

Soil your undies

How healthy is your soil?

A healthy soil is teeming with hungry microbial and macroinvertebrate life. The ground beneath your feet contains millions of bacteria, fungi, protozoa, nematodes, arthropods, annelids and more. These organisms are busy transferring key nutrients, eating and decomposing organic material, and stabilizing the soil. Healthy soils keep key nutrients in place for crops and help to decrease soil runoff. Farmers are improving soil health by incorporating diverse cover crops and decreasing tillage patterns for less soil disturbance. Bottom line, healthy soils mean less soil inputs and more money in a farmer's pocket.

This activity measures the biological activity of your soil by exposing a pair of 100% cotton undies as a microbial buffet. Place your undies in similar soil types with different crop rotations or different tillage management and compare nutrient profiles, rainfall, and microbial activity. Sterile, lifeless soil will stain your undies and keep them intact, whereas soil with a thriving biology will eat away at your white undies, leaving nothing but an elastic strap! The greater the biological diversity, the less of the undies there will be.

Materials

- 1 (or more) new pair of white 100% cotton undies (no dyes or polyester blends)
- 1 marker flag
- Shovel
- Gallon ziplock bag

Instructions

1. Draw an accurate representation of your undies before soil exposure.
2. Record the soil type, date buried and dry mass of the cotton undies to be tested.
3. Dig a trench 15 cm deep in the test soil so that it is large enough to lay the test undies in the trench with the waistband sticking out.
4. Lay the test undies into the trench and bury them with the displaced topsoil so that the waistband is exposed.
5. Mark the burial site with a flag so you'll be able to find it again in 2 months.
6. Leave the undies buried for 2 months.
7. Test the soil for pH, N, P, K and record in the data chart below.
8. Dig up the undies carefully after their 2 month internment in the soil and place in ziplock bag for transport.
9. Rinse any attached dirt from the undies, dry and record the final mass.
10. Draw an accurate representation of your undies after soil exposure.

Data

Sample 1			
Date buried		Date harvested	
Initial mass		Final mass	
Soil type		pH	
Nitrogen		Phosphorus	
Potassium		Tillage pattern	
Crop rotation			
Initial drawing/description of undies before burial:		Final drawing/description of undies after burial:	

Reflection

1. What did the undies reveal about the health of the soil? Explain.
2. How does the data in the chart above compare to the final state of the undies?
3. What can a farmer do to improve the overall health of the soil?