



Soil Texture Testing - The Jar Method

You will need:

A clear, straight -sided, tall (500-700 mL) jar with a lid and a measuring tape or ruler.

Method

1. Collect a soil sample (approx. 150 g) from a depth range of approx. 120-150 mm.
2. Spread the soil out on paper and remove any stones, roots, and large pieces of organic matter.
3. Gently crush any lumps of soil. These are healthy soil aggregates but need to be broken down for this test.
4. Fill the jar to approx. one quarter with the soil and then almost to the top with clean water.
5. Add one teaspoon, about 5 mL of dishwashing detergent.
6. Shake the jar vigorously for five minutes, ensuring aggregates break down into their components.
7. Set your jar in a place where it can sit undisturbed for 24 to 48 hours.

Over the next 24-48 hours the different components of your soil will settle into layers.

Sand

Sand being the heaviest particles, settles first. After a minute or two you will see the sand layer at the bottom of your jar. There may end up being two definable sand layers - coarse and fine.

Silt

The silt layer settles next, usually after one to two hours. Silt displays some texture.

Clay

The clay layer can take a long time to fully settle. Clay is colloidal, meaning it tends to stay in suspension.

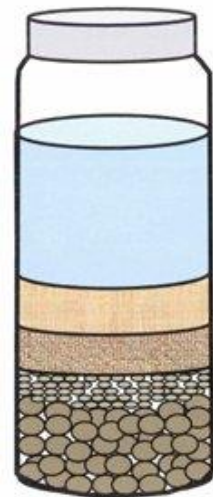
Organic Matter

There may also be a layer of organic matter that floats on the top of the water. You can ignore this, for soil texture calculations.

Measurement

Once the water clears, you will observe well defined layers and can take your measurement of each layer as a percentage.

Relate the percentages of sand, silt, and clay to the Soil Texture Triangle (below).





Soil Texture Triangle

Example Test

Total depth of soil in your jar after clay settles out is 50 mm. Measurements are 20 mm sand in the bottom layer, 17 mm silt in the middle and 13 mm of clay at the top. The percentages therefore work out to 40% sand, 34% silt and 26% clay.

Assess soil type by drawing three lines for the values you determined from the jar measurements. Where the lines intersect determines the soil type. In this case the soil would be loam.

