Soil Sampling Method

1) **Select Fields** – 5 fields are selected to be representative of farming practices (i.e. soil type, crop rotation, cultivation type)

2) **Soil Organic Matter Samples** – samples are taken at three depths (0-10, 10-30 and 30-50cm) from 15 points in a W shape across each field using a soil auger

3) **Proxy Measures** – additional tests are carried out at 3 points across each field, these tests include:

   a) **Infiltration rate** – a hollow metal cylinder is inserted into the ground and 100ml of water is poured into it, a stopwatch records how long it takes for the water to drain into the soil
   b) **VESS Scoring** – Visual Evaluation of Soil Structure, a block of soil one spade width and depth is extracted and the structure in the top and bottom halves rated from 1 (friable) to 5 (very compact)
   c) **Worms** – the number of worms in the soil block are counted and the average number in a soil pit is calculated. This is used to estimate the worms per hectare as there are 250,000 pits in a hectare
   d) **Aggregate Stability** – a handful of soil is taken from the 0-10cm depth at each pit and air dried; three lumps are then submerged in water and assessed for how well they hold together after 5 minutes and again after 2 hours. They are scored from 0 (lump remains intact) to 4 (lump collapses into single grains). Low scores are good and can indicate high carbon levels as soil carbon acts as glue, holding soil particles together

4) **Bulk density** – bulk density is the weight of soil in a known volume. One set of bulk density samples are taken per field, a metal cylinder is inserted into the side of a soil pit at 0-10cm, 10-30cm and 30-50cm and the soil within that cylinder is taken back to the lab. These soil samples are sieved to remove stones and then dried at 105°C and weighed. The results can indicate compaction and are used in the calculation for soil carbon yield.

Aggregate Stability Scoring

Score	Description
0	Lump remains intact
1	Lump collapses at the edges
2	Lump collapses into angular pieces
3	Lump collapses into a cone
4	Lump completely disperses into single grains

Further information

- Measuring Soil Health (Farm Carbon Toolkit) https://farmcarbontoolkit.org.uk/toolkit-page/measuring-soil-health
- Farm Net Zero Resources page: https://farmcarbontoolkit.org.uk/farm-net-zero/fnz-resources