicides properly
5. Understand where and when to apply herbicides
6. Safely store and dispose of herbicides

**ALWAYS READ  
THE LABEL!  
THE LABEL IS  
THE LAW!**

## OVERVIEW

Herbicides are an effective tool in an integrated weed management plan when dealing with noxious weed infestations. Though herbicides won't eliminate noxious weeds alone, using herbicide will assist in the process. When using herbicides as a treatment, there are some safety factors that should be considered before spraying. This handout will explain the proper use, safety, timing of application, mixing and handling, and storage and disposal of herbicides.

## SELECTING HERBICIDE

The first step to take before using herbicides is properly identifying the noxious weeds to be treated. Without proper identification, the chance of choosing the wrong herbicide increases. Choosing the appropriate herbicide will save money and time in the long run; it can also benefit the environment and reduce damaging desirable plants around infestations. There are numerous herbicides on the market that will kill noxious weeds, some kill specific weeds (Selective herbicides) others kill all the plants (Non-selective herbicides). Herbicides also vary in price and effectiveness in controlling weeds. The cheapest herbicide is not always the best herbicide. Reading the label of herbicides helps determine the proper herbicide and use. The label will have active ingredients, proper use, storage requirements, and list some weed species it will treat. THE LABEL IS THE LAW! With small print and unfamiliar words, herbicide labels can be difficult to read. Some prior research before purchasing herbicides can be useful. Contact your local conservation district or county weed supervisor for help or visit <http://www.cdms.net/LabelsMsds>. This website lists labels of all agronomic herbicides, in an easy to read format.

## SAFETY EQUIPMENT

Deciding what equipment is needed for treatment is the next step in the process. The most important equipment to purchase is the protective and personal safety gear. Read the label of the herbicide for special protective gear requirements. At a minimum the following should be worn as protective gear; 1) eye protection, 2) long-sleeved shirt, 3) long pants, 4) chemical-resistant gloves, and 5) rubber boots. The next equipment to consider in the process will be the type of sprayer needed. Sprayers come in many different forms, sizes and costs. Determining the best sprayer is not always easy. The major factors when choosing the correct sprayer; are site conditions, terrain, size of infestation, and cost. One of the most important features for a sprayer is the amount of consistent pressure from the nozzle when in use. This will be important when calibrating the sprayer and determining the amount of herbicide to be used.



Photograph: J. Miller USDA, FS

## MIXING AND HANDLING HERBICIDE

The next step in the process is the mixing and handling of the herbicides. Read and follow the label to determine the protective gear, how much herbicide to prepare, mixing procedures and additional ingredients. Remember, herbicides are in the most concentrated and hazardous form, when mixing. Determine a safe place to mix herbicides; do not mix near water supplies, animal feed, high traffic areas, and desirable plants. Safely mixing herbicides in a plastic tub can contain any spills. Only mix the amount of herbicide that fits in the tank, to reduce the amount of leftover mixture. Don't combine herbicides unless listed and approved on the label. When filling the tank and adding herbicide, fill the tank with half of the water required, add chemicals and additives, then continue filling with water. Rinse the measuring containers with clean water and pour those contents in with the mixtures, as well. Do not allow the end of the hose to come in contact with the chemical mixture.

## APPLICATION CONCERNS

Considerations when applying herbicide that should be addressed are safety, environmental, and what to expect when done. Safety is a major factor when spraying chemicals. Always wear protective gear when applying herbicides. Follow all instructions on the label. Specific instructions on the purpose and use of the chemicals should be listed. Environmental considerations are another factor to be considered such as: temperature, wind speed, weather conditions, and areas to spray. The label will have specific information concerning these conditions. Spraying chemicals in temperature ranges of 65° to 85° F seems to be the most effective in treating the weeds. If the temperature exceeds 85°, the chemical may be less effective due to leaf thickness or slower plant metabolism. Wind is another factor to take into consideration. Applying herbicides at wind speeds less than 6 mph proves the safest. The drifting of chemicals can damage other desirable plants, effect water sources, and create personal safety hazards.



Photograph Lincoln County WA State

Humidity and moisture can also be concerns when applying herbicide. Moisture concerns deal with the term "rainfast". Rainfast is the length of time from application to the time it could rain. Chemicals have different rainfast periods; consult the label for the specific time concerns. Avoid spraying desirable vegetation by scanning the area to be treated, do not apply near streams or bodies of water (unless approved on the label), and stay away from shrubs and trees (unless approved on the label). Any area that can not be treated by chemicals should be considered for alternate treatment such as; digging, pulling or mowing.

Some chemicals will show effectiveness quickly others can take up to four weeks. Another factor is seasonal timing; whether the plant is actively growing or not, this can be a factor when exhibiting the effectiveness of the herbicide. Results can vary depending on the time of year and stage of growth.

## CLEAN-UP, STORAGE AND DISPOSAL

Equipment and clothing should be cleaned after every application of herbicides. Removing the chemical residue from equipment is an important safety factor. When rinsing out any spraying equipment, a realization needs to be made that chemical residues are still present and active. When rinsing the sprayer, the rinse water should be disposed of in a safe manner away from water supplies and desirable plants. If a herbicide container is empty, triple rinse the container when mixing the chemicals and pour into the mixture, then puncture the container before disposal. To remove chemical residue from clothing, wash your clothing with ammonia, heavy-duty laundry detergent and hot water. Do not wash clothing with regular laundry. Line-dry clothing so it may be exposed to sunlight. Proper storage of chemicals is another concern. Chemicals can break down if stored in excessive heat, if chemicals freeze there should not be any detrimental effect to the chemical. Herbicides should always be stored in the original containers so safety information can be readily accessible. Write purchase dates on all herbicide containers, chemical will degrade over time. There are resources available to dispose of out-of-date chemicals in Colorado, contact Clean Harbors Colorado ChemSweep Hotline at 1-888-AGCHEM2 (1-888-242-4362).

Other important numbers to keep handy when dealing with herbicides, if there are questions, concerns or emergencies.

### EMERGENCY NUMBERS

*For aid in human poisoning cases:*  
**Poison Control Hotline**  
 (800) 222-1222

*For help involving spills, leaks, and fires:*  
**Pesticide Accident Hotline (Chemtrec)**  
 (800) 424-9300

### NON-EMERGENCY NUMBERS

*For assistance and consumer information:*  
**Colorado Department of Agriculture**  
 (303) 239-4100

**National Pesticide Information Center**  
<http://ace.orst.edu/info/npic/>