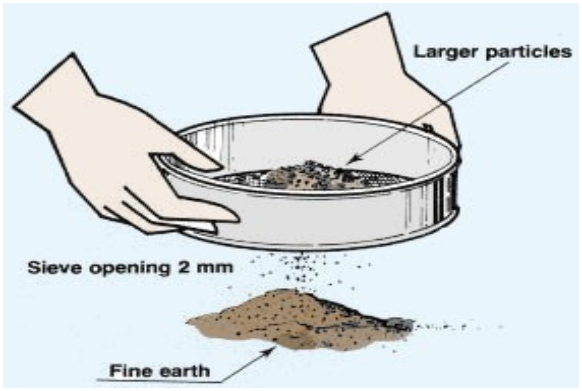
How to identify your soil type?

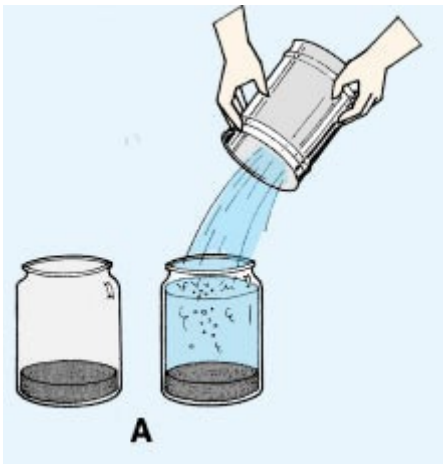
There are different soil types like loam, sandy loam, clay, silt and so on. In this article we will present you different quick tests which help you to understand your soil type.

It is very important to do these tests on soil particles that are less then 2 mm. If there are larger particles bigger then 2 mm please remove them.

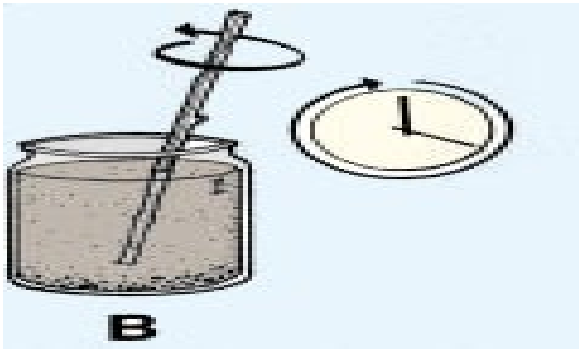


1. **The bottle test:**

- Place about 5 cm of soil into a bottle and fill the rest with water;



- Stir the soil and water mixture thoroughly, then set the bottle down and leave it undisturbed for an hour. After this time, the water should become clearer, allowing the larger particles to settle at the bottom;

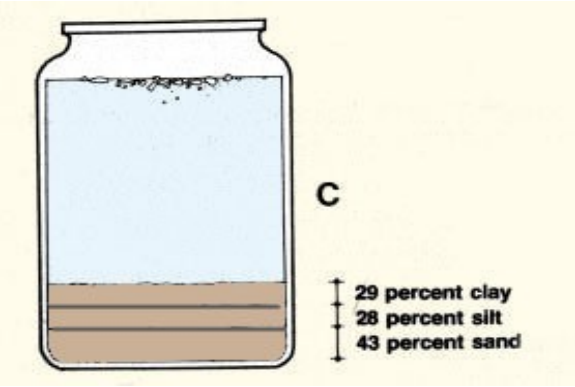


•At the bottom, you'll find a layer of sand.

•The middle layer consists of silt.

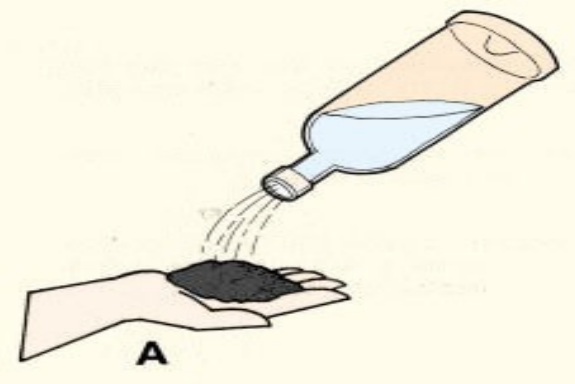
•The top layer is clay; if the water remains cloudy, it's due to tiny clay particles still suspended in the water.
•You may also notice small pieces of organic matter floating on the water's surface.

After the layers have settled, measure the thickness of each layer (sand, silt, and clay) to estimate their relative proportions in the soil sample.

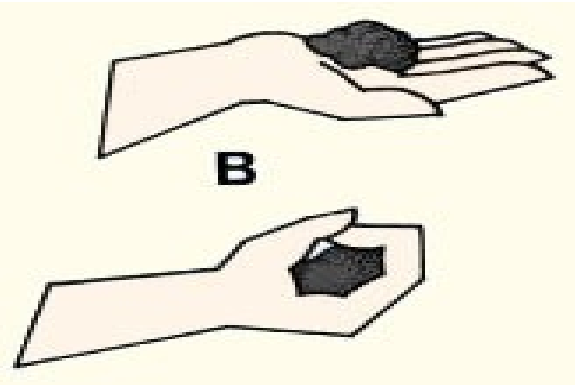


2. **The ball shaking test:**

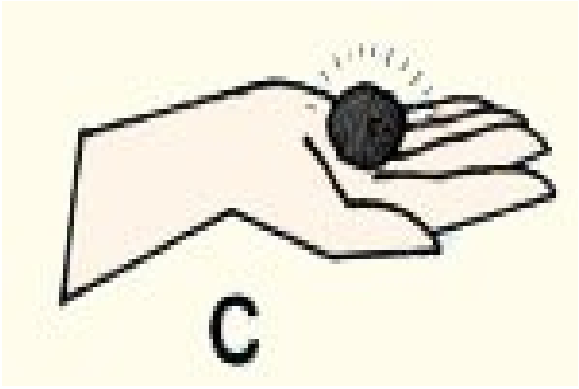
- Grab a handful of soil and moisten it;



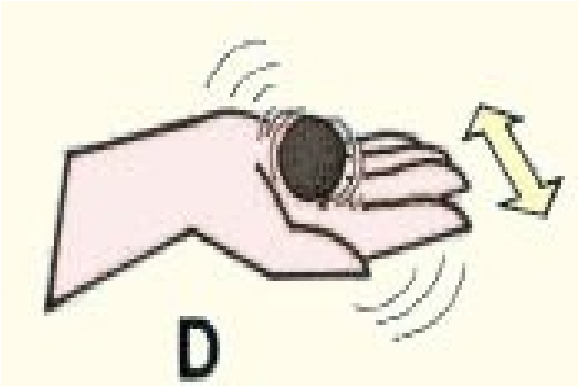
- Shape the moistened soil into a ball roughly 3-5 cm in diameter;



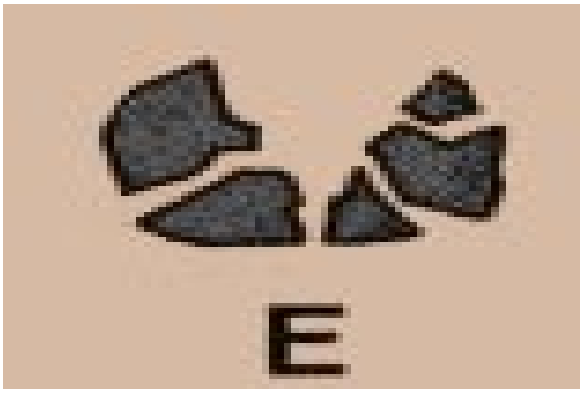
- Hold the ball in the palm of your hand; it should appear shiny;



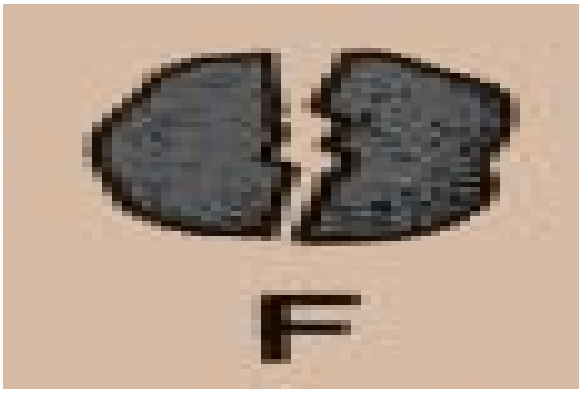
- Shake it side to side quickly while observing the surface of the ball…



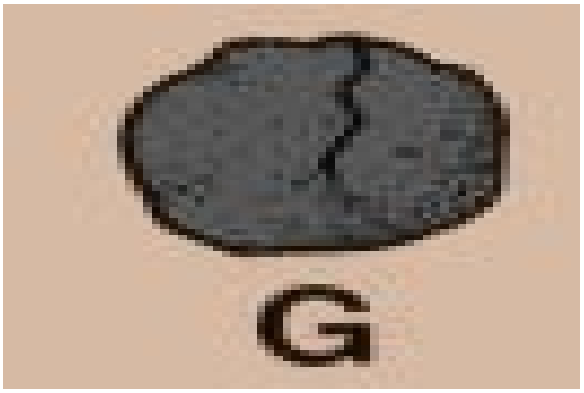
- If the surface of the ball quickly becomes dull and you can easily crumble it between your fingers, the soil is classified as sand or loamy sand;



- If the surface of the ball dulls more gradually and you encounter some resistance when trying to break it apart between your fingers, the soil is identified as silt or clay loam;

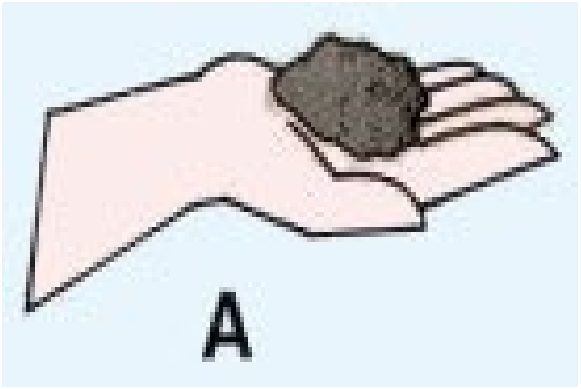


- If the surface of the ball remains unchanged and you feel significant resistance when trying to break it apart, the soil is classified as clay or silty clay.

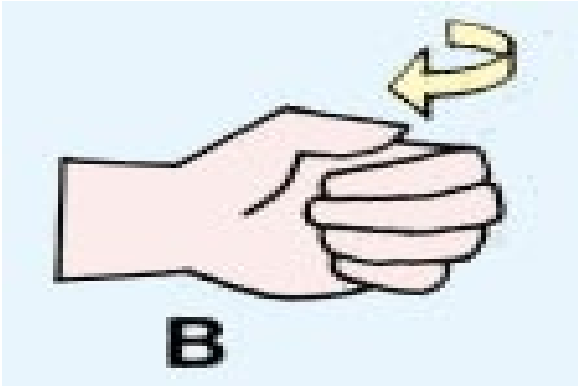


3. **The dry crushing test**

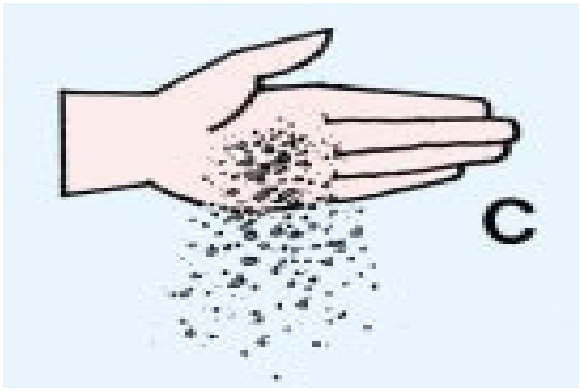
- Hold a small sample of dry soil in your hand;



- Break it apart using your fingers;

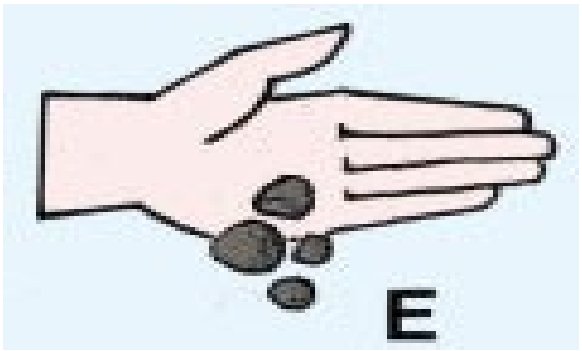


- If you encounter minimal resistance and the sample crumbles into dust, it indicates that the soil is fine sand, fine loamy sand, or contains very little clay;



- If you feel a moderate level of resistance, the soil is classified as silty clay or sandy clay;

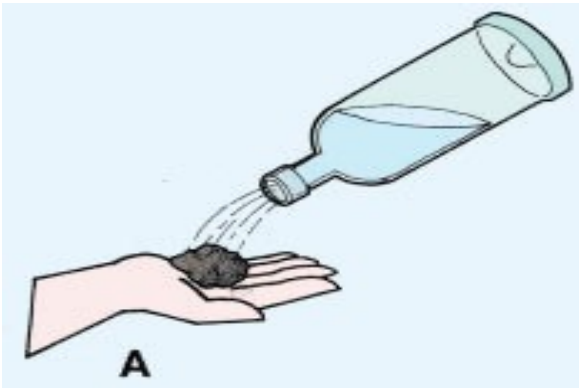
- If there is significant resistance, the soil is classified as clay.



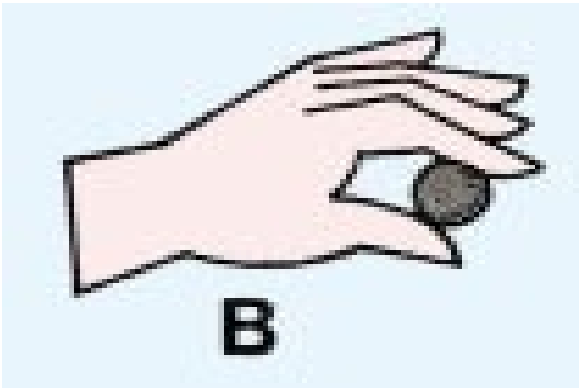
4. **The manipulative test**

The manipulative test provides a clearer understanding of soil texture. It is important to follow the steps outlined below in the exact order, as each step builds on the previous one, requiring increasing amounts of silt and clay.

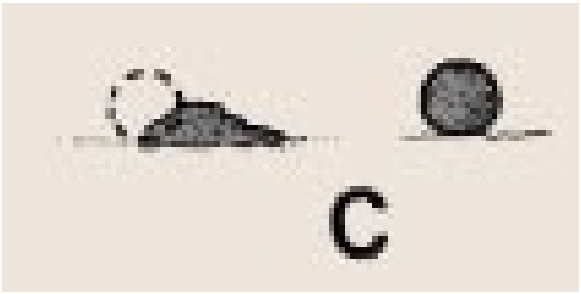
- Take a handful of soil and moisten it until it starts to clump together, but ensure it doesn't stick to your hand;



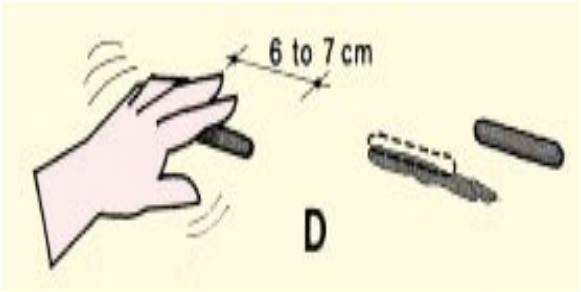
- Shape the soil sample into a ball approximately 3 cm in diameter;



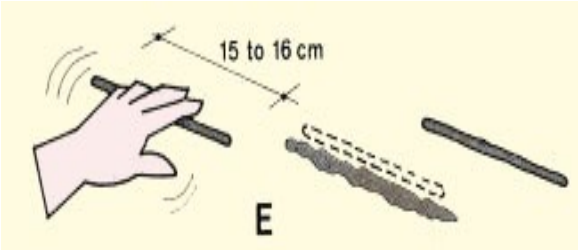
- Set the ball down…



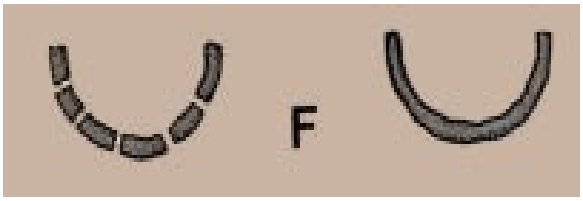
- If it crumbles, the soil is classified as sand;
- If it holds together, proceed to the next step.
- Shape the ball into a sausage form, about 6-7 cm long…



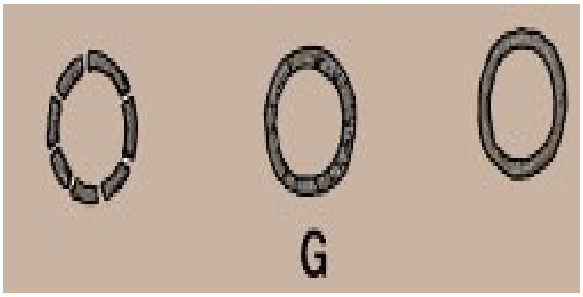
- If it does not maintain this shape, the soil is classified as loamy sand;
- If it holds its form, proceed to the next step.
- Keep rolling the sausage until it measures 15-16 cm in length.



- If it does not hold this shape, the soil is classified as sandy loam;
- If it retains its form, proceed to the next step.
- Attempt to bend the sausage into a half circle...



- If you are unable to bend it, the soil is classified as loam;
- If you can bend it, proceed to the next step.
- Continue bending the sausage to create a full circle…
- If you cannot form a full circle, the soil is classified as heavy loam;
- If you can form a full circle but notice slight cracks in the sausage, it is light clay;
- If you can form a full circle without any cracks, the soil is classified as clay.

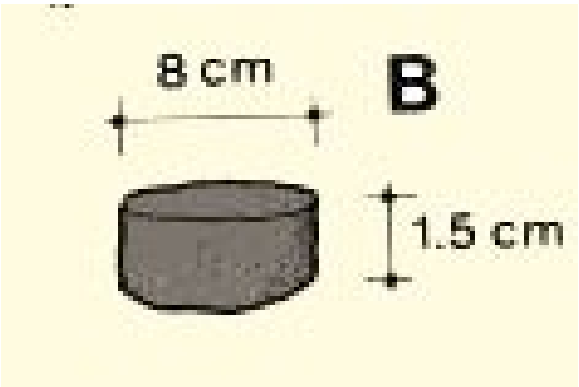


5. **The shaking test: how to differentiate clay from silt**

Both silt and clay soils possess a very smooth texture. Distinguishing between these two types of soil is crucial, as they can behave quite differently when used as construction materials for dams or dikes; silt may lack sufficient plasticity. When wet, silty soils can become highly unstable, whereas clay serves as a very stable construction material.

- Take a sample of soil and moisten it;

•Shape the soil into a patty approximately 8 cm in diameter and about 1.5 cm thick;

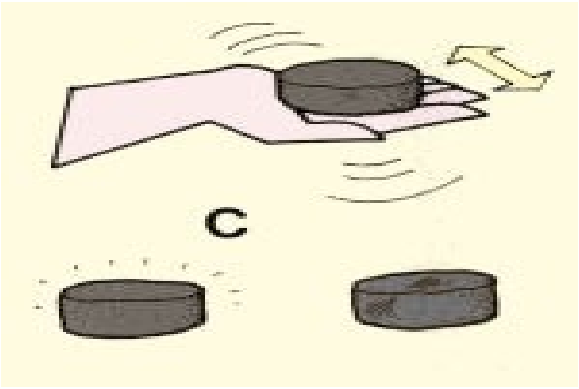


•Hold the patty in the palm of your hand; it should appear dull.

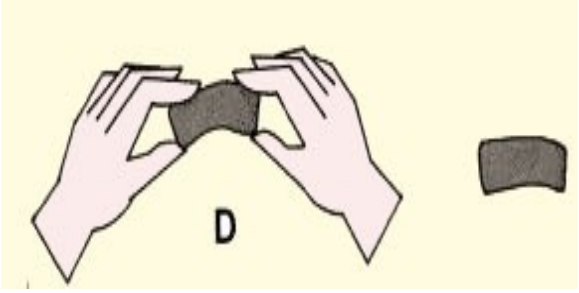
•Shake the patty side to side while observing its surface…

•If the surface becomes shiny, the soil is classified as silt;

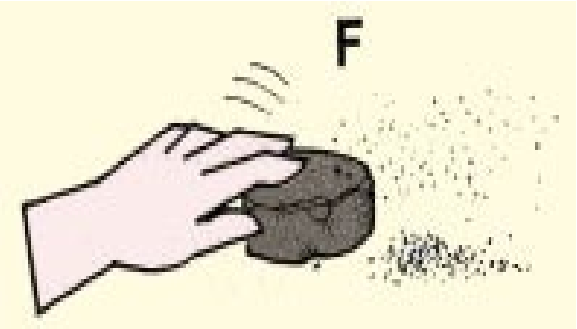
•If the surface remains dull, the soil is identified as clay.



•Verify this result by flexing the patty between your fingers...



•If it crumbles and dust falls off when you rub it with your fingers, the soil is classified as silt;



•If it feels firm and no dust falls off when you rub it with your fingers, the soil is identified as clay.

Note: Document the results of the shaking test by categorizing the speed at which the surface of the patty becomes shiny when shaken—options include rapid, slow, very slow, or not at all.