



# Lawn Weed Control

A SERIES OF WATER QUALITY FACT SHEETS FOR RESIDENTIAL AREAS

**D**andelions have engulfed your lawn and you've decided to fight back. But when you get to the lawn and garden center, you find several brands of herbicides and even more brands of fertilizers with herbicides mixed in. Some even throw in an insecticide. Now what do you do?

Go back home and develop a turf management program, because weeds are symptoms of more serious problems in your yard and an herbicide will only treat the symptoms. To put it a different way, weeds do not produce unhealthy lawns, unhealthy lawns produce weeds. Good turf management, rather than the right herbicide, is the first step in an effective, environmentally sound weed control program.



## *The First Step*

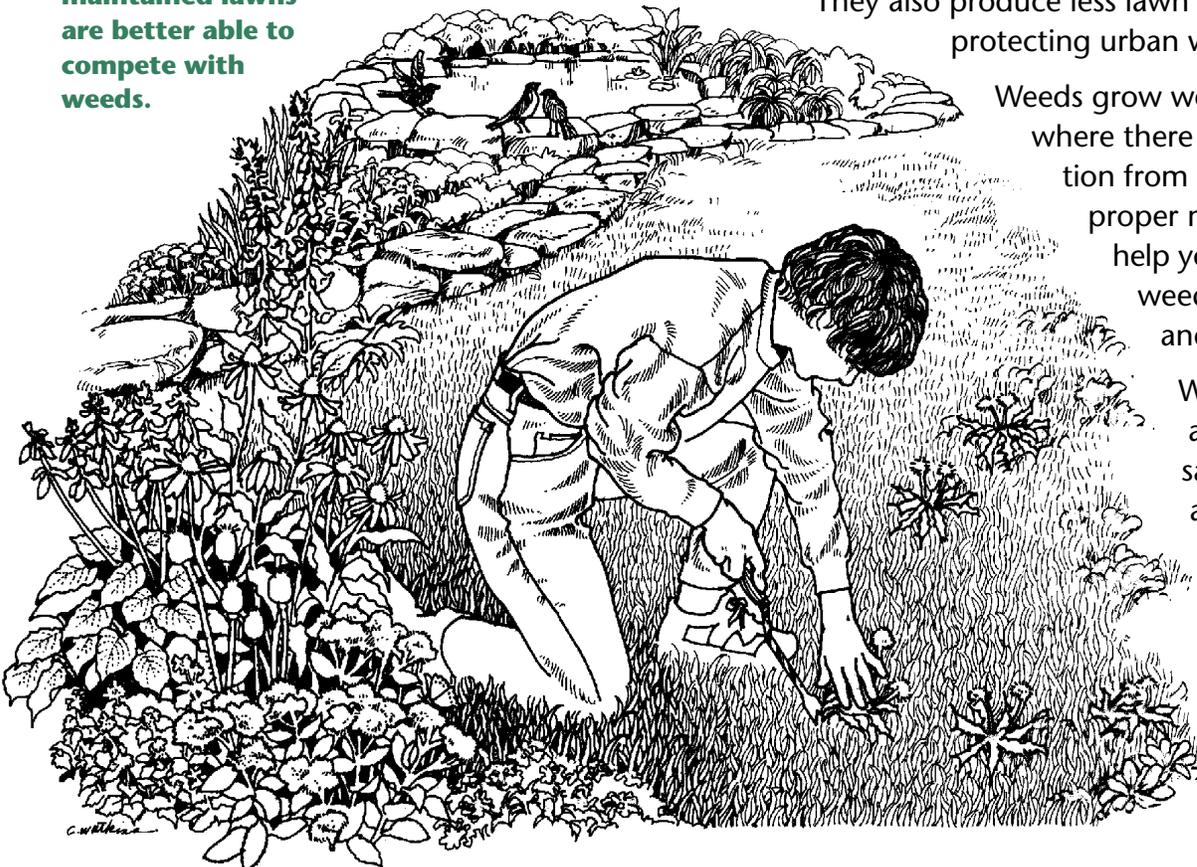
Turf management begins with proper planning and proper lawn establishment. A properly established lawn is part of a landscape plan that matches your needs with the environmental conditions present (soil type, wetness/dryness, trees, etc.) Such lawns are better able to prevent weed problems, tolerate insects and disease, and endure seasonal weather extremes.

They also produce less lawn chemical runoff, thus protecting urban water quality.

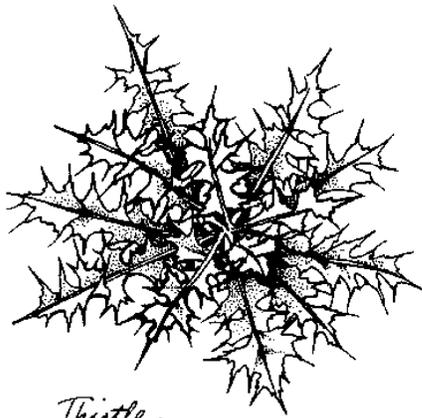
**Healthy, well-maintained lawns are better able to compete with weeds.**

Weeds grow well in open areas where there is minimal competition from turf grasses. With proper maintenance, you can help your lawn out-compete weeds for light, nutrients and water.

When a few weeds do appear, hand-digging saves time and money, and is healthier for the environment than herbicide treatments.



Some people have the advantage of starting out right by establishing a landscape plan and lawn at their new homesite. Many others must work around what's already there and perhaps do a little seeding or repair. Whether sowing seed or laying sod, you want to give the lawn a head start so that it out-competes weeds, survives the winter, and isn't set back by insects and disease.



*Thistle*

### SITE

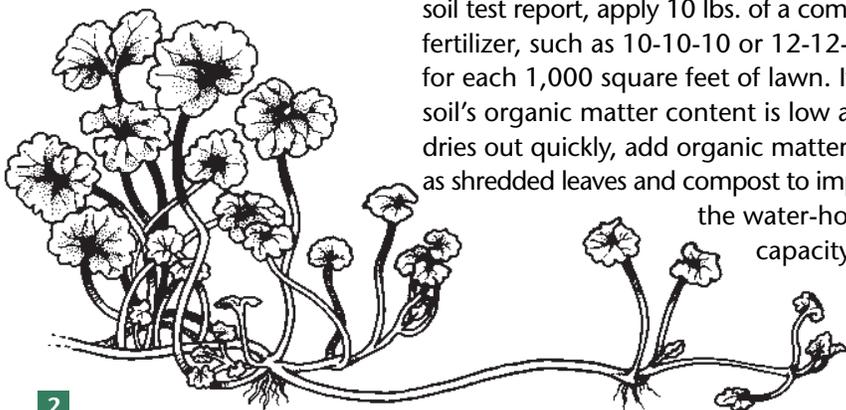
Before you seed an area, make sure that the site does not contain quackgrass. Quackgrass is an aggressive weed that can take over your lawn. You can sometimes remove quackgrass and other perennial weeds with a sharp spade, filling the area with weed-free sod or soil. You can also treat the problem areas with the herbicide glyphosate (Roundup or Kleenup) – then till the soil and re-seed after seven days. South-facing slopes are often hot and dry during the summer months, and weeds may grow better than turf grasses. If this is a problem, you may want to consider other landscaping options such as prairie grasses or wildflowers.

### SOIL

Poor drainage and compacted (hard) soils cause some of the most serious turf problems. Although turf grasses have difficulty growing in these areas, weeds such as annual bluegrass and knotweed grow very well. You can break up a compacted layer and often improve drainage by tilling the soil. You can also improve drainage by regrading and eliminating low spots where water collects.

Before seeding, have your soil tested and apply fertilizer and lime as recommended by the soil test report. If you can't get a soil test report, apply 10 lbs. of a complete fertilizer, such as 10-10-10 or 12-12-12 for each 1,000 square feet of lawn. If the soil's organic matter content is low and it dries out quickly, add organic matter such as shredded leaves and compost to improve the water-holding capacity.

*Creeping Charlie*



### SEED SELECTION

Since you are striving for a weed-free lawn, use grass seed that contains very little "weed seed" (usually 0.05%) and "other crop seed" (0.15% or less). You should also use varieties that are resistant to diseases in your area, and that can survive the winter. If your yard has a lot of trees, select a shade-tolerant grass species such as fine fescue. (Fine fescue includes creeping red, chewings and hard fescue.) If the lawn will receive heavy use from children and pets, select a grass species designed for heavy use, such as bluegrass.

### SEEDING

When you prepare a seedbed for grass seed you are also preparing a seedbed for weeds. The best time to seed your lawn is between August and mid-September. Weed pressure then is lower than in the spring, and approaching cold fall weather will kill most germinating weeds before they can produce seed. Remember to mulch all newly seeded areas.

### TREES

Kentucky bluegrass requires approximately 6 hours of full sunlight each day. If your yard is heavily shaded, the bluegrass will eventually thin out and leave open areas where weeds can grow. The most common weeds associated with shade are ground ivy (creeping charlie), moss and chickweeds. If shade is a problem, plant shade-tolerant grasses (such as fine fescue), use shade-tolerant ground covers or woodland plantings, or prune trees so more light reaches the yard. Similar landscape adjustments may be advisable on the north side of homes, particularly two-story homes.

One of the most overlooked lawn management tools is the mower. Mow high, mow frequently, keep the blade sharp, and return the clippings to the lawn.

### MOW HIGH

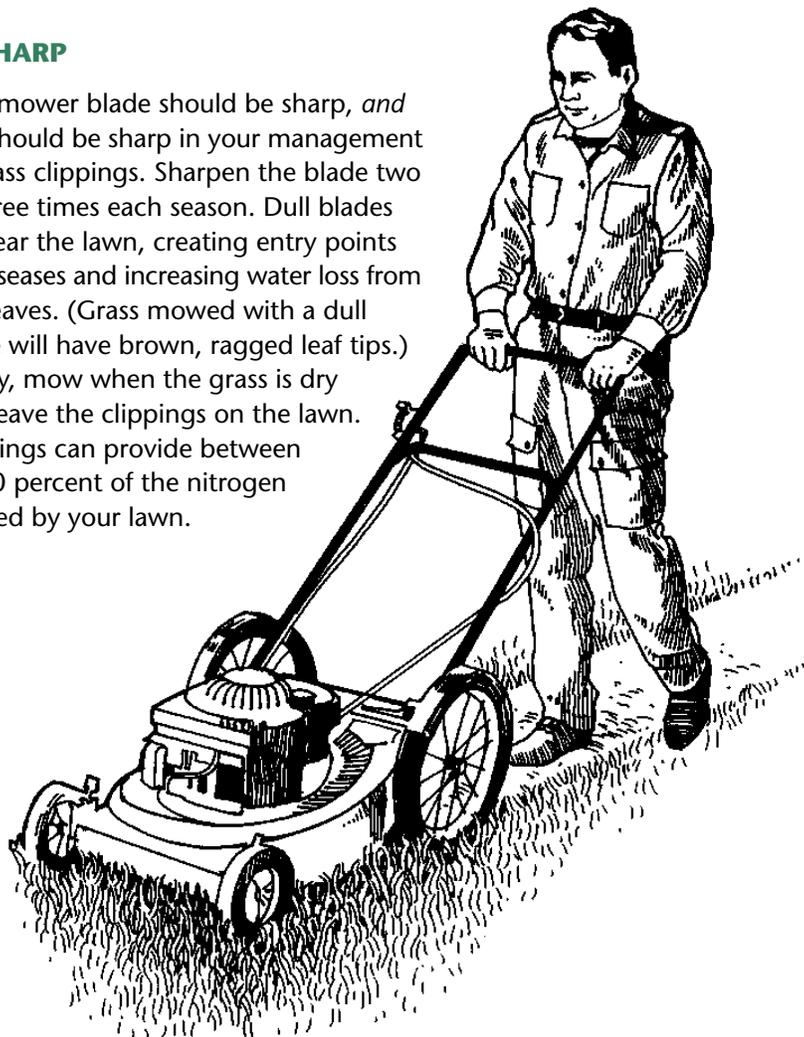
Set your mower at 2½ to 3 inches to provide more leaf area to shade the soil. Weeds thrive in bare, sunny soil but suffer under tall, dense turf. Greater length also helps the grass produce more food reserves and a deeper root system. Near the end of the mowing season, however, cut the grass shorter (2 inches). Long grass increases the chances of winter injury and snow mold.

### MOW FREQUENTLY

It's best not to remove more than one-third of the leaf blade. Therefore, if you normally cut the lawn 2½ inches high, start mowing when the lawn is 3¾ inches high. Removing more than one-third of the leaf blade shocks the lawn and stops the root growth. It also produces long grass clippings that cannot easily filter down to the soil surface where they decay.

### BE SHARP

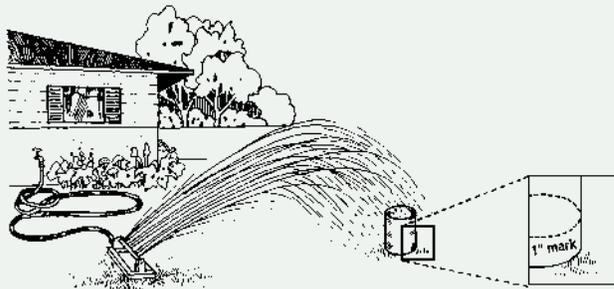
Your mower blade should be sharp, and you should be sharp in your management of grass clippings. Sharpen the blade two to three times each season. Dull blades will tear the lawn, creating entry points for diseases and increasing water loss from the leaves. (Grass mowed with a dull blade will have brown, ragged leaf tips.) Finally, mow when the grass is dry and leave the clippings on the lawn. Clippings can provide between 20-50 percent of the nitrogen needed by your lawn.



## Lawn Watering: A Special Consideration

Some people want to start their lawn sprinklers right after they've mowed their lawn, realizing that newly cut grass blades lose water quickly. But few people realize that improper watering may weaken lawns and encourage weeds. Follow a couple of simple rules:

- ✓ If you water your lawn, water it infrequently but thoroughly in the early morning. Light, frequent, shallow watering encourages some diseases and may promote the growth of shallow-rooted weeds. Grass needs about one inch of water per week from a sprinkler, a rain shower or a combination.
- ✓ An exception to the above is a newly seeded or sodded lawn when the weather turns hot and dry. Light watering every other day is advisable to keep the surface moist, after a heavy soaking when you first put in a lawn.



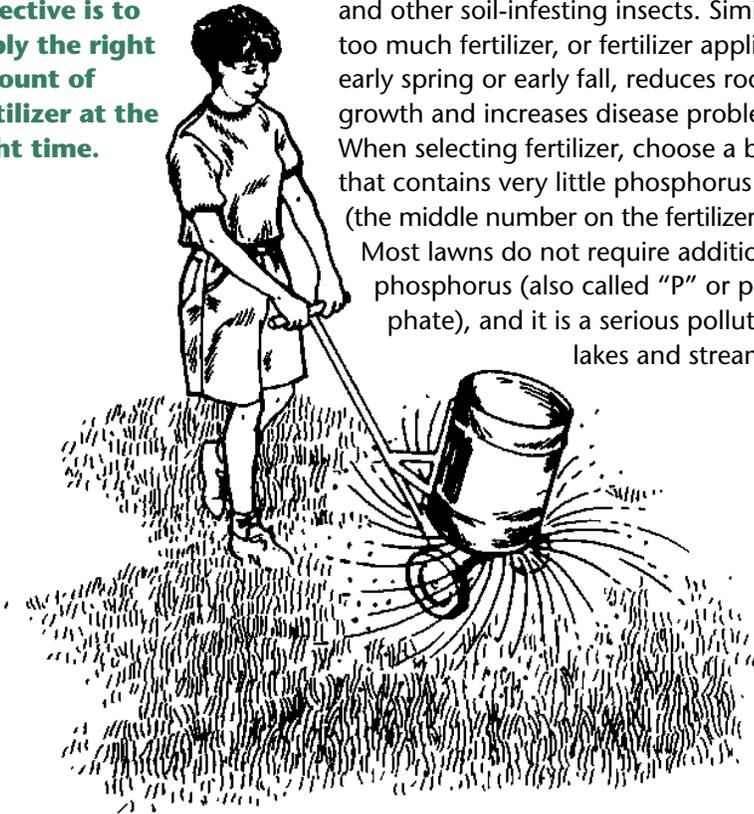
For more information, refer to Extension publication GWQ012, *Lawn Watering*.

**GETTING STARTED**

Start with a soil test, and apply fertilizer according to the recommendations in the soil test report. If you do not have a soil test report, apply up to 1.0 pound of nitrogen per 1,000 square feet of turf in mid-October. You may also repeat this application in early June. The table below provides information on fertilizer application rates.

Infertile soils can cause the grass to become thin and more susceptible to not only weeds, but attacks from white grubs and other soil-infesting insects. Similarly, too much fertilizer, or fertilizer applied in early spring or early fall, reduces root growth and increases disease problems. When selecting fertilizer, choose a brand that contains very little phosphorus (the middle number on the fertilizer bag). Most lawns do not require additional phosphorus (also called "P" or phosphate), and it is a serious pollutant in lakes and streams.

**Too much fertilizer, not enough fertilizer, or fertilizer applied at the wrong time can weaken your lawn and allow weeds to enter. Your objective is to apply the right amount of fertilizer at the right time.**



**WEED & FEED MIXES**

Many homeowners buy fertilizer/herbicide mixes, which sometime lead to unnecessary herbicide applications. Herbicides are frequently found in the water that flows through storm sewers, most of which empty into the nearest stream. You can help keep our waterways pesticide-free by practicing the following tips:

- If you spread granular weed-and-feed type fertilizer, keep it on the lawn. If granules accidentally land on paved areas, sweep them onto the grass.
- If you use a liquid herbicide, be careful not to overspray the lawn, and do not spray it on a windy day. The herbicides may land on the street or sidewalk and wash into the storm sewer. They may also drift onto shrubs and sensitive garden plants, or across your property line.
- When cleaning your fertilizer or herbicide application equipment, the rinse water will contain small concentrations of chemicals. Therefore, do not wash the equipment on the driveway and do not dump any water into the gutter or storm sewer grate. Apply the rinse water to the lawn.

**Nitrogen application guidelines**

Time of Application <sup>1</sup>	Pounds of nitrogen per 1,000 square feet of lawn	
	Grass Clippings Removed	Grass Clippings Not Removed <sup>2</sup>
October 1	1.25	1.00
Late May	1.25	1.00
Late June	0.75	0.50
Late August (optional)	0.75	0.50

<sup>1</sup>Fall nitrogen fertilizers should be water soluble and contain nitrate or ammonia forms of nitrogen such as urea, ammonium nitrate or ammonium sulfate.

<sup>2</sup>Grass clippings are organic fertilizers containing 3-4% nitrogen when dry.

Note: You can use a simple calculation to determine how much fertilizer to apply to reach a recommended level of nitrogen. For example, if you want to apply 1.00 lb. of nitrogen using 25-4-5 fertilizer, divide 1.00 by 25 percent (or .25). The answer is 4. In this case, to get the recommended 1.00 pound of nitrogen, apply 4 lbs. of the fertilizer mixture per 1,000 sq. ft. of lawn. (Of course, you also need to determine the size of the lawn.)

Even if you properly establish and maintain your lawn, some weeds will still find room to grow. You can kill most of these weeds by digging or pulling. If you decided that an herbicide is needed, however, your first step is to properly identify the weeds.

Weeds are characterized by their growth habits and appearance. **Annual weeds** germinate from seeds and only live one year. **Winter annuals**, such as shepherd's purse, germinate in the fall and complete their life cycle in the spring. **Summer annuals**, such as crabgrass, germinate in the spring and complete their life cycle in the fall. **Perennials** live more than two years and commonly go dormant in the summer and resume growth in the fall. Dandelions are the most common perennial lawn weeds. **Broadleaf weeds**, as their name implies, have wide leaves with prominent veins, and many have one main root called a tap root. **Grasses** have narrow leaves and branching (fibrous) root systems.

**Crabgrass (annual)**

**CULTURAL CONTROL**

Crabgrass germinates from seed during warm weather, so you can control it by eliminating both the seed source and areas where the seeds can germinate – bare soil or thin, open turf. Since crabgrass seedlings are not shade-tolerant, a thick, healthy lawn mowed 2½ to 3 inches high – and shade from trees – can inhibit its growth. The crabgrass life cycle ends in October when seeds fall to the ground and lie dormant until the following summer. Therefore, you can reseed these areas in the fall and then fertilize the lawn in order to encourage dense turf growth. Maintain the dense growth the following spring by mowing high. If you water your lawn, water deeply. Light watering, which only wets the soil surface, actually encourages crabgrass growth.

**CHEMICAL CONTROL**

Since crabgrass germinates from seed, there is no need to treat the entire lawn with an herbicide. Just note where crabgrass is a problem and treat those areas with a pre-emergence herbicide the following spring. Crabgrass requires adequate moisture and soil temperatures between 60-65 degrees to germinate. A pre-emergence herbicide kills the germinating seedlings and should be applied before the forsythia's yellow flowers appear.

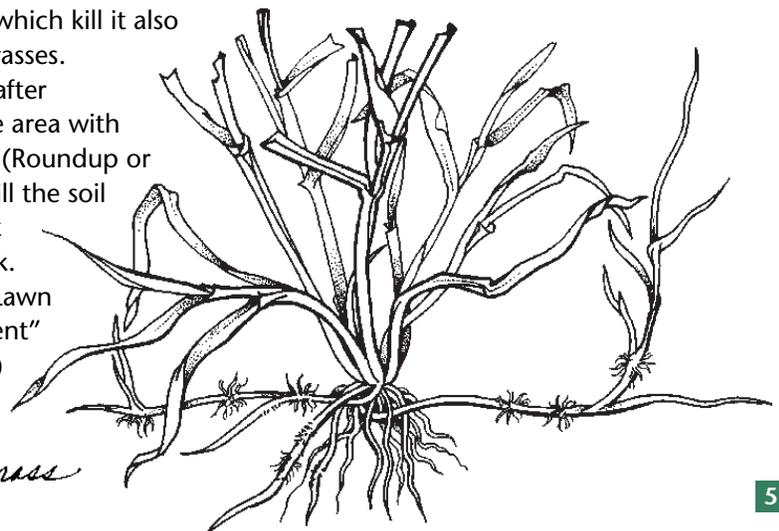
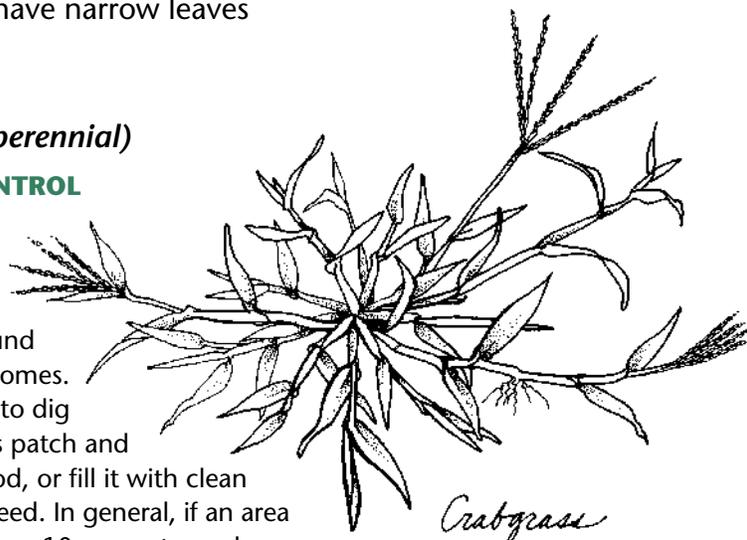
**Quackgrass (perennial)**

**CULTURAL CONTROL**

Quackgrass is a perennial weed that spreads by white underground stems called rhizomes. You may decide to dig out a quackgrass patch and replace it with sod, or fill it with clean soil and then reseed. In general, if an area contains more than 10 percent quackgrass, you should remove it and reseed.

**CHEMICAL CONTROL**

Many people mistakenly identify quackgrass as crabgrass and become frustrated when their crabgrass killer does not work. Quackgrass cannot be selectively removed from a lawn because herbicides which kill it also kill other grasses. Therefore, after treating the area with glyphosate (Roundup or Kleenup), till the soil and replant after a week. (See also "Lawn Establishment" on page 2.)



**CULTURAL CONTROL**

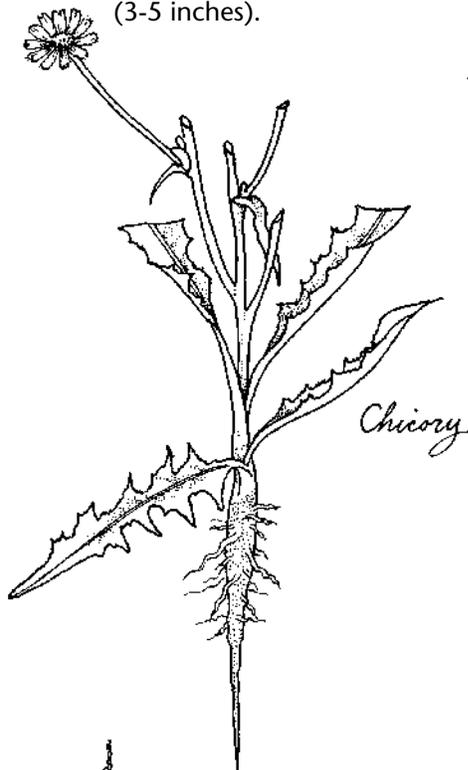
You can control dandelions, thistles, buckhorn and broadleaf plantain, chicory, white clover, spotted spurge, pennywort, field sorrel, ground ivy (creeping charlie), creeping jenny and mouse-eared chickweed by digging. This is most effective in the spring (April or May) when weeds have their lowest food reserves stored in roots. In the fall, food reserves are at their peak and weeds are more likely to grow back after digging. You can reduce food reserves, however, and kill weeds by periodically digging them during the summer. Try to dig or cut the roots as deeply as possible (3-5 inches).

**CHEMICAL CONTROL**

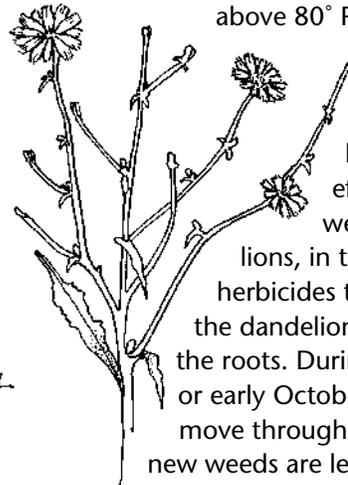
Herbicides containing 2,4-D, MCPP, or Banvel (dicamba) will control most broadleaf weeds. MCPP is particularly effective on chickweed. Dicamba should only be used on difficult weeds, however, because it can leach through the soil and be absorbed by tree roots, harming or killing the tree.

Most lawn and garden plants, especially tomatoes, are very susceptible to herbicides that kill broadleaf weeds. Therefore, apply these chemicals to lawns only when necessary, and do it before or after the gardening season. Most broadleaf herbicides are very volatile (become a gas) at summer temperatures commonly above 80° F and the vapor can drift, injuring nearby sensitive plants.

Furthermore, these herbicides are more effective in controlling weeds, especially dandelions, in the fall. In the spring, herbicides tend to accumulate in the dandelion flower rather than in the roots. During fall (late September or early October), chemicals quickly move through the entire plant, and new weeds are less likely to fill in the open areas left by the dead weeds.



*Chicory*



*Broadleaf plantain*



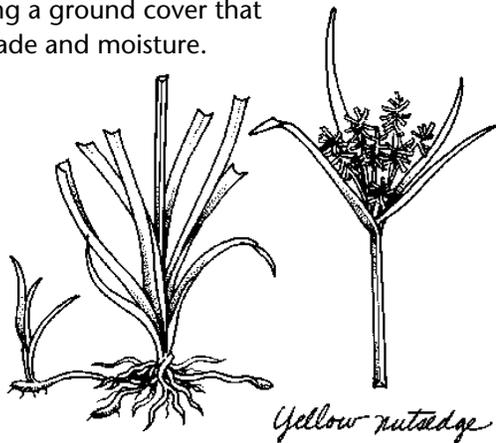
*Buckhorn plantain*

**CULTURAL CONTROL**

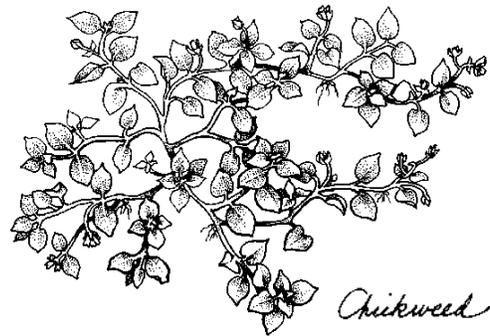
Moss, algae and knotweed are clear indications of unsatisfactory growing conditions for grass. Knotweed can grow in compacted soils along driveways and sidewalks. Moss and algae can tolerate infertile and acidic soils (low pH), wet soils, excessive shade, soil compaction, poor air circulation, or a combination of these factors. Moss and algae cannot compete with grass for light, water and nutrients, and they do not attack grasses like a parasite. You can eliminate these weeds, and yellow nutsedge which also tolerates wet conditions, simply by making the site more suitable for grass, or by establishing a ground cover that is tolerant to shade and moisture.



*Knotweed*



*Yellow nutsedge*



*Chickweed*

**White Clover: Is It a Weed?**

What is a weed? To some, it's a plant out of place. To others, it's an unwanted plant. Still, others seem to think a weed is simply a plant that overtakes a lawn by crowding out grass. One familiar plant that seems to fall in each of these categories is white clover. But white clover didn't always hold such dubious distinctions.

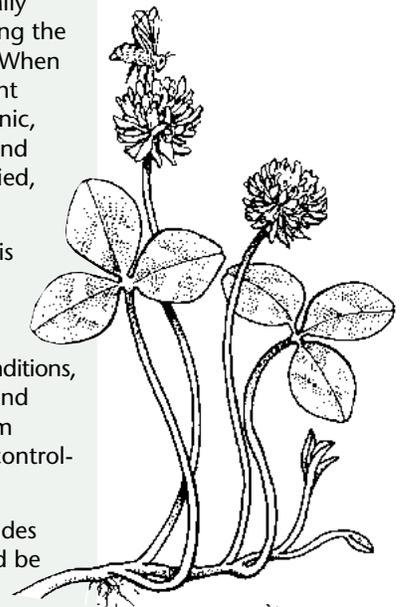
Clover was once highly prized in lawns because of its soft texture and its contribution of nitrogen to the soil. Then in the 1950s, a lawn-seed company campaigned to convince the public that clover was noxious. A lot of lawn lovers were converted into clover clippers – a lucky occurrence indeed for the company, which had recently introduced a chemical to kill clover.

Nevertheless, white clover can be particularly frustrating for those trying to eradicate it from their lawn because it's

difficult to kill. Clover leaves can literally shed weed and feed products – causing the leaves to turn brown at the margins. When this happens we reach for more potent chemicals. This whole sequence is ironic, since the valuable nitrogen in weed and feed products could have been supplied, at least in part, by the clover.

For those not fond of white clover, it is generally a greater problem (more aggressive) on wet soils, in years of excessive rainfall, and under high potassium fertilization. Under these conditions, cutbacks on supplemental watering and testing the soil before using potassium fertilizers should be the first steps in controlling this "weed."

On the other hand, since clover provides benefits to the lawn, perhaps it would be a good subject around which to start rethinking lawn weed control.



*White clover*



## THINK THINGS THROUGH

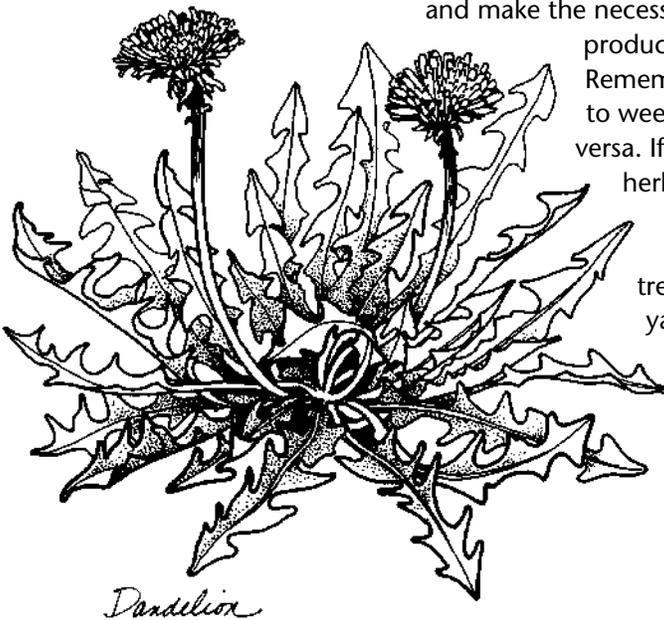
Concerns over human health, pets, wildlife, and water quality have prompted many communities to pass lawn care ordinances that govern the use of pesticides (including herbicides). These ordinances, at a minimum, require that affected residents post their lawn after a pesticide application. Herbicides are widely available; however, their use should not be routine. They should only be used on the most difficult weed problems.

### SOME FINAL THOUGHTS

Battling weeds can be time-consuming, frustrating, and expensive. Your best defense against weeds is a landscape plan. A landscape plan will help you decide if grass is the best alternative for the problem areas in your lawn.

Soil contains thousands of weed seeds and even healthy lawns will have some weeds. Therefore, learn to live with a few of them. If weeds start to invade your lawn, examine your maintenance program and make the necessary adjustments to produce a healthier lawn.

Remember weak lawns lead to weedy lawns, not vice-versa. If you decide that an herbicide is necessary, consider spot treatments rather than treating the entire yard.



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### ADDITIONAL INFORMATION

For more information on lawn care alternatives, contact your county Extension office for the following publications:

A3434 Lawn Establishment

A3435 Lawn Maintenance and Problems



Printed on recycled paper

GWQ013 Lawn Weed Control

DNR WT-527-99

R-09-99-10M-30-S

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