

Field Guide To Soil Texture Classes (USDA)

Introduction-The purpose of this test is to provide a standard procedure for estimating soil texture in the field. The texture is estimated by the 'feel of moist soil. The texture of a soil cannot be estimated by "feel" if it is either dry or wet.

Definitions

Particle Size Classes

Sand-Sand has a particle size ranging from 0.05 millimeters (mm) to 2.0 millimeters (mm) in diameter. Sand imparts a gritty feel to soil due to the shape of the individual particles.

Silt-Silt has a particle size ranging from 0.002 millimeters (mm) to 0.05 millimeters (mm) in diameter. When moist, silt has a floury feel and does not ribbon when pressed between the thumb and forefinger due to the shape of the individual particles. When placed between the teeth silt has a gritty feeling.

Clay-Clay has a particle size less than 0.002 millimeters (mm) in diameter. Clay exhibits colloidal properties, has a negative charge and is flat and plate-like in shape. Moist clay is sticky and will ribbon readily when pressed between the thumb and forefinger. When placed between the teeth clay has a smooth slick feeling.

Soil Texture-Soil texture refers to the relative proportions of sand, silt and clay particles in a soil material that has a particle size less than two (2) millimeters (mm) in diameter. Soil texture is an indicator of infiltration capacity, permeability, degree of aeration and drainage as well as other physical characteristics of a soil material.

Soil Texture Classes-The United States Department of Agriculture (USDA) has identified twelve (12) soil texture classes as follows: sand, loamy sand, sandy loam, sandy clay loam, loam, silt loam, silt, silty clay loam, clay, clay loam, sandy clay and silty clay. Each texture class has a distinctive characteristic(s) which can be estimated in the field by trained personnel.

Distinguishing Characteristics-The following characteristics are based on moist soil.
Sand-Sand has a gritty feel, does not stain the fingers and does not form a ball when moist.

Loamy Sand-Loamy sand has a gritty feel, stains the fingers (silt and clay) and forms a weak ball but cannot be handled without breaking.

Sandy Loam-Sandy loam has a gritty feel, forms a ball that can be picked up with the fingers and handled with care without breaking.

Loam-Loam may have a slight gritty feel but does not show a finger print and forms only short ribbons of from 0.25 inch to 0.50 inch in length. Loam will form a ball that can be handled without breaking.

Silt Loam-Silt loam has a floury feel when moist and sticky when wet but will not ribbon and forms a ball that will tolerate some handling. Silt texture has not been found in any Virginia soils.

Sandy Clay Loam-Sandy clay loam has a gritty feel but contains enough clay to form a firm ball and may ribbon to form 0.75 inch to 1 inch long pieces.

Silty Clay Loam-Silty clay loam is sticky when moist and will ribbon from one (1) to two (2) inches. Rubbing silty clay loam with the thumb nail produces a moderate sheen. Silty clay loam produces a distinct finger print.

Clay Loam-Clay loam is sticky when moist. Clay loam forms a thin ribbon of one (1) to two (2) inches in length and produces a slight sheen when rubbed with the thumb nail. Clay loam produces a nondistinct finger print.

Sandy Clay-Sandy clay is plastic, gritty and sticky when moist and both forms a firm ball and produces a thin ribbon to over two (2) inches in length.

Silty Clay-Silty clay is both plastic and sticky when moist and lacks any gritty feeling. Silty clay forms a firm ball and readily ribbons to over two (2) inches in length.

Clay-Clay is both sticky and plastic when moist, produces a thin ribbon over two (2) inches in length, produces a high sheen when rubbed with the thumb nail and forms a strong ball resistant to breaking.