

LOUISIANA HOME LAWN SERIES

A guide to maintaining a healthy Louisiana lawn



Soil Texture

Soil texture can greatly affect nutrient and water availability, retention and movement within turfgrass systems. Therefore, understanding some basic soil terminology and physical and chemical characteristics is beneficial in developing turfgrass management plans.

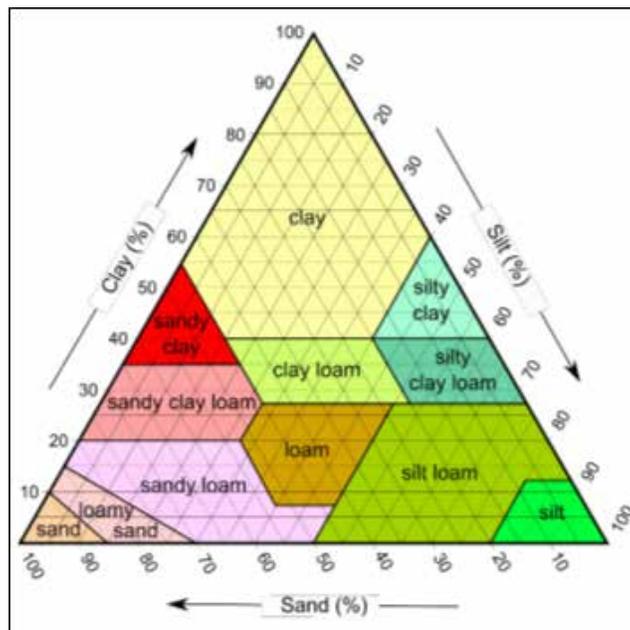
Soil Texture Basics

Soils are composed of biotic (living) and abiotic (nonliving) materials. Abiotic materials include mineral components of the soil and can be categorized into sand, silt and clay. Particles larger than sand, such as gravel and stones, are not considered soil. Sand is the largest particle, followed by silt and then clay. The percentages of sand, silt and clay in a soil determine its texture. The United States Department of Agriculture (USDA) textural triangle can help determine soil texture. Soils with different textures will differ in pore space, and thus will affect water-holding capacity, hydraulic conductivity (water movement through the soil), gas exchange and tendency to compact. These characteristics will affect cultural and fertility management practices of turfgrasses.

Sands have more macropores compared to clays, which have more micropores. Macropores are pores with diameters larger than 0.6 millimeters and allow for greater gravitational water drainage and gas exchange. Micropores are pores with diameters smaller than 0.6 millimeters. Micropores are also known as capillary pores because these types of pores retain water within the soil against gravitational forces. In general, soils with coarser textures have greater drainage, higher gas exchange, and reduced tendency to compact. However, these soils have lower water-holding capacities and CEC (cation exchange capacity), which affects nutrient availability. Conversely, soils with a finer texture generally have greater water-holding capacity and higher CEC. But they also have less gas exchange, an increased tendency to compact and slower drainage.

Soil texture is important when discussing soil fertility and potential routes of nutrient loss. For example, a clay soil is more prone to surface runoff than sand, while sand is more prone to leaching than clay. Understanding how pore structure affects soil characteristics helps us to understand the benefits and management that are required to grow a turfgrass. If you have questions regarding your soil texture and characteristics, please contact your local extension personnel or the Natural Resources Conservation Service (NRCS) office.

Mineral Particle	Size Range
Sand	2.0 - 0.05 millimeters
Silt	0.05 - 0.002 millimeters
Clay	< 0.002 millimeters



USDA soil texture triangle

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