



Physical soil properties – Exercise P07

Soil cover estimation

Reference posters n. 9a, 9b, 9c

RELEVANCE

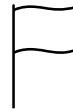
This field exercise is recommended for the evaluation of soil cover during periods where soil is exposed to water or wind erosion, soil organic carbon loss or soil compaction. It is suggested for periods with low soil cover.

Surface cover helps prevent erosion by minimizing soil dispersion by rain or wind. The cover also helps to reduce crusting by intercepting the large rain droplets before they can strike and compact the soil surface. In addition, organic cover returns organic matter to the soil, promoting soil life, and improving soil structure. As a result, infiltration rates and water movement through the soil increase, decreasing run-offs, soil erosion and the risk of flash flooding.

MATERIALS



10 m rope, marked at every 10 cm



Stake, such a piece of wood or small flag



Notebook and pen

NOTE: For best results, it is highly recommended that this evaluation is performed at a time when the soil is most likely to be bare, within the growing period following planting or tillage.

PROCEDURE

1) Start by identifying a representative area in the field. Stretch the rope diagonally across the crop rows and anchor in both ends.



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2) Look at the rope from above. For every 10 cm mark, record if it intersects with a piece of a living plant or crop residue. Be careful not to move the rope while recording, and always look at the same side of the rope to evaluate. If you are in doubt if the pieces intersect, do not count it.






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3) The number of intersections you identify equals the percentage of soil cover, e.g. 34 intersections translates to 34% soil cover.

<b>ADVANTAGES OF THE METHOD</b>	The method requires little technical experience and uses only easily accessible material.
<b>LIMITATION OF THE METHOD</b>	The accuracy of the measurement may vary depending on who is performing the exercise, as it involves some judgment calls.
<b>QUESTIONS TO BE ADDRESSED</b>	What is the source of organic material covering the surface? Is the soil surface protected from the sun, rain or the wind?

### EVALUATION EXAMPLES

POOR	MODERATE	GOOD
<p>Less than 30% The soil is bare and at risk of erosion, leaching and surface crusting.</p>	<p>30% - 70% The soil cover helps protect the soil from erosion, but the effect could be improved.</p>	<p>Above 70% The soil is well protected.</p>
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#### Sources:

Eck, K. J., & Brown, D. E. (1996). Estimating Corn and Soybean Residue Cover. Agronomy Guide (AY-269-W). Purdue University Cooperative Extension Service.

Wollenhaupy, N. C., & Pingry, J. (1993). Estimating Residue Using the Lane-Transect Method. University of Wisconsin - Madison.