

# Soil Sampling: What to Expect

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## 1. Introduction

Carrying out soil sampling and analysis is a vital way to understand overall soil health and identify areas that may require management or action.

This document provides an overview of what to expect from soil sampling, based on the methodology we use at the Farm Carbon Toolkit. It can be read in conjunction with our page on [Soil Tests Explained](#).

## 2. Where do we take soil samples from?

The objective is to follow a sampling pattern that gives us a good representation of the whole field. This can be done using either a linear transect, a “W” configuration or through a grid pattern.

High traffic areas should be avoided, such as around gateways, troughs and ring feeders. We also avoid taking samples from fields which have recently been disturbed or have recently had an application of manure or fertiliser, as this may impact on the results.

Each sample location is GPS logged so that subsequent samples are taken from the same place and we can ensure that in-field variation is taken into account.

## 3. How many samples are taken?

On average, one representative sample is taken per hectare. To produce this sample, we aggregate between 10-20 samples from a field which is sent to the lab for testing. Even in very small fields, 15 sample points are still used.

To understand soil texture, structure, aggregate stability, earthworm numbers and bulk density, we dig a soil pit at three locations in the field.

#### **4. Why do we take samples at different depths?**

Testing is carried out at three depths (0-10cm, 10-30 cm and 30-50cm) to understand how the carbon is distributed through the soil profile. This also allows for a thorough understanding of the proportion of carbon that is in an active cycling state, and that which is more stable and long term.

#### **5. When is the best time to take soil samples?**

The optimal time to do soil sampling is in the spring or autumn, when the soil conditions (including temperature and moisture) are such that it's easier to take the samples and the results are more representative. However we can sample at any time of the year, and we will remain consistent in carrying out any repeated sampling.

#### **6. How long does it take?**

The time it takes for a soil sampler may depend on the number of samples, the size of the fields and the method for obtaining the samples. Based on the methodology described in this document, done manually with a soil auger, spades and buckets, an experienced soil sampler may sample 4-7 fields per day. Following this, some of the soil samples need to be sent to an external laboratory for analysis, which can take several weeks.

#### **7. How often should we conduct soil sampling and analysis?**

While annual testing may provide investor confidence, our experience shows that annual testing may show 'flashy' changes which are not sustained over the longer term. An optimal testing frequency is every 3-5 years.

#### **8. Why must repeat sampling take place at the same time of year?**

Work carried out through our [Soil Carbon Project](#) has shown a marked impact of seasonal variation. As such, it is important to ensure that repeat assessments are made at the same time of year as the original in order to ensure that any change is representative of management and not seasonal changes. Repeat samples will be carried out within two weeks of the original date.

#### **9. Further reading**

- [Farm Net Zero: Soil Testing Factsheet](#)
- FCT Toolkit Page: [Soil Testing Explained](#)