


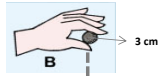


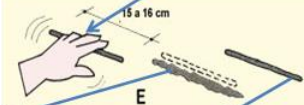

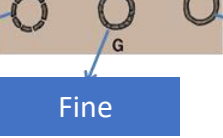


Physical soil properties – Exercise P01

# TEXTURE – Ring method

Reference posters n. 4-7a-8a

<p>RELEVANCE</p>	<p>Soil texture refers to the relative proportion of the various size-groups of minerals in the soil, i.e., sand, silt and clay. Texture influences soil water retention and availability, soil structure, aeration, biodiversity and regulates nutrient supply. A better knowledge of soil textural class enables an approximate assessment of the total water-holding capacity of the soil, one of the major drivers of crop production. Visual assessment is possible through the ring method<sup>1</sup>.</p>	
<p>MATERIALS</p>	 <p>Trowel</p>	 <p>Water</p>
<p>PROCEDURE<sup>1</sup></p>	<p>1) Collect a soil sample using the trowel and wet it with water</p>	
<p>2) Form a ball of about 3 cm in diameter. If it is possible to form a compact ball, continue the manipulation.</p>		
<p>3) If the ball crumbles, the texture is sandy (coarse textured).</p>	<p>Coarse</p>	
<p>4) Form a cylinder about 6 cm long. If it breaks, the soil is loamy sand (coarse textured).</p>	<p>Coarse</p>	
<p>5) Increase the cylinder to 15 cm. If it breaks, the soil is sandy loam (coarse textured).</p>	<p>Coarse</p>	
<p>6) Form a curve. If fragmented, the soil is loam (Medium textured).</p>	<p>Medium</p>	
<p>7) Form a ring (3 cm. diameter). If fragmented, the soil is silty (Medium textured). If cracked, the soil is clay loam (Fine textured). If the ring is solid or with few cracks, the soil is clayey (Fine textured).</p>	<p>Medium</p>	

<b>ADVANTAGES OF THE METHOD</b>	Visual method that do not require specific tools. This method can be used in all climates and soil types.
<b>LIMITATION OF THE METHOD</b>	Might require some training on handling soil and forming the cylinder. It is not possible to determine the relative percentages of the various size-groups.
<b>QUESTIONS TO BE ADDRESSED</b>	Was it possible to handle the soil to form a ball? Was it possible to form a cylinder? How long was the cylinder? Were you able to make a solid curve? How do you think drainage and nutrient retention would be different in sandy and clayey soils compared to the other soil types?

EVALUATION EXAMPLES		
Coarse	Medium	Fine
Coarse particles are felt in the soil, which prevent cohesion. Coarse textured soils are often dry, poor in nutrients and drain very fast.	The soil is a mix few coarse particles and some fine particles.	The soil is very smooth and sticky. It has a good fertility and assimilation of nutrients but it can form impermeable layers.
POOR	MODERATE	GOOD
This textural class is a limiting factor for the soil. It can be too coarse and not retain water or too fine and difficult to work.	The textural class is not a limiting factor for the development of roots, and for the circulation of water and air.	The soil has a texture that allows the assimilation of nutrients and high fertility, and does not present limitations for root development.

<sup>1</sup> [https://www.fao.org/fishery/docs/CDrom/FAO\\_Training/FAO\\_Training/General/x6706s/.!33791!x6706s06.htm](https://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6706s/.!33791!x6706s06.htm)