

Is your soil erosion stable?

Christoph Felgentreu, Deutsche Saatveredelung AG · Bückwitz

As a farmer, you don't like to see your soil – your greatest resource – being washed away as a result of heavy rain. However, extreme weather is unfortunately becoming increasingly common.

Just to what extent your soil is capable of water digestion and water retention, and what effect intercrop mixtures and undersow crops have, can be demonstrated by a simple test.

Here's how

There are two simple and low-cost possibilities for testing soil stability.

Test 1: Flow-through test

For this you simply need a large plastic bottle. This is cut through. Then the bottle neck is stuck onto the body of the bottle. Now fill the bottle with a soil sample from your arable land and pour on the water.

If the soil has sufficient water-resistant crumb, the water seeps through slowly and only a little dirty water makes it through to the lower part of the bottle. However, if the soil lacks water-resistant crumb, the poured on water flows very quickly through the sample and carries fine clay particles with it. As a result, the lower part of the bottle contains a strongly discoloured soil-water mixture or the soil slips as a liquid mass into the bottle.

If the water stays on the soil, then this can indicate a high availability of monovalent cations (potassium/sodium) and/or a calcium and magnesium deficiency. This is then quickly checked with a soil sample.



Starting situation

Left bottle: After 8 years, FF Maize-WPS, after WPS ZF and since 2 years MaisPro TR, Right bottle: 8 years of monoculture maize without organic fertilizer, Mineral fertiliser the same for both varieties

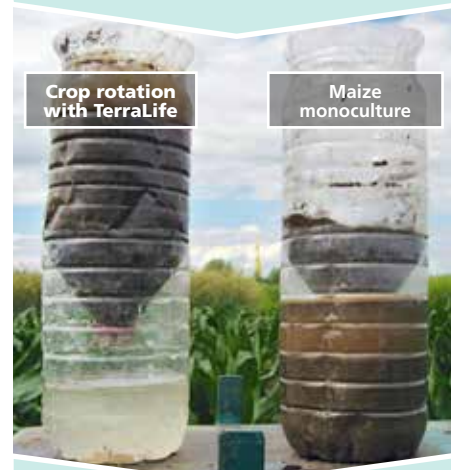
Test 1

Flow-through test

Add the soil sample, pour water over and watch.



Water seeps slowly through if sufficient water-resistant crumb is present.
Clear water (left).



The water flows through very quickly if the soil lacks water-resistant crumb; a soil-water mix strongly discoloured by fine clay particles.



Soils from a diverse crop rotation have more water-resistant crumb and with it a higher infiltration rate and a greater storage capacity. They are also resistant to heavy rain.

Test 2

Heavy rain simulation

Soil sample on a tarpaulin and pour over water from a height of 1.5 metres.



Soil strongly dispersed means less water-resistant crumb.



Soil remaining relatively in the original shape means good soil structure.

Test 2: Heavy rain simulation

For the second test you need a tarpaulin measuring approx. 1 m². Place your soil sample on it and pour over water from a watering can with a rose from approx. 1.50 m height. After this simulation of heavy rain you can clearly see on the tarpaulin whether the soil has become strongly dispersed, meaning it contains little water-resistant crumb, or whether it has remained more or less in shape.

When one compares for example soil from a maize monoculture with soil from the TerraLife intercrop culture or a maize undersow crop using this test, then one sees a clear difference. The structure of both the intercrop and the undersow crop is clearly sturdier and they can retain water and nutrients better.

What can you do to protect your soil?

Naturally, many factors play a basic combined role in the topic of soil protection. The design of the crop rotation is therefore a central point in the maintenance of soil fertility and stability.

Furthermore, natural ground pressure should be prevented and the navigability of the areas taken into consideration. Among other things, the intercrop mixture has a boosting effect on the soil structure, which encourages microbial activity and humus formation through the

different rooting intensities and secretions. If you are reliant on a maize-dominated crop, then undersow crops are recommended. On the one hand, these protect against erosion, on the other, they offer improved navigability in autumn.

Furthermore, it must be ensured that well-balanced nutrients are available. The soil inhabitants, such as earthworms or even mycorrhiza fungi also make a huge contribution. They must also be encouraged on the plots for example through sufficient organic substrate (especially by continuous plant growth with subsequent fertilisation). Furthermore, it must be ensured that well-balanced nutrients are available. The soil inhabitants, such as earthworms or even mycorrhiza fungi also make a huge contribution. They must also be encouraged on the plots for example through sufficient organic substrate (especially by continuous plant growth with subsequent fertilisation).



Only the original has the described effect!

Christoph Felgentreu

Phone 0 049.33970.9910

Fax 0 049.33970.99199

felgentreu@dsv-saaten.de

