Cynllun PROSOIL+ Project

PRIFYSGOL ABERYSTWYTH UNIVERSITY

Athrofa y Gwyddorau Biolegol, Amgylcheddol a Gwledig
The Institute of Biological, Environmental and Rural Sciences

Soil Carbon

What is soil carbon?
There are two types of soil carbon found in soils

1. **Soil inorganic carbon** (carbonates and bicarbonates) - influenced by base rock type which formed the soil and varies with soil properties, such as acidity and depth.

2. **Soil organic carbon** is made up of living and dead components of plant roots microorganisms and decomposing animal residues. **Active soil carbon** is an indicator of the portion of organic carbon that is readily available as a food source for soil microbes - and an important indicator of a healthy soil.

Why do we need to think about soil carbon?

1. Soils with more organic carbon have a more stable structure and greater water retention, biological activity and nutrient supply important for higher forage productivity.

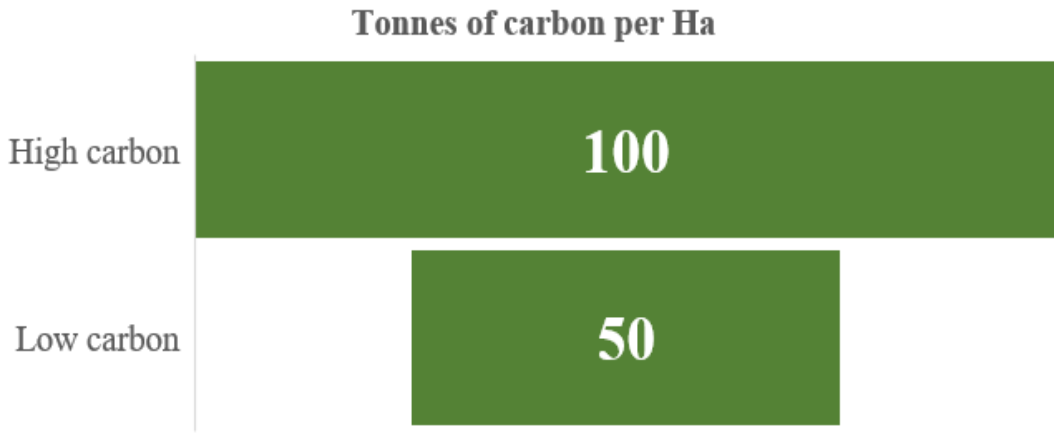
2. Soil management that preserves & captures carbon helps mitigate climate change.

Stock of organic carbon (t/ha) = total organic carbon value in tonnes of carbon per hectare. This calculation is determined by carbon levels adjusted for stone content (% of volume), sampling depth & bulk density (mass of soil in given volume).

How is soil carbon measured?

1. Soil samples are collected using a specially designed tool – to obtain a 'core' of soil to a depth of 30 cm.

2. The laboratory report will include a figure for the **stock of organic carbon** in the soil...what is a high and low carbon stock?



What can I do on my own farm?

1. **Establish a baseline** for soil carbon stocks - taking account of differences in soil type and major management practices
2. **Levels of organic carbon are affected by soil management** - soils with low carbon stocks could capture carbon through 'carbon friendly' management including higher inputs of organic matter (e.g. farm yard manure and cover crops) and limited disturbance
3. **Soil disturbance releases carbon into the atmosphere -** soils with high carbon stock should be managed carefully to maintain important C stocks

Understanding Soil Carbon Stocks

The largest stocks of soil carbon are found in semi-natural grassland, moorland, peat bogs, old woodlands and wetlands

The amount of soil carbon stored or lost fluctuates seasonally - the balance determines whether a soil is a sink or source for atmospheric carbon.

Overall stocks and rates of change depend on soil type - sandy soils have low carbon and change rapidly versus soils with higher clay content.

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