

Turfgrass Establishment Preparing to Plant

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"To fit a place for this manner of greene plot, it is requisite that it may be cleansed from all manner of stones and weedes, not so much as the rootes left undestroyed, and for better accomplishing hereof, there must boiling water be poured upon such endes of rootes as staying behind in the ground cannot be well pulled up, and afterwards the floor must be beaten and troden down mightily, then after this there must be cast great quantity and store of turfes of earth full of greene grasse, the bare earthe part of them being turned and laid upward, and afterward danced upon with the feete, and the beater or paving beetle lightly passing over them, in such sort that within a short time after, the grasse may begin to peepe up and put fourth small haire."

- Markham, Gervase, 1613, Way to Get Wealth

The planting method described in the 1600s by the English writer Gervase Markham in his best known book regarding country life has helped many readers successfully establish turf. Markham's procedure has much in common with the following 10-step guide.



Turfs are established from seed, sod, plugs and sprigs. For best results, soils must be prepared for planting. Develop the planting bed keeping the 3-f Rule in mind. The objective is a planting bed that is fertile, firm and free of troublesome weeds.

1. Submit a soil sample for testing six weeks before the intended planting date. A soil sample can be taken using a trowel, garden spade or soil tube. Collect several small samples of soil to a depth of 6 inches (e.g., one sample per 1,000 square feet or 45 samples per acre).

Discard vegetative material before placing these in a clean container to dry. Thoroughly mix the dry samples before transferring one-half pint of soil (the representative sample) to the soil sample box.



Golf course superintendents often submit samples of individual greens and fairways. Similarly, coaches, and parks and recreation directors may submit one sample per athletic field. Homeowners frequently submit a sample from both the back and front yard. Please contact your local county Extension office for soil sample boxes, information sheets and instructions for submitting soil samples to the University of Tennessee Soil Testing Laboratory in Nashville.

2. Stockpile existing topsoil before soil contouring and major excavation begins. Topsoil usually has more organic matter and contains more beneficial organisms than subsoil.



Turfgrasses rooted in fertile, loam soil are often healthier and much more tolerant of climatic stresses than turfgrasses rooted in poorly drained, clayey subsoil. If topsoil is

stockpiled for several months, an application of glyphosate (e.g., Roundup Original,™ Gly-4,™ Prosecurator,® ...) may be needed to control weeds before the topsoil is moved.

3. Establish the 'rough' grade. Hard subsoil can be loosened using a disk, rototiller or subsoiler before spreading topsoil.

4. Uniformly redistribute topsoil. About 12½ cubic yards of topsoil are required to create a 4-inch layer per 1,000 square feet. Heavy clay soil can be amended with topsoil, sand and organic materials.

Soil aeration and water infiltration are usually improved when 4 or more inches of loamy topsoil or coarse sand are mixed with 1½ to

2 inches of clayey soil. Compost or mature (5 + years) sawdust can be mixed with soil (e.g., 10 to 15 percent by volume) to increase the organic matter content, dilute clay and stimulate microbiological activity.



A comparison of several soil amendments.

Amendment	Relative Compaction Resistance	Approximate Longevity (Years)	Nutrient Exchange Capacity	pH	Water-Holding Capacity
Calcined Clay	good	10+	poor	neutral	high
Colloidal Phosphate	good	10+	good	neutral	high
Manure	fair	½ - 1	fair	neutral	high
Peat Humus	fair	5	good	acidic	high
Perlite	good	10+	poor	neutral	intermediate
Processed Sewage Sludge	fair	1 - 2	good	acidic	intermediate
Reed-sedge Peat	fair	4 - 5	good	acidic	high
Sand	excellent	mineral ^b	none	neutral	low
Sawdust	fair	1	fair	acidic	intermediate
Sphagnum Peat	fair	1 - 3	good	acidic	high

^a From: McCarty, B. (Ed.). Southern Lawns, Clemson Extension, Clemson University Public Service Publishing, Clemson, SC, pg. 76

^b Compared to organic soil amendments, sand, a mineral, resists decomposition by soil microorganisms.

5. Install sub-surface drainage and irrigation systems after establishing the rough grade and redistributing topsoil.



Drainage pipe is usually placed at least 6 inches below the soil surface; irrigation mainlines, well below the frost line and normal tillage depth (e.g., 12 to 18 inches).

6. Remove stones 2 or more inches in diameter and debris that may block turfgrass roots or restrict the movement of water from the surface into and through the soil.

During an extended drought, shallowly rooted turfgrasses growing above large stones and other obstacles often turn yellow or brown and may die due to a lack of water. Remove stones, construction debris and other obstacles 2 or more inches in diameter located within 4 inches of the soil surface. Pull-behind, reel-type rock rakes may be available for lease at outdoor power equipment rental centers.

7. Control troublesome weeds. Perennial weeds including dallisgrass (*Paspalum dilatatum* Poir.), green kyllinga (*Kyllinga brevifolius* Rottb.), ground ivy (*Glechoma hederacea* L.), johnsongrass [*Sorghum halepense* (L.) Pers.] and nimblewill (*Muhlenbergia schreberi* J. F. Gmel.) are difficult to control in established turfs. A herbicide application (e.g., glyphosate) before planting may reduce the competition among turfgrasses and weeds for light, moisture and nutrients. Golf and bowling

greens soils may be covered with plastic and fumigated to control weed seeds and nematodes (parasitic, microscopic worms) before planting.

8. Apply fertilizer and lime uniformly, according to soil test recommendations.

9. Cultivate the soil. Tilling or disking to a 4- to 6-inch depth will loosen the soil and mix fertilizer and lime throughout the turfgrass root zone.

10. 'Fine' grade and roll to smooth and firm the soil surface. Hand raking and a water-ballast roller work well in small areas. A tractor-drawn, culti-packer, heavy steel drag mat or plank drags are effective when preparing to plant large areas. The planting bed will require further rolling or dragging if footprints are deeper than 1 inch.



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