Lawns: Planting and Renovation

The lawn has become a central element in American landscapes. Over 50 million homeowners in the U.S. are growing and maintaining lawns. This translates into about 40,000 square miles of residential green space. There are many reasons to have a lawn. They serve as a place to play or as a pleasing, uniform border to highlight other landscape plants. Environmentally, lawns play a part in trapping dust and pollutants, reducing temperatures through cooling the air, producing oxygen and holding soil against erosion. On the other hand, lawns can be quite energy consuming depending upon the amount of fertilizer, water. mowing and pest control they need. Added to this is the human energy and time expended in efforts to keep them growing and healthy for the purpose intended. Overall, lawns are the most demanding of all landscape elements even if you have a low maintenance objective. Minimizing the input of energy into a lawn is an important consideration today. Understanding more about what types of lawns are best for your area, how to establish a lawn, their required maintenance and how to identify and solve problems will help in maximizing their benefit and minimize their energy demand.

Cool and Warm Season Lawns

Lawns can be grouped into two different categories; warm season and cool season grass. Warm season grasses like zoysiagrass, bermudagrass. St. Augustine grass, centipedegrass and buffalograss are best adapted to southern areas of the U.S. where the summers are hot and the winters are mild. They grow well during warm periods and can stay green for the entire year in areas where temperatures stay above 50 degrees. Warm season grasses can be planted in cooler climates, but go dormant, turning yellow to brown when temperatures drop below 50 degrees in late fall. In the normal course, they will begin to green up as soil temperatures rise, however, this will be in the late spring perhaps a month or more after cool season grasses have begun to grow.

Cool season grasses are those that are best adapted to areas where the summers are warm and the winters are cold. This describes an area that sweeps across the northern part of the U.S. However, microclimates and high elevations in warmer areas also may be ideal locations for cool season grasses. The types of cool season grasses include fine and tall fescues, bluegrass, ryegrass and bentgrass. These grow actively during the cool spring and fall periods and slow their growth during the heat of summer. In mid-summer, hot weather and drought may cause these grasses to go dormant only to green up again when cool weather returns and water becomes available. Cool season grasses may also play a part where summers are too hot for cool season grass, but are seeded in the fall over warm season grass. This provides a green cover during a period when the warm season lawn goes dormant and turns brown.

Knowing what types of grass to plant depends upon where you live with respect to climate, rainfall and soil type. Coastal areas of Washington, Oregon, and northern California are considered cool with abundant rainfall. The common grasses grown here are bluegrass, bentgrass, fescue and ryegrass. These will stay green throughout the year with the abundant rainfall.

The very southern parts of California, and the southern half of Arizona and New Mexico as well as western parts of Texas are considered hot and dry. Grasses grown in these areas include zoysia, bermudagrass and St. Augustine grass. During milder periods of winter when these grasses go dormant, perennial ryegrass can be seeded in to provide a green cover. The perennial rye will die out during the heat of summer when warm season grasses become active again. If you live east of the Pacific coastal areas, north of Arizona and New Mexico extending into Canada or in the western half of the Dakotas and Nebraska westward to the Cascade and Sierra Mountains, this is considered to be a cold and dry climate. Grasses commonly grown in these areas include bluegrass and fescue. These do well in otherwise dry climates, going dormant during mid-summer and winter when temperatures drop below 30 degrees.

Portions of the Midwest including eastern sections of the Dakotas, south as far as Nebraska and extending north and east to the east coast have a climate of cold winters and humid summers. Common grass selections include bluegrass, fescue, perennial ryegrass, bentgrass and a few zoysia lawns in more southern sections.

A large central section of the U.S. that sweeps coast to coast extending across southern California, northern Arizona, Mexico and Texas, all of Kansas, Oklahoma, Missouri, Tennessee, Kentucky, Virginia, North and South Carolina as well as southern parts of Illinois, Indiana, Ohio and northern Arkansas comprise an area known as the transition zone for lawn grasses. Here, the winters are cool to cold and the summers can he hot and humid with variable rainfall, but frequently dry. This mixture of climate extremes allows the selection of either cool season or warm season grasses, however, neither are best adapted to this area and therefore, it is called the transition zone. The most common grasses grown are fescues, tolerant to the cold and going dormant during the summer, and zoysia that goes dormant during winter and thrives in the summer heat and humidity.

Southern areas of the U.S. including all of the Deep South are considered to be hot and humid with high rainfall areas along the coastal Gulf region. Lawn grasses grown here include bermudagrass, centipedegrass, St. Augustine grass, and zoysia. Cool season grasses like bluegrass, ryegrass and fescue are used to overseed the warm season grasses in winter and keep lawns green during the dormancy of warm season grasses. Lawns are commonly mowed all season long where temperatures remain moderate.

Grass Selection

Not only is climate important in consideration of what grass type to plant, the intended use and light conditions must also be known in order to make a good selection for your area. Amongst the cool season grasses, the most common are bluegrass, fescue, bentgrass and ryegrass. The warm season grasses include zoysia, bermudagrass, St. Augustine, centipedegrass and buffalograss. Within most of these major groups are subgroups or species selected for desirable characteristics and within subgroups are selected cultivars that differ in wear tolerance, color, growth rate, disease tolerance and texture. As you begin to select a grass type, it is helpful to look at the major groups first to understand their general characteristics and growing preferences.

Bluegrass: The most common bluegrass is Kentucky Bluegrass (*Poa pratensis*) , planted widely in the northern sections of the U.S. where the summers are cool. It is adapted to a wide range of climate conditions and preforms best in open, sunny areas and receiving medium to high fertilization amounts in the spring and fall. Kentucky Bluegrass can withstand moderate amounts of drought, but will go dormant unless supplemental water is provided. Because it can spread by runners or stolens, it will recuperate from some damage without reseeding. Kentucky Bluegrass does not tolerate moderate to heavy shade. Seeding rates for Kentucky Bluegrass are about 1 to 2 pounds per 1,000 sq. ft. For more shade and moisture tolerance, Rough Bluegrass (*Poa trivialis*) works quite well. In sunny areas, Rough Bluegrass tends to out compete Kentucky Bluegrass and other cool season grasses. It is also not as desirable where traffic is prominent since it cannot repair itself as readily as Kentucky Bluegrass. In areas where drought occurs,

Rough Bluegrass will not do well and should be replaced by a more tolerant grass selection. Seeding rate for this grass is 2 to 3 pounds per 1,000 sq. ft.

Fescue: The major categories of fescue include tall, chewing, red and hard fescue. Tall fescue (*Festuca arundinacea*) is a coarse textured grass tolerant to a wide variation in environmental conditions. It has a bunch-type growth habit that causes it to appear clumped and upright. It does not spread rapidly like Kentucky Bluegrass because it lacks underground stolons or rhizomes. Therefore, reseeding is a common practice to repair damaged areas and thin spots. It does best where there are mild winters and warm summers and is the preferred cool season grass for the transition zone area. An extensive, deep root system makes tall fescue a good choice for drought-prone sites. The seeding rate should be about 7 to 10 pounds per 1,000 sq. ft. These rates can be cut in half to repair spots and renovate disease or insect damaged areas. Fine fescues including: chewing, red and hard fescue types, are fine bladed grasses used in blends for sun and more notably shade areas. They establish themselves quickly and spread by tillers or short rhizomes. Chewing fescue (*Festuca rubra commutata*) is an aggressive, shade tolerant grass that is more widely planted in cool, northern climates. Its weaknesses include susceptibility to a number of diseases, an inability to grow well under hot conditions and low wear tolerance. Hard fescue (*Festuca ovina* var. *duriuscula*) is a slow growing, shade tolerant grass grown more commonly in northern climates. It is drought tolerant and more resistant to disease than chewing fescue. The texture of hard fescue is very fine blades that are difficult to mow evenly. Red fescue (*Festuca rubra*) is the most common fine fescue type used in shade and drought-prone areas. It blends well with bluegrass and can creep, spreading by rhizomes and tillers. Red fescue is susceptible to disease in moist soils and tends to thin in hot, dry conditions although more tolerant than chewing fescue. Seeding rates are about 2 to 4 pounds per 1,000 sq. ft.

Bentgrass: Creeping bentgrass (*Agrostis palustris*) is more commonly used for golf greens and tees, but can be used as a residential lawn in cool, northern areas though not highly recommended because of its high maintenance requirement. It grows as a dense carpet and produces a fine-textured and very soft surface desirable for outdoor activities. Bentgrass needs frequent watering and can be mowed closely to achieve a uniform, even look. Its fertilizer requirements are high and lush growth often promotes disease problems. It produces stolons that can quickly repair damaged spots. Bentgrass is not compatible with other grasses and often is found as a weed in lawns of bluegrass and fescue.

Ryegrass: Two types of ryegrass are used in home lawns: annual (*Lolium multiflorum*) and perennial ryegrass (*Lolium perenne*). Annual ryegrass grows best in full sun, but is not drought tolerant and performs poorly in heat and cold. Its habit is one of a clumping nature which makes it difficult to mow evenly. It is more commonly used in warm climates as a winter cover when warm season grasses go dormant. Because it germninates rapidly, annual ryegrass is often used where a fast cover is needed on slopes or moist areas where other grasses are not quick to develop. Annual ryegrass does not produce rhizomes or stolens and so, will not fill in damaged spots. Perennial ryegrass is a darker green color compared to annual ryegrass and has the best wear tolerance of all cool season grasses. It is intolerant to heat, cold and drought and does best in cool climates. Perennial ryegrass is sometimes used as a cover during winter in climates where warm season grasses are planted, however, it tends to persist in the summer making it less desirable under these conditions. It can be planted as either seed or sod and combines well with bluegrass or fescue. It germinates quickly like annual ryegrass and can be used to establish a fast cover for erosion-prone areas. Perennial ryegrass should be sown at the rate of 7 to 10 pounds per 1,000 sq. ft. and is often mixed with other cool season grasses for residential or sport turf areas.

Zoysiagrass: Zoysia (*Zoysia* spp.) is a commonly planted warm season grass in hot areas of the U.S. It is tolerant of heat and drought and can grow in moderate amounts of shade. Its dense growth habit is created by an underground network of rhizomes and stolens. Zoysia can be very aggressive in full sun situations and can overtake cool season grasses, requiring some control to keep it in bounds. Zoysia goes dormant in cool climates in the early fall and will stay dormant throughout the spring making it less desirable for those wishing to have a green lawn all year-round. It is commonly planted from sod or plugs spaced 6 to 12

inches apart that may require two growing seasons to cover an area. Seed of zoysia is also now available and can be spread at the rate of about 1 pound per 1,000 sq. ft. Zoysia should be mowed lower than cool season grasses (1-2 inches), especially in the spring to accelerate green up as the soils warm. It is considered to be a low maintenance grass requiring little fertilizer and water. It is not prone to many diseases or insect damage overall.

Bermudagrass: A widely planted grass in sunny residential and golf course settings in the south, southwest, southeast and mild climates of the west coast, bermudagrass (*Cynodon* spp. and hybrids) is a warm season grass with a high growth rate. It is fairly drought tolerant, but will do better if watered in mid-summer. Bermudagrass can spread aggressively via stolons and rhizomes to fill in bare spots. It can be cut to a 1 inch height and makes a good putting green when fertilized actively throughout the season. This warm season grass will go dormant in late fall and has been known to die out completely in very cold winters in the transition zone. Seed of bermudagrass is sterile, so it must be propagated by plugs or sprigs. The plugging rate is the same as for zoysia. Sprigs can be harvested in early summer and planted or broadcast over the soil surface. Frequent watering will insure establishment and rooting from the stolons or runners. As a home lawn, bermudagrass can be quite troublesome to keep out of flower beds and other gardens and is not compatible with other grasses.

St. Augustine grass: Coarse-textured, but fast growing, St. Augustine grass (*Stenotaphrum secundatum*) is the most shade tolerant of the warm season grasses and is adapted to moist, coastal areas with mild winters. It can spread quickly by stolons and requires frequent watering. St. Augustine grass keeps its green color at lower temperatures than bermudagrass, but will become off-color when cooler temperatures prevail. It tolerates a wide range of soil types and grows in a pH range of 5.0 to 7.5. It is propagated by plugs spaced 12 inches apart and should be mowed at 2 to 3 inches to prevent weed competition.

Centipedegrass: As with St. Augustine grass, centipedegrass (*Erenochloa ophiuroides*) is coarse-textured, but in contrast, a slow growing grass used in more tropical areas of the U.S. It grows via stolons, performs well on poor soils under a low maintenance plan and requires less mowing than St. Augustine grass or bermudagrass. Centipedegrass is adapted to sandy acidic soils (pH 5-6) and where rainfall is in excess of 40 inches. It tolerates low soil fertility and does well with 2-3 pounds of nitrogen per 1.000 sq. ft. annually. It is sensitive to hot and cold conditions, but will not go truly dormant. In mild climates, it stays green all year-long. Only mildly drought tolerant, Centipedegrass is sensitive to traffic and slow to recover from damage due to compaction. It can be planted via seed, plugs or sprigs.

Buffalograss: The only native warm season grass used in home lawns, buffalograss (*Buchloe dactyloides*) is becoming more popular as a low maintenance grass in areas where both heat and drought tolerance are important. This grass was once prominent in Midwest prairies and has a gray-green appearance in comparison to deeper green colors of bluegrass and fescue. During the late fall, buffalograss will go dormant and turn a yellow to straw color only to green back up in late spring. This grass should only be planted in full sun areas with 6 to 8 hours of sunlight. Good drainage is essential, but it does not do well in sandy soils. Buffalograss can be seeded at the rate of 1 to 2 pounds per 1,000 sq. ft. in June and maintained at a 2 to 3 inch height with low maintenance areas kept higher if desired. During drought periods, it can be watered about every other week and should be fertilized minimally in July.

Shady Lawns

Most lawns are successful when grown in full sun or areas receiving at least 6 to 8 hours of daily sunlight during summer. It is much more difficult to establish and maintain a lawn in reduced light than underneath the dense canopy of trees or in areas shaded by structures. Shade presents special considerations when selecting the right grass. Those that have some shade tolerance should be used such as the fine fescues (chewing, red or hard), rough bluegrass, or when dry soils prevail, good success can be achieved by using tall fescue. However, the first approach to growing grass in shade is to attempt to reduce the amount of

shade. Trees can be pruned and bottom branches removed making it not only less shady but also easier to mow underneath. This works well for densely branching deciduous trees like maple and oak. Shape and form should be considered when using this approach on evergreens like holly, pine and spruce. In some cases. it is better to use a ground cover like ivy, euonymous or pachysandra instead of attempting to grow grass in the dense shade of trees.

Certain cultural practices will enhance grass grown in shade. Shady areas should be fertilized less than full sun areas. Use no more than 1 to 2 pounds of nitrogen per 1,000 sq. ft. applied in the fall. Do not scalp the area when mowing. Raise the mower height to 3 to 4 inches. Water shaded areas sparingly and only when drought conditions prevail. Overwatering may promote disease and cause the grass to become thin. When using tall fescue under shade, keep it on the dry side. Wet conditions will cause it to decline. Avoid traffic and soil compaction in shade areas. The grass will grow slower and be less apt to recover from any disturbance.

For dry areas receiving light shade, use tall fescue seeded at the rate of 7 to 10 pounds per 1,000 sq. ft. Blend several varieties to diversify the mix. For medium shade, use fine fescue (chewing, red and hard) in a blend of two or more species or varieties seeded at the rate of 3 to 5 pounds per 1,000 sq. ft or a blend of 2 to 3 tall fescues seeded at the rate of 7 to 10 pounds per 1,000 sq. ft. For heavy shade and wet sites, use rough bluegrass (50%) in combination with perennial ryegrass (50%) seeded at the rate of 3 to 4 pounds per 1,000 sq. ft.

Establishing a Lawn from Seed

In new areas where lawn has never existed or in cases where the area is to be changed over to grass, it is best to start the process of establishing a lawn with good soil preparation of the seed bed. The most desirable time to do this for cool season lawns is in the fall starting in early August to early September. The first step is to get a soil test to determine the fertility of the soil and how much fertilizer to add to correct for nutrient deficiencies or test for soil imbalances. This information should report levels of phosphorous, potassium, magnesium and calcium. These are the major nutrients that are required for good growth. The test should also evaluate the pH and organic matter content. Amendments necessary to adjust these values should be added as much in advance of the seeding or planting as possible.

In the next step, the soil seed bed should be prepared. This includes removing the existing vegetation by digging, tilling and/or use of herbicides to rid the area of weeds. In certain cases, tilling may not be necessary especially where grading, the addition of soil amendments or compaction is not important. Tilling brings up dormant weed seeds and loosens the seed bed requiring a period of weed control or settling before the next step can be taken. If tilling is not done, the seed can be placed into the soil using a drill in order to get good seed to soil contact. Scattering the seed on the surface of the soil will not be satisfactory since much of it will be exposed to the sun and dry out before a root system can be established. If tilling is in order, apply a starter fertilizer prior to tilling and make any deficiency corrections using information from the soil test report to guide this effort. To promote good root growth, apply a high phosphorous fertilizer like a 0-46-0 at the rate of 5 pounds per 1,000 sq. ft. If the soil test suggests low organic matter content, add of a 2-inch layer of peat moss, leaf mold or compost prior to tilling.

The area should be tilled to a depth of 4 to 6 inches and the grade adjusted if necessary to correct for poor drainage and irregular areas. Afterward, the seed bed should be firmed up and allowed to settle for a minimum of one month prior to seeding. Over the settling period, weeds will need to be controlled by hand or with the use of a non-persistent herbicide like Roundup in a spot spray application. Rake the area lightly just prior to seeding, and then apply starter fertilizer such as 10-5-5 or 10-10-10 at the rate of 10 pounds per 1,000 sq. ft. (1 pound of actual nitrogen).

Broadcast the seed at the recommended rate. The seed should be covered slightly by again raking so that it

is buried about one-quarter inch below the surface. If you are spring seeding, then clean straw should be spread over the seeded area at the rate of one bale per 1,000 sq. ft. to keep the soil surface from drying out quickly. The whole area should be watered by hand to make it moist, but not soaked. You should expect to water the seed bed twice each day for a period of two to three weeks. After 14 days, some indication of germination will be evident. If the area is not filling in, you can overseed again by broadcasting and lightly rolling more seed into the light areas.

Mowing is not advised until about 6 weeks after seeding. If weeds are a problem, they can be controlled with the use of a post-emergent herbicide like 2,4-D, but not until after the third mowing. Weeds left uncontrolled over the winter can become a problem in the spring, so don't wait. In the spring, another application of a broadleaf herbicide may be necessary until the lawn fills in. Bare spots should be re-seeded at this time and covered with a straw mulch to prevent the soil from drying out.

Establishing a lawn from seed in the spring is more difficult than in the fall. The fall has the advantage of cool air temperatures and warm soils promoting root development, a longer season of rainfall and reduced weed pressure. Spring seeding has the challenges of wet soils hampering soil preparation, increased weed development and tile chance of an early rise in temperatures that stress grass seedlings with small root systems. If you must seed in the spring, do it as early as possible: March to early April. Also, consider seeding with a slit seeder to eliminate tilling and using a seed-compatible crabgrass preventer prior to seeding. Higher seeding rates (30%) are advised when spring seeding to offset competition from weeds. In addition, it is better to use a blend of grasses including perennial ryegrass (15 to 20%) that can germinate quickly to establish cover. Lastly, cover the seed bed with weed-free straw to lessen moisture stress and prevent the soil from drying out as the days get hotter.

Establishing a Lawn from Sod

Sodding a lawn involves installing pieces of grass and soil with intact roots cut from an existing lawn. There are some advantages of using sod over seed. Unlike seed that takes months to grow into a full stand and must endure the pressures of weeds, sod can be laid down quickly to give an instant lawn. Sodding is also done when weather conditions are less favorable for seed germination like in late spring or mid-summer as air temperatures rise above 80 degrees. Because of the fast establishment of a root system, sodding can also be advantageous when erosion is a major concern on slopes. The disadvantages of sod are the cost which is typically higher than for seed and the inability to readily purchase blends of grass species and cultivars.

Typically, the sod is purchased in 18-inch wide rolls about three feet or so in length. These are laid end-to-end and side-to-side to cover the proposed lawn area. Sod comes in pure stands of zoysia or bluegrass that have the ability to form mats from stolons or rhizomes. Occasionally, you can purchase a blend of fescue and bluegrass. Pure fescue sod is not common since it does not form stolons necessary to create a mat.

In preparation of the area to sod, all grading and soil drainage problems should be completed or corrected before the sod is ordered. The bed should be rolled or firmed up so that the pieces go down evenly. Order the sod to arrive within 24 hours of its installation. The sod pallet will contain about 90 square feet. You should expect that about 10 to 20% of this will not be usable in calculating how much to do the job. When it arrives, remove it carefully and start by laying it on a straight line along one edge working toward the other side. Each piece should be butted up to the adjacent piece making a good fit by trimming the edges with a knife. After the area has been laid, it can be rolled or walked on to increase the contact between the soil bed and the roots. Between the pieces, it is helpful to work in loose soil so that there are no exposed ends or sides. The roots will quickly grow into the soil bed and in about 10 days, some evidence that the pieces are taking root should be evident. If you are working with a hillside, lay the pieces perpendicular to the slope and stake. This prevents the pieces from sliding down during a heavy rain. Water thoroughly after installation and especially during the heat of summer. Watering twice each day for a period of one week

will prevent the sod from drying out. More or less watering will be necessary depending upon the time of season, heat and wind and the amount of rainfall.

Establishing a Lawn from Plugs

Some grasses are not available or have limited availability in seed like zoysia and St. Augustine grass. With these grasses, it is common to use pieces of the sod in the form of plugs and plant these into the prospective lawn area. Purchased plugs come in 2 to 3-inch wide cores of soil and roots. If you are converting a cool season lawn to a warm season lawn, start the process in late May or early June. For converting a warm season lawn to a cool season lawn, the best time to begin the process is in late summer or alternatively, in mid-spring after green up of the existing lawn area. Start by spraying the area with a 2% mix of Roundup to completely kill off the existing grass. It will take about 10 days for a clear indication that the herbicide has been effective. Warm season grasses are harder to kill with one application therefore, several applications may be necessary, spaced 7 days apart. Next, water the area until it is moist, but not wet. Using a tool called a plugger specially designed for plugging, cut a hole in the soil bed and insert a core so that the sides are in complete contact with the grass plug. The spacing between plugs should be between 6 and 12 inches apart, depending upon your expectation for complete coverage and vigorous health of the sod. It will take one or two seasons for the plugs to grow together. As an alternative, use a sturdy long handled bulb planter and cut cores from an existing lawn and transplant them into the new soil bed. This is the least expensive method of establishing a new lawn from plugs. The old holes should be filled with soil to encourage re-establishment from adjacent areas or overseeded. Water the area daily for a period of two weeks depending upon ambient rainfall and temperatures.

Converting a cool season lawn to a warm season lawn can also be done without killing the area off with Roundup. The cool season lawn should be mowed down to one inch prior to plugging, then simply proceed to plug the area using the same spacing as recommended above. It will take 2 to 5 years for the warm season grass to take over the cool season grass because of the competition. The process of conversion can be speeded up by using cultural practices that favor the warm season grass such as mowing low to a one-inch height, fertilizing in late June or early July with 1.0 pound of nitrogen per 1,000 sq. ft. and weekly watering during drought conditions. Using this approach for converting a warm season lawn to a cool season lawn is not as easy since warm season lawns are typically more vigorous growers and will over take the cool season lawn under full sun conditions. In shade, cool season lawns like tall fescue will have an advantage over warm season lawns due to their ability to tolerate reduced sunlight. However, better results will be experienced if the existing warm season lawn is completely removed with a herbicide prior to plugging.

Weed control will be necessary in the area that you plugged and can be done by using a herbicide containing 2,4-D for broadleaf weed control. This herbicide will not control grasses. If they become a problem then they should be removed by using spot treatments of Roundup or hand pulling.

While plugging is the most common method of propagating some warm season grasses, early summer sprigging is another technique whereby short sections of stolons or runners, taken from warm season grass sod are cut off and planted into a 2-inch deep furrow made with a hoe or edger. The area should be treated with Roundup to remove unwanted grasses and weeds. Each sprig should be planted into the furrow and spaced 6 inches apart with some portions buried and a small section of leaves and stem sticking out. It will take longer to convert an area over by this method. Sprigging is subject to drought conditions and competition from weeds. To cover larger areas with less material, sprigs can be broadcast at the rate of 3 pounds per 1,000 sq. ft. and watered in. A weed-free straw mulch should be used over the top at the rate of 1 bale per 1,000 sq. ft. to keep the area moist. Fertilize lightly with 1.0 pound of nitrogen per 1,000 sq. ft. in late June or early July.

Seeding Rates and Light Conditions for Lawns

	lbs/1,000 sq. ft.	Light Conditions	Maintenance
Tall Fescue	7-10	Sun	low - medium
Ryegrass	7-10	Sun	low - medium
Bluegrass	2-3/sod	Sun	medium - high
Rough Bluegrass	1-3	Shade	low - medium
Bentgrass	0.5-1	Sun	medium - high
Fine Fescue	3-5	Shade	low - medium
Zoysia	1/plugs/sod	Sun	low - medium
Bermudagrass	0.5-1/plug/sprig/sod	Sun	medium - high
St. Augustine grass	sod/plug	Sun/Shade	medium - high
Centipedegrass	0.3-0.5	Sun	low - medium
Buffalograss	1-2/sod	Sun	low - medium

Lawn Renovation

Lawn renovation is a process of rejuvenating an existing lawn and is done when either it has become damaged as a result of weather extremes, disease or insect infestation, thatch buildup, soil compaction, poor drainage or mechanical disturbance. Renovation involves changing the lawn from one type of grass to another or replanting a new cultivar more favorable to the site or more resistant to disease or pests. Re-establishing a new lawn can be done in the spring or preferably in the fall when weed growth can be more easily managed. How much effort should go into renovating a lawn depends upon the existing condition of the area. The first step is to get a soil test to determine the basic level of fertility and whether amendments are required to correct for soil acidity/alkalinity (pH), improve drainage or correct for the organic matter content. Recommendations on the soil test report should be followed closely to apply the right amounts of materials during the renovation process.

The second step in the process of renovation is to estimate by percentage the amount of area that currently exists as good lawn versus the area of weeds or damage and how much thatch exists. Thatch is a layer of undecomposed grass and debris that forms just above the soil line. When the layer becomes too thick, it prevents water and air exchange in the soil and can harbor diseases and insect pests. It also causes shallow rooting of grass plants. If the amount of good lawn is greater than 50% and the thatch layer is less than one-half inch, then you should follow program 1 below for lawn renovation. If the amount of good lawn is less than 50% and the thatch layer is less than 1 inch, follow program 2. If the amount of good lawn is less than 50% and the thatch layer is greater than 1 inch, follow program 3.

Program 1 (greater than 50% good lawn: less than one-half inch of thatch)

1. Apply a 2,4-D type broadleaf weed killer about six weeks prior to seeding.

2. After six weeks, mow the area at the lowest setting or to about three-quarters of an inch of the soil surface: bag this material and remove.

3. Apply a high phosphate fertilizer (25 pounds of super-phosphate (0-20-0) per 1,000 sq. ft.) and power rake the area to bring up the thatch layer; remove the thatch or core aerify to reduce compacted areas and improve drainage.

4. Just prior to seeding, apply a general lawn fertilizer (10 pounds of 10-10-10) equivalent to 1 pound of nitrogen per 1,000 sq. ft.

5. Seed the area using a drop seeder, spreader or power disk seeder in two directions perpendicular to each other. Cover the seeded area with 1 bale of weed-free straw per 1,000 sq. ft.

6. Water the area twice daily for two to three weeks or until the seed has germinated and emerged. Mow when the stand has reached 3 to 4 inches (6 to 8 weeks) and apply another pound of nitrogen per 1,000 sq. ft.

Program 2 (less than 50% good lawn: less than 1 inch of thatch)

1. Apply a 2% solution of Roundup herbicide to kill the existing lawn and weeds. Wait 7 to 10 days for the herbicide to work and to determine whether a second application will be necessary. For cool season grasses, only one herbicide application is usually required. For warm season grasses, 2 to 3 applications are typical.

2. Follow steps 2 through 6 in program 1.

Program 3 (less than 50% good lawn: greater than 1 inch of thatch)

1. Apply a 2% solution of Roundup herbicide as in program 2 and wait 7 to 10 days. Depending upon the type of grass, second or third applications may be necessary as stated in program 2.

2. Broadcast a high phosphate fertilizer (25 pounds of superphosphate (0-20-0) per 1,000 sq. ft.) over the area and till to a depth of 4 to 6 inches to mix in the thatch.

3. Regrade all areas, firm with a roller or let settle for several weeks.

4. Follow steps 4-6 in program 1.