

Did you know?

Soil Smarts: Know Your Ground

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Soil texture is a fundamental piece of knowledge in helping us to manage soils. If we can understand soil texture we can help farmers make good decisions about the soils that make up their farms.

Why this matters:

Soil texture refers to the amount of sand, silt and clay sized mineral particles which make up soil. Every soil type has a different percentage of each of these mineral particles, and this determines how warm the soil is, how well it drains, how well it holds onto nutrients, how much air is in the soil, how well it will stay in one place, and finally, how well plants grow. The word loam that you sometimes see refers to the amount of organic matter in the soil.



How to determine soil texture:

There are several methods to help a person find out what texture their soil is. One is the soil feel [test](#). This method involves a series of steps that can help determine a soil's texture.

Another method is to collect 50 grams of soil in a clear sided jar. Pour approximately 100 ml of soil over the top. Keep stirring the soil in the jar until the soil aggregates have completely broken down. Allow the jar to settle overnight. You will see that your soil has separated into layers of minerals. The large sand particles settle first and are at the bottom, with silt above, and then clay on top. See the photo above. Measure all of the soil layers. Write this down. Then measure each individual layer separately. Divide the individual layers by the total of the soil layers. This will give you a percentage. You can calculate your percentage of sand, silt and clay this way and this will give you an idea of what the dominant mineral is in your soil.

Additional Notes:

Sandy soils are free draining, warm, have plenty of air and do not hold on to nutrients. Clay soils have small pores, are not free draining, hold onto nutrients. Silt soils are in between clay and sand with its properties.

Resources:

Science Learning Hub (2015) *Soil properties*; [Soil properties — Science Learning Hub](#)

Want to know more?: Environmental and Soil Scientists are needed in the work force, you can find out more about this topic at Massey University, the degrees where you can learn more are: [The Bachelor of Earth and Environmental Science](#) and the [Bachelor of Horticultural and Plant Systems](#).

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What careers could I do with this knowledge? Soil Scientist, Agronomist, Consultant, Environmental Scientist, Farmer, Landscape artist, Ecologist, Grower, Ecologist, Geotech Engineer, Precision Specialist, Irrigation specialist, Drainage consultant

Do Now: If the soil in your jar above is mainly sandy soil. How will you manage fertiliser applications to ensure that you do not get leaching? If your soil is mainly clay, how will you manage cultivation timing? If the soil was well drained, what mineral would you have the highest percentage of?