FACTSHEET NO. 2

NUTRI-CHECK NET
OPTIMISING CROP NUTRITION

ARVALIS

Physical fertility : soil structural stability by the Slake Test Method

Problem

Soil structural stability is essential for a resiliant soil. It enable soil to maintain it structure. A good structural stability limits soil erosion and soil slaking. Therefore, it is necessary to have easy methodology to evaluate the soil structural stability on the field.

Solution

The slake test is a cheap and reliable mean to evaluate the soil structure stability.

Outcome

The purpose of this test is to determine the structural stability of soil aggregates and their resistance to erosion. It is performedon dried aggregates.

Applicability box

Geographical coverage
Europe

Application period
All year

Required time
N/A

Period of impact
Continuous

Equipment
Not specific

Practical

This test measures the structural stability of soil aggregates subjected to rapid wetting. Several steps :

1. Soil aggregates are taken from the field and left to dry.
2. Once dry, the aggregates are placed in baskets (structural stability measurement kit).
3. The baskets are then immersed in a tank containing distilled water for 5 minutes.
4. Aggregates are scored within the first 5 minutes of soaking.
5. A second grading takes place after each basket has been raised and lowered 5 times.
6. About 18 aggregates have to be observed, and the final score is the average.

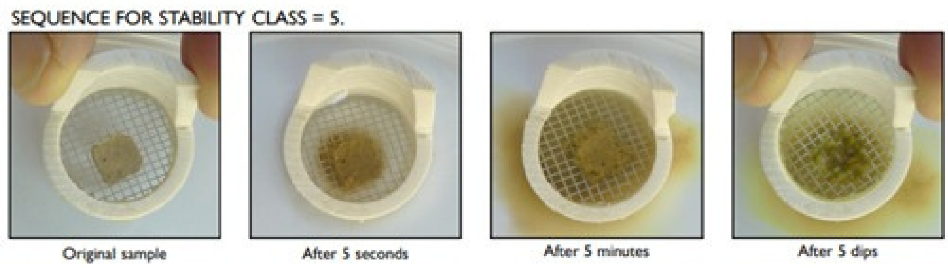
A score of 0 to 6 is awarded at the end of the test, reflecting a class of stability.
Low scores indicate reduced structural stability.
Conversely, high scores (> 5) reflect good structural stability and therefore good resistance to erosion.

The test is carried out on the surface layer (0 - 2 cm) and optionally on the sub-surface layer (2 - 10cm).
Structural stability is influenced by soil texture, OM content and soil compaction.
Comparing results between different plots is subject to caution.

The idea here is to monitor changes in this indicator over time and within the same plot.

The maximum score of 6 cannot be achieved in sandy-textured soils.

Steady Class	No aggregation	rehumecting behaviour			restless behaviour		
	- steady						+ steady
0-2cm	0	1	2	3	4	5	6



Further information

- Slake test from ARALIS (French video) : https://www.youtube.com/watch?v=X2YkgJg7nEs
- *Soil Quality Test Kit Guide*, NRCS A *new integrative and operational framework to assess*
- *the impact of land managementon soil quality* - A. Thoumazeau, Université de Montpellier

About this factsheet

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NUTRI-CHECK NET is a Horizon Europe multi-actor project establishing a self-sustaining, multi-actor, Thematic Network called "NUTRI-CHECK NET" that builds farm-level adoption of best field-specific nutrient management practices across Europe. In nine countries, farmers' Crop Nutrition Clubs will identify and share the nature of their uncertainties about crop nutrition, their challenges and barriers to change. Decision systems and nutrition tools (including commercial products, services, and recent research outputs) will be assembled by national experts across Europe, including leading farmers, into a common online NUTRI-CHECK NET platform.
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