Food and Agriculture Organization of the United Nations

Global Soil Doctors Programme

Chemical soil properties – Exercise C01b

SOIL pH USING INDICATOR STRIPS

Reference poster 12a -12b-12c

RELEVANCE

Soil pH is a soil chemical property playing a key role in regulating nutrient availability and other soil processes. Single nutrients are available for plant uptake at different soil pH, therefore different crops thrive at different pH values. Ranges of pH values between 5.5 and 7.5 are suitable for most of the crops because they can support a larger variety of nutrients. At pH values less than 7, the soil is acidic, whereas at pH values greater than 7, the soil is alkaline. Several methods are available for the pH assessment, here we describe the pH test strip method[1].

MATERIALS


Litmus paper


Palette


Spatula


Water

PROCEDURE

1) Collect a dried soil samples with the spatula, clean it from roots and vegetation debris and place it in the drawing palette.


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2) Add the same volume of water as soil using the squeezable bottle and stir the solution.


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3) Dip a tip of the paper strip into the soil solution and compare the resulting color with the scale shown on the color chart. The resultant matching will give an estimation of soil's pH.


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pH= 5-6


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pH= 7-8

ADVANTAGES OF THE METHOD	Quick and easy to determine in the field. Different soil types can be compared in short times
LIMITATIONS OF THE METHOD	Approximated results. Not suitable if exact pH value is needed
QUESTIONS TO BE ADDRESSED	What is the pH of tested soil? Is it too low or too high? What are the consequences for the crop? Is there a way to improve soil pH? Beside nutrient availability, what are the other properties that pH may affect?

EVALUATION EXAMPLES (depending on the specific crop requirements)		
POOR	MODERATE	GOOD
pH values lower than 4 or higher than 8. Too acidic or too alkaline soil.	pH values lower than 5.5 or higher than 7. Slightly acidic or alkaline soil.	pH ranging from 5.5 to 7. Neutral soil.

[1] https://www.fao.org/documents/card/en/c/ca2796en p40