



Physical soil properties – Exercise P01

TEXTURE

Reference posters n. 4-7a-8a

RELEVANCE

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 method¹.

MATERIALS



Trowel



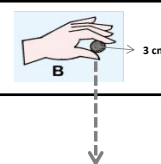
Water

PROCEDURE¹

1) Collect a soil sample using the trowel and wet it with water



2) Form a ball of about 3 cm in diameter. If it is possible to form a compact ball, continue the manipulation.



3) If the ball crumbles, the texture is sandy.

Sand



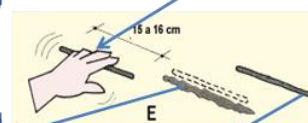
4) Form a cylinder about 6 cm long. If it breaks, the soil is loamy sand

Loamy Sand



5) Increase the cylinder to 15 cm. If it breaks, the soil is sandy loam.

Sandy Loam



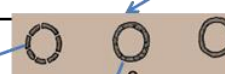
6) Form a curve. If fragmented, the soil is loam.

Loam



7) Form a circle. If fragmented, the soil is clay loam. If it is solid, the soil is clayey.

Clay Loam



Clay

Sandy Clay

ADVANTAGES OF THE METHOD	Visual method that do not require specific tools. This method can be used in all climates and soil types.
LIMITATION OF THE METHOD	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.
QUESTIONS TO BE ADDRESSED	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		
POOR	MODERATE	GOOD
The textural class is sand (very poor) or a loamy sand, a silty clay or clay (moderately poor).	The textural class is a clay loam or sandy loam.	The textural class is a silt loam or loam. The soil texture is smooth and has a soapy feel. It is slightly sticky and contains no grittiness.

¹ https://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6706s/.!33791!x6706s06.htm