

Turfgrass Establishment

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Guide H-509

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An important aspect of obtaining a good turfgrass stand is the selection of adapted species and varieties. Most problems encountered in established turfs can be related directly to mistakes or omissions made prior to or during turf establishment. A new turfgrass site always should be prepared to correct existing problems and avoid potential problems.

Loams and sandy loams with a pH of 6.0 to 7.0 are the very best soils for producing a beautiful lawn. Unfortunately, this ideal soil is seldom found on any property, and soil modification and/or the addition of topsoil may be necessary. Have your existing soil tested and consult your local county agent about soil suitability as well as preplant fertilization.

TURFGRASS SELECTION

The first step in turfgrass establishment is selecting a grass that is adapted to the area and suits the future use of the turf. Turf characteristics, such as climate adaptation, water use, traffic tolerance, color, quality, maintenance requirements, and available resources, need to be considered when selecting a turf species. Climatic adaptation and traffic tolerance, which largely determine the future use of the turf area, are the two most important factors. For more information about selecting the right turfgrass for your area please check Extension Guide H-508, "Turfgrasses for New Mexico".

PREPLANT WEED CONTROL

If an existing turf area has an undesirable plant cover and needs to be replanted entirely, a nonselective, systemic herbicide should be applied before cultivating and grading the area. Roundup eliminates most of the undesirable weedy grasses and broad-leaved weeds. Roundup moves or translocates down in plants to also kill underground portions. Two applications 4 to 8 weeks apart may be necessary for deep-rooted perennial grasses. Directions for application rates and other instructions on the label must be followed. A waiting period of 7 days after Roundup application may be necessary before tilling or disturbing the sod. Do not use preemergent or residual type herbicides during this phase.

SITE PREPARATION

Site preparation is of utmost importance because it affects management, appearance, and life of the turf area. It includes various operations such as clearing, tilling, grading, fertilizing, soil modifying, controlling weeds, and installing an irrigation system.

The absolute minimum soil depth for a lawn is 4 inches. However, for deep root penetration and the benefits that come from an extensive and deep root system, a depth of 6 inches is recom-

CLEARING AND GRADING

Around newly constructed buildings, clear the site of all building materials (wood, cement and bricks), as well as of any buried stumps, rocks, stones larger than 2-3 inches in diameter, or other debris. This important measure is often overlooked. If not done thoroughly these materials can affect watering for the lifetime of the turfgrass area. Grade the entire area to eliminate

any possible drainage problems on the property. This includes sloping the grade away from building foundations and filling low-lying areas. For large areas, a tractor-mounted blade and/or box is most often used for rough grading. Hand tools, drags and rototillers perform well on areas that are smaller in size. The grading probably will uncover more debris that should be removed and not buried.

SOIL MODIFICATION

If the minimum soil depth cannot be achieved (if a caliche layer is close to the surface) or if the soil test shows that the existing soil is unsuitable for turfgrass growth, topsoil and/or soil amendments should be added. Add topsoil (loamy sand, sandy loam or other soil suitable for the area) and organic matter to achieve a total topsoil depth of 4-6 inches after firming. A more shallow soil, can negatively affect turf appearance can lead to increased water use. If possible peat or compost should be incorporated into the topsoil at the rate of 50 to 100 pounds per 100 square feet. Depending on soil test results, additional soil amendments and preplant fertilizer can be added at this point. Rototill the mixture to a depth of at least 6 inches. This will control most annual weeds, alleviate subsoil compaction and permit the topsoil mixture to bond with the subsoil, which will improve root penetration and water movement. Contact your county agent if you have questions regarding the soil test, local compost quality or the extent of soil modification required.

PREPLANT FERTILIZATION

Starter fertilizer, a fertilizer that is low in nitrogen and high in phosphate and potassium should be used as your preplant fertilizer at a rate of 0.5 to 1 lbs of K_2O and 1 to 1.5 lbs P_2O_5 per 1000 square feet. In most situations, the starter fertilizer should be worked into the soil prior to seeding or laying the sod to prevent injury to the developing turfgrass roots.

IRRIGATION SYSTEM

Install the irrigation system after rough grading the new site. This is a good time to install because the soil settling in the trenches can be repaired during the fine grading process. Also the system can be tested for any design and operational problems before planting. Proper care must be taken to ensure that irrigation components are not damaged during grading. Use marking flags on all sprinkler heads and valve locations. Be sure to follow local plumbing codes and obtain proper permits. Employ only licensed irrigation designers and installers.

FINE GRADING

Prior to fine grading, settle the area by applying irrigation water. Fine grading levels and smoothes the soil surface in preparation for planting. Large areas that can accommodate heavy machinery should be fine graded with a tractor-mounted box blade or a heavy-duty rake. Fine grade the entire site manually by using a rake or a steel drag mat to smooth out high spots on smaller to medium-sized areas. Remove any additional construction debris brought up during the grading process. At this point, set sprinkler heads at the proper height- flush with the ground for seeding or 0.5 to 0.75 inches above the soil level if sodded. Apply water again to finish settling the soil and to provide adequate soil moisture for the seeding or sodding process. Any weed growth prior to planting should be controlled with a nonresidual contact herbicide.

TURFGRASS SEEDING

Timing

A lawn can be started successfully from seed at many times during the growing season. However, it is better to establish cool-season grasses, such as Kentucky bluegrass, perennial ryegrass or tall fescue, in late summer. Warm-season grasses, such as buffalograss or bermudagrass, usually are seeded in May or June. Soil temperature is critical and should be 65°F or above. Seeding in

Table 1. Seeding time and rate and sod availability for warm- and cool-season grasses in New Mexico.

Grasses	Seeding time		Seeding rate (lbs/1,000 ft ²)	Sod availability
	North	South		
Warm-season				
Bermudagrass				√
hulled	May 15–Aug 1	May 1–Sep 1	1–1.5	
coated	May 15–Aug 1	May 1–Sep 1	1.5–2.0	
Blue grama	May 15–Aug 1	May 1–Sep 1	1–2	N/A
Buffalograss	May 15–Aug 1	May 1–Sep 1	3–3.5 burrs	√
St. Augustinegrass		Seldom available		
Zoysiagrass	May 15–Aug 1	May 1–Sep 1	1–2	√
Cool-season				
Bentgrass	Aug 15–Sep 15	Sep–Oct 15	0.5–1	√
Fine fescue	Aug 15–Sep 15	Sep 1–Oct 15	3 – 4	√
Kentucky bluegrass	Aug 15–Sep 15	Not recommended	1–2	√
Perennial ryegrass	Aug 15–Sep 15	Sep 1–Oct 15	7–9	N/A
Tall fescue	Aug 15–Sep 15	Sep 1–Oct 15	7–9	√

cooler soil usually results in failure or poor stands. Seeding rates vary with species (table 1) and are determined by seed size, purity, percent germination and growth habit.

Seeding practices

Hand seeding is most practical where small areas are to be established. A small hand-held rotary spreader can be used for this purpose. Using a drop-type fertilizer spreader calibrated for delivering the appropriate seeding rate should be used to seed larger areas. Drop spreaders generally are preferred for seeding because they are more accurate. Their spreading pattern is less influenced by wind and differential seed size compared with a rotary spreader. When using a rotary spreader, larger seeds are thrown farther than smaller seeds, resulting in uneven distribution of grass species within the area. Spread the seed with several applications, using crisscrossing patterns. Follow up with a light raking and lightly roll the area to ensure good seed-to-soil contact. Be careful not to bury the seed too deeply.

TURFGRASS SODDING

Sod can be used almost year round in the southern half of New Mexico. In the northern

half, sodding can be done in the spring, summer and fall months. Sodding in winter can result in winter-kill. Planting sod in extreme heat also can be detrimental. Do not leave sod in pallets or rolls in the full sun unless you can lay it quickly. Have the soil prepared ahead of time and have your labor crew ready to go when the sod arrives.

Sod can be obtained in rectangular cut pieces or in small or large rolls. The width of the rolls can vary from 12 to 36 inches, depending on the size of the job. Soil preparation is the same for sod as it is for seeding. The soil surface needs to be fairly solid and level prior to laying the sod. Sometimes the area will need to be rolled. Footprints or equipment tire tracks will leave sunken areas that the sod roots will not contact and dead spots will result. You must have good contact between the sod and the soil surface.

Begin by laying the sod out against a straight surface edge like a sidewalk, driveway or a building. Try to keep the sod pieces in straight lines if possible. Make sure that the sod pieces fit completely against all edges of walks, driveways, walls and buildings. If using smaller rectangular pieces of sod, make sure that on the second pass you stagger the pieces by 50 percent in length. In other words, make sure that the pieces do not line up exactly with the cut ends all the way across the lawn. Alternate the rows of sod like you would laying brick. At the ends of the row, use a

sharp knife to cut off the excess sod. Save these pieces for filling in the odd shapes.

The sod pieces need to be pushed against each other both within the rows as well as between rows. Do not leave any gaps between the pieces. Fill the cracks between with excess soil. When you are finished laying the sod, go over the area with a roller. This helps to push the sod in contact with the soil surface. Water immediately after sodding. If it is a large job, you may need to water periodically while laying the sod. Continue watering on a frequent basis for several days after completion. Check with your local utility about watering regulations. Do not fertilize or use pesticides until the grass has reached the recommended mowing height and you are beginning to mow on a regular schedule.

TURF MAINTENANCE DURING GROW-IN

Starting immediately after seeding or sodding, maintain turfgrass areas during the grow-in period by irrigating, fertilizing and mowing. These measures are the three crucial components to ensure a dense and weed-free turf stand in the shortest time possible.

WATERING

Irrigation is the most important cultural practice for promoting seed germination and sod establishment. If there isn't enough water, turf will establish slowly- if at all- and sparingly. Insufficient watering is the main reason turf fails to establish. Seedlings are very susceptible to desiccation, and the soil around the seed should not be allowed to dry out. A newly seeded area should be irrigated to provide moisture to the whole seedbed. Apply enough water to moisten the soil around the seed but avoid overwatering and puddles. As the seedlings develop and reach a height of about 2 inches,

the frequency of irrigation should be reduced, and the area must be watered more deeply. After the lawn has been mowed several times, irrigate deeply and infrequently.

MOWING

Mowing should begin when the first shoots reach a sufficient height to be mowed. Immature turf plants are uprooted easily by dull mowing equipment, especially when the soil is wet. All cutting equipment should be sharp, and mowers should be adjusted precisely to the proper mowing height.

Wait for the surface of the root zone to dry and become firm prior to mowing. Do not wait too long to mow a newly seeded lawn; mow early and often. The one-third rule-never remove more than one third of the aboveground grass plant- also applies to immature turf stands.

FERTILIZATION

Newly seeded or sodded turf plants have poorly developed root systems and cannot take up nutrients from the soil effectively. Therefore, it is important to fertilize frequently to encourage establishment. Nitrogen and other nutrients should be applied sufficiently but not abundantly. High rates of fertilizer can injure the plants and/or restrict root and shoot growth. Apply 0.5 to 0.75 lb N per 1,000 square feet every other week for 6 to 8 weeks and follow general fertilization guidelines thereafter. All other nutrients, such as phosphorous, potassium, magnesium, calcium and iron, should be applied according to soil test results. With the exception of iron, most of these nutrients usually are abundant in New Mexico's soils. A soil test can reveal the lack of certain minerals and prevent nutrient deficiencies. For more information about soil testing please check extension guide A-114, "Test your Soil" and contact your county agent if you have questions regarding the soil test.

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