

It's Valuable Soil ...not useless spoil



BRITISH SOCIETY
OF SOIL SCIENCE

How much do you know about the soil you are standing on?

Britain has a greater diversity of soils than any other European country. Here are a few fascinating soil facts to share with your friends and family!

FOOD FROM SOIL

FACT #1

Soil can grow 50 – 60 grains of wheat from every grain sown.

FACT #2

The world's population is expected to expand to more than 9 billion within the lifespan of today's children. Feeding all these people will rely on management of the world's soil – the wafer-thin and very vulnerable living skin of our planet.

Productive land is being lost to town and city expansion and land degradation around the world. **It has been estimated that a hectare is lost every 7.5 seconds.**



SOIL AND THE ENVIRONMENT

FACT #1

Soil is a valuable carbon sink in the world's climate control system. **It is estimated that there are 15 gigatonnes (15 thousand million) of carbon in the world's soils, three times more than in all vegetation and forests.** However there is uncertainty over whether soil carbon stocks are increasing or decreasing. Current climate warming may accelerate the release of soil carbon to the atmosphere through a negative feedback.

FACT #2

Soil, particularly farmed soils, are at the heart of the Earth's nitrogen cycle as they contain large amounts bound up in organic matter. Soil bacteria regulate the release of this organic nitrogen in forms that are useable by the growing crop. Organic farming relies solely on enhancement and management of organic forms of nitrogen while conventional farms augment it with mineral nitrogen fertilisers. Unfortunately it is difficult to control the production of soluble nitrate from insoluble soil organic nitrogen and some is therefore flushed out of the soil into rivers and groundwater or released to the atmosphere as nitrous oxide (a greenhouse gas). Where this water is to be used in public supplies and nitrate concentrations exceed the legal limit, it undergoes expensive treatment to remove the nitrate.

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SOIL AND OUR RIVERS

FACT #1

Soil is a giant sponge with a complex network of cracks and pores within it.

The surface metre depth of soil can store in excess of 400mm of rainfall.

Managing the structure of the soil is important as it ensures that rainfall filters into the soil and can be used by growing crops, which suck up and transpire around 200mm through the summer. Rivers are fed by the excess rainwater that drains out of the soil.



FACT #2

British soils vary in their natural drainage; some are fast-draining sands, while others are impermeable clay. **The nature of the soils within a river basin determines how 'flashy' the river is, whether it is 'constant' or responds rapidly to individual rainstorms.** Soil drainage information is used by flood engineers to help prevent flooding. However there is some evidence to suggest that unexpected flooding can result where soils are compacted by poor management.

LIFE IN SOIL

FACT #1

Stop and think! You are standing on the roof of a **parallel soil world** populated by more species of animals and plants than you will ever see above ground even in the rain forests of the Amazon. They are small, mostly microscopic in size and many are yet to be identified and named. Were they all extracted from the soil and put on a giant set of scales, the soil organisms from a single hectare of arable soil would weigh 5 tonnes, the same as 100 full grown sheep. In just one handful of fertile soil, there can be 100 billion bacteria and 50 kilometres of fungal filament.

FACT #2

The soil is the vulnerable protective living skin to our planet. At one ten millionth of the Earth's radius, soil is thinner, in relative terms, than a coat of paint on a combine harvester. Yet we are totally reliant on it for continued life and wellbeing. It is nature's Materials Recovery Facility, where dead organic matter is recycled and nutrients released for future plant growth. Soil is at the heart of the Earth's natural economy in which the currencies are carbon, nitrogen and phosphorus. We should value it as such and protect it for our children and their children after them.

WE WOULD LOVE TO HEAR FROM YOU!



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