

Preparing to Plant a Florida Lawn¹

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Proper soil preparation prior to grass planting is critical to ensure the establishment of a quality turf. Preparation will determine how quickly the lawn becomes established and its long-term maintenance requirements. Soil should be prepared whether you are planting a new lawn or replanting an old one and whether you are seeding or propagating vegetatively. The following steps provide a general guideline for preparing to plant a lawn.

Clean and Rough Grade

Remove all construction debris, brush, large roots, rocks, weeds, and old tree stumps. If extensive grading is needed, remove the topsoil and stockpile it for replacement after the rough grade is established. The site should be sloped at 1% to 2% (e.g., 1/2- to 1-foot fall per 50 feet) away from the house. The rough grade should conform to the final grade after the topsoil is replaced. Swales or mounds with steep slopes of more than 10% should be sodded and not seeded due to erosion problems. Poorly drained soil may require installation of drainage lines. Tile drains are typically placed in rows 2 to 3 feet deep and 15 to 20 feet apart. These should be installed so that at least a 1% fall for drainage is available. Seek professional advice if uncertain about the type or installation

procedure. The steep slopes and mounds currently used as catch basins around many condominium and commercial buildings should be avoided; establishing grass and maintaining proper moisture levels there is difficult, and mowing there is dangerous. If an area cannot be leveled, use groundcover plants other than turfgrass. Control of perennial weeds such as Bermudagrass and torpedograss should be performed during site preparation. Several applications of a nonselective herbicide such as glyphosate (Roundup[®]) or commercial fumigation may be necessary for complete weed control.

Soil Analysis

You should always obtain a soil analysis before planting. A representative soil sample can be obtained by collecting small plugs or garden trowels of soil at 15 to 20 locations around the yard from the top 6 inches of soil. Samples should be combined in a pan or bucket and thoroughly mixed. A portion of this can then be submitted to the Florida Extension Soil Testing Laboratory. Local county cooperative extension service offices can supply additional information on soil testing. A soil test will determine the pH value and the report will indicate whether pH adjustment is necessary. If the soil is too acidic (pH

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too low), dolomitic limestone (dolomite) is recommended for increasing soil pH. Application should be based on a lime requirement that considers both soil buffering capacity and soil pH value. If the soil is analyzed by the Florida Extension Soil Testing Laboratory, a lime requirement determination will be provided. If the county cooperative extension service or commercial laboratory makes the analysis, this may not be included unless requested.

In lieu of a lime requirement analysis, the application of 1 ton of dolomite per acre or 50 pounds per 1000 square feet is sufficient to increase the pH of most Florida soils one pH unit—for example, from pH 5.0 to 6.0. A desirable pH range for most turfgrasses is 5.5 to 7.0. Certain soils in Florida are basic, meaning that their pH levels are greater than 7.0. Turfgrass grown on soils with pH levels greater than 7.0 often displays deficiencies in minor nutrients such as iron and manganese. Further details on soil pH adjustment can be obtained from the Florida Cooperative Extension Service in your particular county. The soil test analysis will provide the basis for your lawn fertility program. Phosphorus is generally found in sufficient quantity in Florida soils and seldom needs to be added prior to planting. Fertilization ratios and analysis used will depend primarily on soil test results and local product availability. A general recommendation is to use a turf-type fertilizer in 4-1-2 or 1-0-1 ratios with micronutrients. Apply at a rate of 1/2 to 1 pound of soluble nitrogen per 1000 square feet. See the Edis publication, LH014, "Fertilizing Your Florida Lawn," for further information.

Installation of Irrigation Equipment

If an irrigation system is desired, it should be designed by an irrigation specialist and installed according to design specifications. An irrigation system's capacity to perform properly is limited by its design, construction, and operation. A poorly designed or improperly installed system will never operate satisfactorily. For proper irrigation of lawn areas, it is important to have an irrigation system that delivers water uniformly and in the amount needed by the grass. It is advisable to turn off the automatic setting on the system and irrigate on an as-needed basis. For more information on this, see the Edis

publication LH025, "Watering Your Florida Lawn." It is also important that systems are designed to irrigate shrubbery and other plantings separately from turfgrass.

Soil Amendments

The majority of Florida's soils are sand-based, with little organic matter and low water- and fertilizer-holding capacities. Addition of proper amendments to these soils can improve their physical and chemical properties. Amendments may be organic or inorganic; however, organic amendments like peat and compost are rapidly decomposed by soil microorganisms. Inert amendments such as colloidal phosphate are permanent. All organic materials should be sterilized to prevent the incorporation of weed seed. A general guideline is to add 1 to 2 cubic yards of colloidal phosphate or organic material (5% by volume), such as peat moss, shredded pine bark, or rotted sawdust, per 1000 square feet of area. Two pounds of actual nitrogen for each cubic yard of sawdust should be added to the soil to aid decomposition and to ensure an adequate supply of nitrogen for the grass. Table 1 lists selective soil amendments and commonly used peats for improving soils.

Deep Tillage

Rototilling loosens compacted soil and improves the speed and depth of rooting. If soil amendments, lime, or fertilizer have been added in the preceding steps, the soil should be tilled as deeply as possible, preferably 6 to 8 inches. A tractor-mounted or self-propelled rotary tiller will do an adequate job of tilling the soil.

Final Grading

Final grading completed just prior to planting provides a smooth planting bed. The site can be hand-raked and dragged with a hand-pulled drag, such as a metal doormat. Large areas can be smoothed by tractor-drawn equipment with a tiller rake or grading box and then hand-finished. Soil particles should be no larger than golf ball size, with even smaller sizes preferable. To achieve a uniformly firm planting bed and to reduce erosion, loose soil can be compressed with a water ballast roller. Care

should be taken not to add too much weight and cause soil compaction. Driveways and walks should be level with, or slightly above, the final grade. A good job of grading will result in a more level site and a more attractive lawn that is easy to mow. Irrigation can be used to settle the soil before planting. Hand raking to break up a crusty surface is necessary prior to seeding.



Figure 1. Hand Raking



Figure 2. Final Grading

Soil Fumigation

Soil fumigation is necessary on sod farms, golf courses, and athletic fields, but it is not recommended or available for home lawns. Sterilization utilizes lethal gases to kill weed seeds, insects, disease organisms, and nematodes in the soil. Because the materials used for sterilization are toxic and require special handling, this work must be done by professionals.



Figure 3. Sterilization

Table 1. Comparison of Selective Soil Amendments.

Soil Amendment	pH	Water Holding Capacity	Cation Exchange Capacity	Compaction Resistance	Durability
Peat Humus	acid	good	good	fair	5 yr.
Reed-Sedge Peat	acid	good	good	fair	4 - 5 yr.
Sphagnum Peat Moss	acid	excellent	good	fair	1 - 3 yr.
Sawdust	acid	fair	fair	fair	1 yr.
Sludge	acid	fair	good	fair	1 - 2 yr.
Calcined Clay	neutral	good	poor	good	>10 yr.
Colloidal Phosphate	neutral	good	good	good	>10 yr.
Perlite	neutral	fair	poor	good	>10 yr.
Sand	neutral	poor	none	good	infinite
Manure	neutral	good	fair	fair	1/2 - 1 yr.