

## PESTICIDES AND FERTILIZERS

### *Drinking Water Source Protection*

#### Public Education Series

Lawn and garden maintenance includes applying fertilizer and pesticides. Improper storage and application may allow these chemicals to percolate through the soil and contaminate ground water. If your yard is located in a Drinking Water Source Protection area, it is important to know how to care for your lawn and garden and still protect your community drinking water supply. Proper application of fertilizer and pesticides, safe storage practices, and correct watering should be included in your protection strategy.

#### How Safe is Your Drinking Water?

Drinking water comes from ground water sources, such as wells and springs, or surface sources, such as rivers and lakes. Drinking water in Utah is safe, but it can become polluted if we are not careful. Many of the things we do at home can pollute our water and the environment. Poorly maintained or designed septic tank/drain-field systems can pollute surface and ground water. Pesticides, fertilizer, fuels, and cleaning products can contaminate our water when they are not stored and handled properly.

Everyone is responsible for protecting drinking water. It is nearly impossible to get pollutants out of water once they get there. Expensive treatments or new wells would be required to make drinking water safe again. Clearly, it is much more effective to keep pollutants out of water than to try to clean it up.

#### Storing and Handling Fertilizer

Fertilizer should be stored in locked, dry cabinets. Keep fertilizer and pesticides on separate shelves. Load your fertilizer spreader on the driveway or other hard surface so you can easily sweep up any spills. Any fertilizer that spills should be swept up and applied to your lawn or garden at the right time and amount. If you are using liquid fertilizer on your turf, add fertilizer to the spray tank while on the lawn. This way, if you spill the fertilizer, it will be used by the plants and not run off into surface waters. Fertilizer must not be stored with combustibles, such as gasoline or kerosene, because of explosion hazards.

#### Fertilizing Lawns and Gardens

The chemical in fertilizer that can most easily pollute ground water is a form of nitrogen called nitrate. Nitrate moves readily in soil and can continue to move to the ground water strata. Drinking water that contains 10 milligrams of nitrate-nitrogen per liter of water exceeds the drinking water standard and should not be used, especially for infant formula.

The best way to prevent the movement of nitrate into the ground water is to apply no more nitrogen than the grass, garden plants, shrubs, or trees can use during the time that the plants are growing. Sweep up any fertilizer that ends up on your driveway, sidewalks, or in the gutter. Reapply this fertilizer to your planted areas. This will allow the fertilizer to grow plants instead of washing off into nearby streams and lakes.

#### Application Schedule and Rates

Utah State University's Extension Service recommends the following for Utah lawns: "It is important to fertilize on a regular basis every four to six weeks to maintain an attractive lawn. Begin when lawns start to green in the spring, mid to late April. Earlier applications may cause a lawn to become greener faster, but may also increase spring disease problems. Summer applications of nitrogen fertilizer will not burn lawns if you apply them to dry grass and water immediately. Fall applications are important for good winter cold tolerance, extended fall color, and fast spring green-up. A complete fertilizer containing nitrogen, phosphorus and potassium should be applied in the fall every three to four years. This will prepare the lawn for winter conditions and allow the phosphorus to penetrate into the root zone by the next growing season.

For a well-kept lawn in Utah, apply 1 pound of available nitrogen per 1,000 square feet each four to six weeks throughout the growing season. The following chart indicates how much of various fertilizer will supply one pound of nitrogen."

%N on Label	Pounds of Fertilizer Per 1000 Square Feet
12-15	7-8
18-21	5-5 ½
24-28	3 ½-4
30-34	3-3½
45-46	2-2 ¼

### Storing Pesticides

The fewer pesticides you buy, the fewer you will have to store. Therefore, you should only purchase the amount and kind of pesticide that you need. Pesticides should always be stored in sound, properly labeled, original containers. Sound containers are your first defense against a spill or leak.

Like fertilizer, pesticides should be stored in locked, dry cabinets. Fertilizer and pesticides should be kept on separate shelves. Be sure to store dry products above liquids to prevent wetting from spills. Dry formulated pesticide spills should be swept up and applied to your lawn or garden at the appropriate rates. Liquid pesticide spills should be soaked up using absorbent materials (soil, sawdust, cat litter). Place the contaminated absorbent in a sealed container and take it to a household hazardous waste collection site.

Pesticide storage areas must be kept free from combustible materials, such as petroleum products. Burning pesticides or even empty pesticide containers can create extremely toxic vapors. Pesticides should be stored in their original containers. Ensure that there are no holes, tears, or weak seams in the containers and the label is readable.

### Handling Spills and Mixing Pesticides

Spilled pesticides can move through the soil into the ground water and pollute drinking water. If possible, mix pesticides on an impermeable surface, such as concrete, so any spills will be contained. It is important to mix only the amount that you will use. First, measure the total square feet you intend to treat in your lawn or garden. Then read the label on the pesticide container and follow the instructions. These are often given in terms of amount of pesticide to use per thousand square feet. By properly measuring and calculating, you

should have little or no spray mix left in your spray tank when you are finished and you will be applying it at the proper recommended rate.

### Applying Pesticides

Homeowners frequently use pesticides to kill or control weeds (herbicides), insects (insecticides) and fungi (fungicides) that attack their lawn or garden plants. Some of these pesticides can move through the soil and into the ground water.

Guidelines for the safe use of pesticides are provided below:

- ▶ Be willing to accept a low level of weed, insect, and plant disease infestation.
- ▶ Use pesticides only when absolutely necessary.
- ▶ Identify pests correctly. Use the proper pesticides.
- ▶ Read and follow the directions printed on the container labels. Remember, *the label is the law*.
- ▶ Calibrate your spreader and sprayer to keep from applying too much pesticide.
- ▶ Do not spray or apply pesticides near irrigation wells. Wells are conduits to the ground water.
- ▶ Do not spray or apply pesticides near your walkway and driveway.

### Disposing of Pesticides

Improper disposal of pesticide containers can lead to ground water contamination because the chemical residue can leak from the container onto the ground. If you are using liquid pesticides, rinse the container three times. Be sure to pour the rinsings into your sprayer and not down a drain. Containers which have been emptied and rinsed can be discarded in the trash.

If you have properly measured the pesticide, you should have little or no spray left in your tank. The little that is left can be safely sprayed over the area you have treated. If you have unused pesticides in their original containers, they can be recycled at household hazardous waste collection sites.

### Watering Plants

Over-watering your plants can cause excess water to move through the soil. This water can carry pesticides or nitrates that can pollute your ground water. The best way to avoid over-watering is simply to measure how much you are adding.

*Turf studies have shown that most lawns only need to be watered one every three or four days to stay healthy and green. Watering every day creates shallow roots. Watering infrequently develops deep roots and healthier turf. Grass roots grow deeper into the soil and become stronger with less watering. If grass does not spring back after being stepped on it's time to water. Water only when needed.*

*Use the watering schedule as a guide. Your lawn may need more water when it's extra hot or less when it's cool. Water less when it rains. Avoid watering on windy days or midday when the evaporation level is the highest. Try to water during the early morning hours. Proper lawn watering can save a lot of water - and that save you money. For more information on water conservation call (801) 538-7299.*

### Determine Your Lawn Watering Needs

1. Set three or more flat bottom cans or coffee mugs at various places on your lawn at least four feet from the sprinkler head.
2. Turn on your sprinkler(s) for 15 minutes.
3. Measure the depth of water in each can with a ruler and determine the average water depth in the cans.
4. Match your sprinkler output with the table below. Then water the number of minutes indicated.

Water Depth in Cans		1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
Season		Watering Time in Minutes								
	Spring (water every 4 days)	52	34	26	20	17	13	10	9	6
	Summer (water every 3 days)	104	69	52	41	35	26	21	17	13
	Fall (water every 3 days)	69	51	39	31	26	19	15	13	10

Water through October 15 and again November 1st for Winter.

Note: If water begins to run off; stop and let it soak in a few minutes, then continue for the recommended time.

St George / Dixie Area - Add 10 minutes to the watering times above.

- Copied from the Utah Division of Water Resources' Lawn Watering Guide

### Types of Plants

One of the best ways to protect your ground water is to use plants that are drought-tolerant and that are adapted to your area. Drought-tolerant or low-water-use plants can continue to survive once they are established, even during times of little rainfall. Because you do not have to water these plants, there is less chance that nitrate and pesticides will be carried with the water through the soil and into the ground water.

If low-water-use plants are not practical, then try to use medium water use plants. Water these plants only when they begin to show drought stress. Some plants will wilt when they are drought-stressed, while other plants will show marginal leaf burn.

### For More Information

For more information about the use of pesticides and fertilizer for lawn and garden care and protecting ground water, contact your local health department or county Extension agent.

- Adapted from North Carolina materials produced for their Home\*A\*Syst Program.
- Utah Division of Drinking Water, Source Protection Program