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Smart Gardening Fact Sheet

LAWN CARE AND GRASS RECYCLING

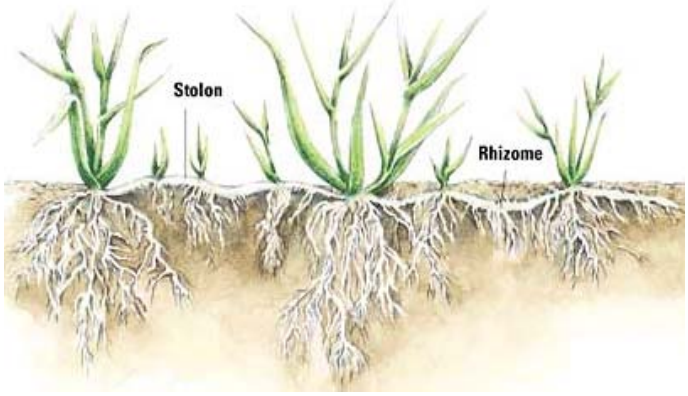
I always thought a yard was three feet . . . then I started mowing the lawn.
Mrs. C.E. Cowman, 1965
"Twelve Red Tomatoes"

GRASS RECYCLING

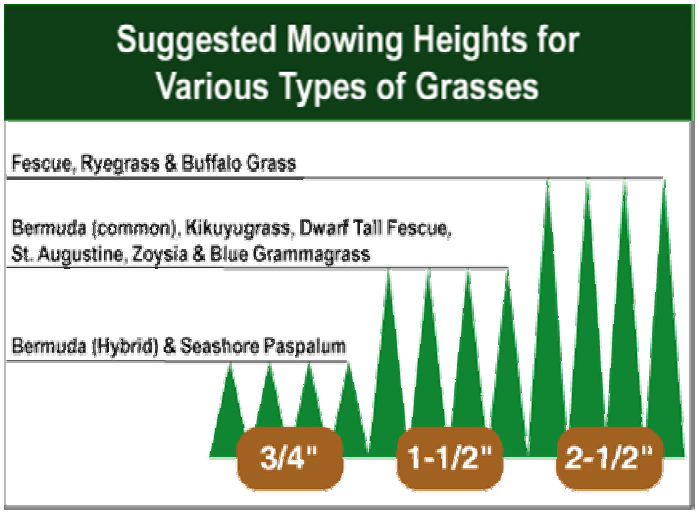
Grass recycling is a simple and natural approach to lawn care. Clippings are left on the lawn after mowing to decompose quickly, releasing valuable nutrients back into the soil. Proper mowing, watering and fertilizing of a lawn results in moderate turf growth, yet still produces a healthy green lawn. Follow these simple suggestions:

MOWING

Perhaps the single most important activity required to develop and maintain a good-looking lawn is proper mowing. It is important to remember that grass is intended by nature to grow and mature at a height far in excess of the height most people want for a lawn. This forces the grass plant to live at a much lower height.



To grow properly, grass roots need access to air and water. If you let your grass get too tall, the grass itself can block both air and water from reaching the root system. At the same time, you should never cut more than 1/3 of the actual height of grass at any one time. Cutting off more than that will risk severely damaging the individual grass plants, leading to a dull, lifeless-looking lawn or worse, brown spots of dead grass.



Grass recycling can be done with almost any mower, just remove the collection bag so grass clippings drop to the lawn. You should cut your grass when it's dry and free of leaves. Mow often enough so that no more than 1/3 of the length of the grass blade is cut allowing clippings to fall easily through the grass surface. Grass recycling can help produce a healthy green lawn with moderate turf growth.

To develop a good mowing program, you should know something about how a grass plant functions. The most significant effect of mowing is the reduction of the plant's leaf surface area. The leaf system manufactures and supplies the plant with food. During the active growing months (spring and fall for cool-season grasses and summer and early fall for warm-season grasses), food production is high, and the plant is able to store the excess as a reserve. During periods

of stress or dormancy (like mowing or drought), the plant will draw on these reserves to survive.

Mowing at heights lower than optimum during periods of active growth may seriously impair the grass plant's ability to develop adequate food reserves for stress or dormancy periods. The resulting death of the plant will usually be blamed on heat or cold injury, when in fact the real cause was mowing the grass too low which depleted the food reserves.

When you mow your lawn, the grass plants' first priority becomes regrowth to replace the lost leaf surface area. The stress this flush of new growth places on the grass plants' food reserves may reduce the supply of food available to the root system for a short period. Because regrowing leaves has priority over growing roots, rhizomes or stolons, mowing your lawn may in fact result in a temporary reduction of root growth. The larger the amount or percentage of leaf tissue removed, the longer the period of reduced root growth.

There is also a direct relationship between the cutting height of your lawn and total volume of its' root system. The grass plant, just like all other plants, develops a balance between its top parts and its root system. A certain size of root system is needed to support a certain volume of top growth and vice versa. If either the leaves of the grass plant or its' root system is reduced, the plant reacts by reducing the other.

This is analogous to what happens when you transplant a tree. The top is pruned to compensate for the root system that is lost during the digging operation. When turf grass plants are mowed, their top parts are reduced. The plant no longer needs the same size of root system, so for the plant to achieve balance, its root system is reduced. The more its top growth is reduced (i.e., the lower the cutting height), the shallower the root system becomes. A shallow root system may seriously impair the plant's ability to withstand stress, particularly drought and heat.

Another important function of the leaf system is insulation. The growing points, or crown, of most grass plants are at or near the soil surface. This area is the site of most of the biochemical processes that control growth. These areas of the grass plant are also very temperature sensitive. The upper optimum temperature range for cool-season grasses is about 60º F to 75º F, and for warm-season grasses is from about 80º F to 95º F. When the temperature at the growing point rises above these ranges, the growth process begins to slow down. If the temperature of the growing point gets too high for a long enough period of time (especially cool-season grass), the grass plant will become dormant.

The leaf surface insulates the growing point from high temperatures. As the leaf surface area is reduced by mowing, the amount of insulation available for the growing point is reduced. Cutting your lawn lower than the ideal height makes the plant susceptible to high temperature injury. This is important when maintaining cool season grasses.

Most lawns are also subject to some amount of wear induced stress. The leaf surface area of a turf grass protects the growing point of the plant from the direct mechanical injury associated with normal use. As the leaf surface is reduced, the growing point on the grass may be damaged, killing the grass plant. Lawns that are cut too low are subject to high heat damage and wear stress and may gradually thin out.

Mowing practices may also affect the occurrence of disease. Many times an increase in disease problems is observed with turf maintained below its optimum cutting height. This may be associated with the weaker type of turf plant that results from extremely low cutting heights.

Just as proper cutting height is important, so is the frequency at which your lawn is cut. Ideally, the frequency between mowing should be as long as possible to allow the plant to recover from the first cutting. Leaf growth rate and the use of the lawn will, to a large degree, dictate mowing frequency. A single mowing should not remove more than ⅓ of the leaf surface.

WATERING YOUR LAWN

The various species of grass vary widely in their need for water. Most common grass species in California need between ½" and 1 inch of water every 5 to 7 days when the weather is warm, and much less when the weather is cool.

It's actually not that difficult to tell when your lawn needs watering. In the early morning, walk across you lawn. If the grass blades stay bend down for more than 1 – 2 minutes, then your grass needs watering. If not, then your grass

doesn't need watering today. You should check your lawn each day if you want to avoid over- and under-watering your lawn.

Another good practice is checking your irrigation system regularly for leaks and to avoid water runoff or over-spraying, especially if the lawn is on a slope. Look for broken, tilted, or clogged sprinkler heads, and adjust sprinkler heads to ensure even coverage. Remember to change your irrigation timer seasonally to match the water needs of the turf. Contact your local water agency for information and assistance on irrigation scheduling.

Water your lawn early in the morning so water has time to soak into the soil before the heat of the sun causes it to evaporate. Sprinklers should be left on long enough to allow water to soak into the ground but not so long to cause runoff. Deep watering allows grass to develop a deep root system, enabling the lawn to resist disease and drought. Over-watering is wasteful and causes your lawn to grow too fast, resulting in more frequent mowing. Watering too frequently will cause your lawn to develop a shallow root system, which may make it more susceptible to stress and disease. You should also try to avoid watering in the evening because this allows your lawn to stay damp all night providing ideal conditions for a wide range of opportunistic fungal diseases to get started.

FERTILIZING YOUR LAWN

Fertilizers are used to improve or maintain the quality and appearance of your lawn and garden. A well-planned and environmentally sound fertilization program should consider several factors, including: natural soil fertility, fertilizer nutrient characteristics, desired lawn quality or appearance goals, required application rate and frequency, seasonal issues and your desired method of application.

Before beginning a lawn fertilization program, a soil test should be done to determine the natural fertility of your soil under your lawn. The results will indicate the types and quantities of nutrients your soil can provide to your lawn. The test will also indicate your soil's natural pH as well as it's organic content. You should contact a local soils testing laboratory or your County Agricultural Extension Service agent for more information on how to sample the soil and submit it for analysis, as well as the costs involved.

Based on the results and interpretation of your soil test, you should choose a fertilizer with the appropriate amounts of nitrogen, phosphate, and potassium required for your lawn. If your test indicates that your soil naturally has high levels of phosphorus and potassium available, then a fertilizer supplying only nitrogen would be indicated.

Fertilizer analysis is described using three numbers (i.e., 12-4-8 or 46-0-0) indicating, respectively, the percent by weight of nitrogen (N), phosphate (P), and potash (K). For example, a 12-4-8 fertilizer would contain 12% nitrogen, 4% phosphate, and 8% potash by weight.

The nitrogen content in turf maintenance fertilizers is derived from either a quickly available or slowly available source. Quickly available sources are usually highly water soluble, bioavailable mixtures that can be readily utilized by your grass. They include ammonium nitrate, urea, ammonium sulfate, and calcium nitrate.

Slowly available sources contain water insoluble nitrogen (WIN), usually from urea formaldehyde (UF), UF based products (methylene ureas), sulfur coated urea, natural organics (bone meal, fish meal, dried blood, and animal manures), and activated sewage sludge. Slowly available nitrogen sources release nitrogen only after soil microbes metabolize the carrier chemical matrix. This releases the nitrogen over extended periods of time so that you need to apply it less frequently. Slow release nitrogen sources are usually less susceptible to leaching and are generally preferred on sandy soil types which tend to leach.

One very effective method of fertilizing using slow release nitrogen sources is to apply small amounts of these fertilizers on a regular basis. This is more effective than applying larger amounts less often.

Proper timing of fertilizer application is different for warm-season and cool-season grasses because of their different growth cycles. The following four charts show the recommendations of the USDA for pounds of actual nitrogen per 1000 square feet of lawn area using both quick release and slow release nitrogen sources for both warm- and cool-season grasses.

Fertilizer Application

It is important to apply all fertilizers uniformly. This will help reduce or eliminate streaks of different shades of green in your lawn caused by uneven application. Proper application of nitrogen fertilizers by hand is difficult, even for a trained professional.

Drop-type, or rotary, fertilizer spreaders are most effective, however, they are difficult to maneuver around trees and shrubs. Rotary spreaders usually give better distribution where sharp turns are encountered because they tend to cover a broader swath and fan the fertilizer out at the edges of the swath. By applying half the material in one direction and the other half in a perpendicular direction, streaking can be minimized. Avoid application of any fertilizer to non-lawn areas (driveways, roads, or bare soil) since it is then prone to run off which could affect water supplies.

You should follow the manufacturer's directions, or use the following chart to determine the correct amount of fertilizer when applying nitrogen required per 1000 square feet.

Common Fertilizer Analysis	Pounds of nitrogen desired per 1000 sq. ft.			
	½	1	1-½*	2*
	Pounds of fertilizer per 1000 sq. ft.			
6-2-0	8.3	16.6	25.0	33.0
10-10-10	5.0	10.0	15.0	20.0
12-4-8	4.1	8.3	12.5	17.0
16-8-8	3.1	6.2	9.4	12.0
20-0-16	2.5	5.0	7.5	10.0
23-3-7	2.1	4.3	6.5	8.6
28-0-12	1.8	3.6	5.3	7.2
31-0-0	1.6	3.2	4.8	6.4
33.5-0-0	1.5	3.0	4.5	6.0
38-0-0	1.3	2.6	3.9	5.2
46-0-0	1.1	2.2	3.2	4.4

*These amounts are only recommended for predominantly slowly available nitrogen sources

You should never allow fertilizers or other garden and lawn chemicals to run-off into storm drains or sewers. Also, slow-release nitrogen fertilizers do not produce the lush, fast growth associated with water-soluble fertilizers which should result in a longer period between when your grass will need mowing.

Also, never dispose of old yard and garden chemicals by dumping them down the storm drains or into the sewer system. Just take them to a Household Hazardous Waste Collection Event to dispose of them in an environmentally sound manner.

TYPES OF GRASS

Although there are many different species of grasses used to make lawns, each species can be grouped into one of two basic types of grass: Cool-season and Warm-season Grasses. In Southern California, warm-season grasses generally tend to perform better than cool-season grasses, but check with your local nursery or turf grass supplier.

Cool-season Grasses	
Generic Name	**Description**
Bentgrass	Does not tolerate hot, dry weather, nor cold winters. Needs frequent, low mowing to do well.
Bluegrass (Kentucky)	Not recommended for use in Southern California lawns as it goes dormant in hot, dry weather as well as winter. Does poorly in extremely shady areas.
Bluegrass (Rough)	Works well in shady areas. Does not blend well with other lawn grasses.
Fescue (Red/Creeping)	Does well in shady and cooler areas, non-aggressive tendencies; looks good even in un-mown conditions such as along roadways.
Fescue (Fine)	Shade tolerant, but does require some sun. Very fine leaves. Very good in drought situations.
Fescue (Tall)	There are several cultivars of dwarf tall fescues that have been developed that have a higher resistance to disease and heat than older varieties and do well in Southern California lawns.
Ryegrass (Annual)	Often found in low priced grass seed. Commonly used mixed with warm-season grasses to provide color during winter months.
Ryegrass (Perennial)	Common perennial ryegrass usually only lasts one season. Germinates quickly and can be used as a temporary ground cover while the slower growing grasses take hold.

Warm-season Grasses	
Generic Name	**Description**
Bahiagrass	A South American native, it is resistant to draught, disease and insect attacks. Will survive in a variety of soils from sandy to clay and other infertile, dry soils. Requires some maintenance. The grass will thin out over time and has a low tolerance to many weed control herbicides. Not suitable for soils with high a pH.
Bermudagrass	An African native, this species prefers full sun, draught resistant, can withstand heavy traffic. Turns brown with the first drop in temperature. There are more cold tolerant varieties available. A very aggressive grass and flower beds or other areas will be quickly overrun if not kept in check. Once established it is very difficult to remove due to its extensive root system.
Buffalograss	A native grass species that is particularly well suited to Southern California.
Carpetgrass	Creeping perennial grass that does well in wet, poor soils and in shady areas where most other grasses do not do well.. It is similar to centipede in its cold tolerance. It does NOT tolerate salt.
Centipede	Very low maintenance, very tolerant to high temperatures, moderately resistant to drought, will tolerate some shade, but prefers full sun. Not good for heavy traffic areas.
St. Augustine	Good for coastal regions, thrives in heat, does poorly in cool climates. Excellent to fair under drought conditions. Tolerates some traffic. Very shade tolerant. Can be used in moist, semi-fertile soils.
Zoysia	Low maintenance, works well in hot, humid climates. Exceptionally heat tolerant. Moderate to good in drought conditions. Good, slow growth in partial shade. Very shade tolerant and is a superior grass for heavy traffic areas.

NO-MOW LAWNS AND ALTERNATIVE GROUND COVERS

Today it's possible to have a yard that virtually never needs mowing but still looks great. It's called a "No Mow" lawn and several major lawn and garden seed companies have developed a variety of mixes that consist of short flowering and non-flowering plants that hold up well to light to moderate foot traffic and grow densely enough to work well as a grass lawn substitute. Some of the mixes available are also drought tolerate, so they will perform well in our more arid climate zones.

There are a wide variety of possible alternative ground covers that can be instead of lawn grasses. Ground covers are particularly well suited for use on banks or slopes where mowing is difficult.

An alternative ground cover should always be selected with care. First, the plant selected must be adapted to the site if it is to grow and cover the area. Second, the plant selected should not be so vigorous so as to escape and become a weed. Ground covers also require an establishment period which can take from 1 to 3 growing seasons. During this time, the planting area will require weeding until the ground cover grows in and suppresses the weeds. The closer the plants are spaced, the sooner they will cover the area completely.

Ground covers provide an alternative that offers a number of color and texture options in both evergreen and deciduous varieties, and work well in hard-to-reach areas in your landscape. Ground covers keep the soil friable, or loose, ready to receive and percolate falling rain into the ground below. Many native ground covers thrive in shady areas in the landscape receiving less than ideal light. In Southern California, look for ground covers that are well-adapted to our Mediterranean climate conditions and extremes.