

## Pesticide and Herbicide Application

### Description

Apply pesticides and herbicides at minimal levels in accordance with the label and targeted to specific disease and weed problems.

### Basic Practice Guidelines

#### General Guidelines

1. Apply pesticides and herbicides according to the label—it's the law!
2. Apply pesticides and herbicides only when needed and use in a manner to minimize off-target effects.
3. Ensure chemical applicators receive thorough training and proper certification prior to chemical use. Individuals and companies hired to apply pesticides must be licensed in the appropriate categories by the Colorado Department of Agriculture (CDA). Limited commercial applicators and public applicators applying restricted pesticides must register with the CDA. Limited commercial applicators and public applicators not applying restricted pesticides who have submitted to the jurisdiction of the CDA, must follow all record-keeping and other procedures as established by the CDA.
4. Know characteristics of the application site, including soil type and depth to groundwater. Be aware of any drinking water wells downgradient of the operation.
5. Select pesticides and herbicides best suited to the characteristics of the target site and the particular pest or weed. Half-life, solubility and adsorption should be compared to site characteristics to determine the safest chemical. Choose least toxic and less persistent sprays whenever possible based on comparison of labels and associated material safety data sheets (MSDSs).
6. Employ application techniques that increase efficiency and allow the lowest effective application rate. Carefully calibrate application equipment and follow all label instructions.
7. Recognize that no landscape should be completely pest-free or weed-free.
8. Accurately diagnose the pest. Disease and insect symptoms can mimic each other in many plants. A fungicide will not control an insect, and an insecticide will not control a disease.

### Integrated Pest Management (IPM)/Plant Health Care (PHC)

9. Use an Integrated Pest Management (IPM)/Plant Health Care (PHC) approach, integrating a variety of management tools (e.g., scouting, monitoring, cultural practices, targeted pesticide

BMP Type			
Design			
Installation			
Maintenance/Operations		X	
Green Industry Relevance			
ASLA		GCC	X
ALCC	X	ISA	X
CALCP	X	RMSGGA	X
CGGA	X	WFC	
CNA	X		

application). The pros and cons of various tools should be weighed and used in an integrated manner to achieve pest control objectives in a safe, effective and cost-effective manner.

10. Consider spot treatments of pests rather than treating the entire area.
11. Consider pest occurrence and history when developing pest management strategies.
12. Time pesticide application to minimize host plant damage and maximize pest control.
13. Rotate annual garden plants to reduce the buildup of soil-borne pests.
14. Clean up plant litter and remove weeds before they go to seed.
15. Remove infested plant residue from the garden in the fall so that pests do not over-winter there.
16. Implement cultural controls such as proper plant selection, planting time and planting method to reduce susceptibility to insects, pests and diseases, thereby reducing pesticide usage.
17. Implement mechanical and physical controls where practical as an alternative to chemical application. Examples include a wide variety of practices such as "collars" around seedlings, mulching, solar heating, syringing, handpicking, mowing, hoeing and traps.
18. Use biological controls where appropriate to reduce pesticide usage. For example, introduce natural enemies of pests such as lady beetles and green lacewings. (Note: pesticides may kill these natural enemies.)
19. Consider applying environmentally friendly chemical alternatives such as insecticidal soaps, horticultural oils and other such measures when practical and effective.



**Careful scouting for pests is a key component of integrated pest management/plant health care.**

Source: Denver Water.

### **Application Practices**

20. Do not apply pesticides or herbicides during high temperatures or windy conditions or immediately prior to heavy rainfall or irrigation.
21. Treat for and control noxious weeds prior to installing the landscape using an herbicide targeted to the weeds that are present and applied in accordance with the product label.
22. Be aware that some pesticide formulations are not compatible with other pesticides and combining them may result in increased potency and phytotoxicity.
23. Maintain a buffer zone around wells or surface water where pesticides are not applied. Consult local regulations and landscape ordinances, as well as the product label, for distances, which may vary depending on the type of chemical and the sensitivity of the waterbody. The purpose of this practice is to keep pesticides and herbicides out of surface waterbodies.

### **Disposal and Record-Keeping**

24. Maintain records of all pesticides applied (both restricted and non-restricted use), including brand name, formulation, EPA registration number, amount and date applied, exact location of application, and name, address and certification number of applicator. Combine and file this information with irrigation water data, crop growth records and notes on effectiveness of alternative pest control measures to help identify and track measures to both save money and reduce pesticide usage.
25. Properly handle and dispose of containers, rinse water and waste. Store pesticides in secure and covered areas. Never pour lawn and garden chemicals down storm drains or sanitary drains and keep off impervious surfaces during application. Use local recycling centers to dispose of chemicals. (*See the Pesticide, Fertilizer and Other Chemical Storage, Handling, and Disposal BMP for more information.*)

### **Regional or Industry Considerations/Adaptations**

1. See the Production Practices for Nurseries, Greenhouses and Growers BMP for more detailed guidance for these industries.
2. Be familiar with existing state and federal regulations on pesticide application, certification and weed control, as well as CSU Cooperative Extension horticultural guides. Several federal and state laws control the handling, storage, application, disposal and reporting of chemical spills. Examples include the Colorado Pesticide Applicator's Act, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Superfund Amendments and Reauthorization Act (SARA), the Emergency Planning and Community-Right-to-Know Act (EPCRA) and Occupational Safety and Health Administration (OSHA) requirements, particularly the Hazard Communication Standard. The Colorado Water Quality Control Act (25-8-601 and 25-8-606) also contains requirements for notification of the Colorado Water Quality Control Division of spills and accidental discharges and provides the Division with

the authority to order cleanups. It may also be necessary to file information with the local fire department based on these and other laws.

3. Senate Bill 90-126, The Agricultural Chemicals and Groundwater Protection Act, identifies special requirements for facilities handling more than 3,000 pounds (or 500 gallons) of bulk-formulated pesticides. Even if this threshold is not reached, the general principles of this act provide good guidance for pesticide users.

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