



Knowledge grows



Yara Analytical Services
Technical Bulletin

Understanding soil texture

Measuring soil texture

Soil texture is a measure of the relative proportions of the basic particle size constituents of the soil: sand, silt and clay.

The soil texture is described using terms that link these key components together; for example, a sandy clay is predominantly made up of clay but has some sand. A silty clay has roughly equal proportions of silt and clay and less than 20% sand. A loam soil, which tends to sit in the middle of the textural classes, has roughly equal proportions of sand, silt and clay.

It can be accurately assessed by analyzing particle size in the laboratory. The percentage of sand, silt and clay are plotted on the soil triangle to determine a soil type.

Little can be done to alter soil texture; farmers must understand texture across the farm and work with it to ensure the soil is as productive and stable as possible.

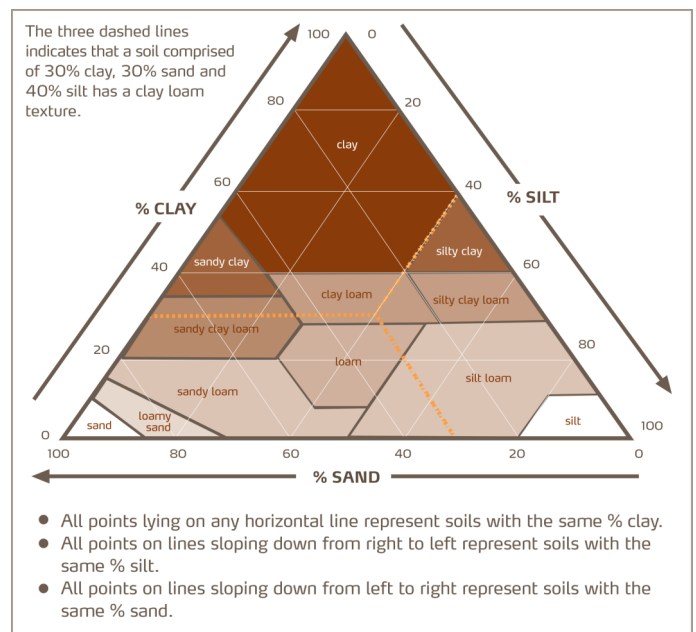
The importance of soil texture

Soil texture has a significant effect on the properties of the soil; including drainage, water holding capacity, aeration, susceptibility to erosion, organic matter content, cation exchange capacity (CEC) and pH buffering capacity. In turn this influences the strategy of many on farm operations, including nutrient application, liming, sowing, cultivation and weed control, and is a key characteristic used to determine variable rate applications in precision farming.

Knowing the soil textures across a farm is a key step toward using management practices that maximize productivity and minimize the potential for any environmental harm.

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Soil texture triangle



Effect of Texture on Key Soil Properties

Property	Sands	Sandy Loams	Loams	Clay Loams	Clays
Total available water	Very low to low	Low to medium	High to medium	Medium to high	Medium to low
Water movement / Drainage rate	Very high	High	Medium	Medium to slow	Low (unless cracked)
Inherent fertility	Low	Low to medium	Medium	Medium to high	High
Nutrient supply capacity	Low	Low to medium	Medium	Medium to high	High
Leaching of nutrients and pesticides	High	High to moderate	Moderate	Moderate to low	Low
Tendency to surface sealing	Low	High	High to moderate	Medium	Medium to low
Rate of warming after watering	Rapid	Rapid	Rapid to medium	Medium	Slow
Cohesion	Low	Low to moderate	Moderate	Moderate to high	High
Stickiness	Low	Low to moderate	Moderate	Moderate to high	High

REF: ADAPTED FROM: CRC FOR LAND MANAGEMENT 1997, DUBBIN - 2001



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