GLOBAL FARM METRIC

PRACTICAL ELEMENTS OF THE GFM ASSESSMENT

FIELD GUIDE

LUNZ 2025

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SOIL CHEMISTRY AND FERTILITY

This survey answers question 4 in the Soil category

Note, this can be done at the same time as your worm count and VESS test

SOIL SAMPLING

Organic matter is crucial for supporting soil fertility and soil health by enhancing the physical, chemical and biological properties of soil.

You may already have results from previous soil tests for Soil Organic Matter (SOM) and nutrient levels. If so, these can be used in the GFM assessment. If you do not have previous measurements or wish to take new ones, you can collect your own soil samples using the following methodology.

Please note, your results will take a while to be analysed and will be sent to you once complete.

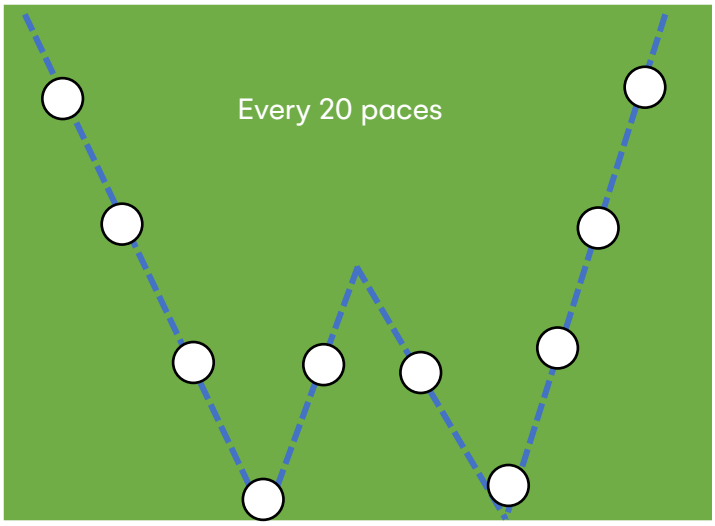
Equipment needed:

- **Auger or spade.**
- **Soil sample bags.**
- **Bucket.**
- **Marker pen** to label bags.

See next page for instructions on how to collect your soil samples.

Instructions:

1. Choose **three** fields that are representative for the farm (i.e. representing different soil types, enterprises or management approaches).
2. For each field, follow a W-shape (see below) and use an auger to take soil samples **every 20 paces** to a depth of **around 15cm**. You should take **at least 10 samples** in total per field.
3. Mix all samples from each field in a bucket and add **around 400g** into a sample bag.
4. Label the bag and send away to be analysed for SOM from Loss on Ignition (LOI) and the micro/macro nutrients you would like the soil to be tested for.



SOIL STRUCTURE AND BIOLOGY

Note, these can be done as the same time as your soil samples.

VISUAL EVALUATION OF SOIL STRUCTURE (VESS)

This survey answers question 4.1 in the Soil category

Soil structure can affect root penetration, water availability to plants and soil aeration. Soil compaction reduces the spaces between soil particles, which can lead to reduced growth and nutrient uptake in plants, poor rooting, restricted drainage and increased risk of run-off, soil erosion and nutrient loss. It is therefore useful to regularly assess soil structure.

EARTHWORM COUNT

This survey answers question 4.2 in the Soil category

Earthworms have various benefits including carbon cycling, nutrient mobilisation and improving water infiltration. High numbers of earthworms can therefore be beneficial for plant productivity.

Equipment needed:

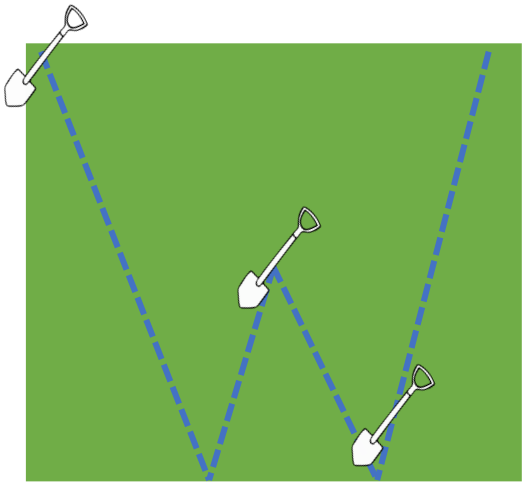
- VESS score card (see link)
- **Spade.** (approximately 20cm wide, 22-25cm long).
- **Plastic sheet** or **tray.**
- **Ruler** or **tape measure.**
- **Results table** found in Global Farm Metric Feld Survey Results document.

When to sample:

- Sample at any time of year, but preferably when the soil is moist. If the soil is too dry or too wet it is difficult to obtain a representative sample, therefore avoid sampling during prolonged spells of wet or dry weather.
- Roots are best seen in an established crop or a few months after harvest.

Instructions:

1. Choose three fields that are typical of your farm (i.e. representing different soil types, enterprises or management approaches).
2. For each field, plot a **W-shape** and walk along this, stopping to take **3 to 5 samples** at the **top**, **middle** and **bottom** of the 'W' (see right).



3. At each point, dig out a block of soil **20cm square and 20cm deep.**
4. Lay the soil on the plastic sheet or tray.
5. Assess the depth of any horizontal layers, root layers indicating compaction and areas of grey or anaerobic soil.
6. Break up the soil block and look for aggregates or clods. If you come across any earthworms, put them on one side of the plastic sheet.
7. Using the VESS scorecard for guidance, record a score for each soil sample you have taken, ranging from **Sq1** (good structure) to **Sq5** (poor structure).
   NOTE: Scores may fit between Sq categories if they have properties of both.
8. Count the number of earthworms in each sample and note this down in the results table.
9. Place the soil and any worms back in the hole.

Photos taken from Vidacycle

WATER SURVEY

This survey answers question 5.2 in the Water category

Water quality can impact the health of plants and animals that live in and around lakes, ponds and rivers. Pollutants, including nutrient-rich fertilisers, can reduce aquatic biodiversity which has knock-on effects across agricultural ecosystems. Aquatic species can therefore act as indicators of water quality, with different species being more or less sensitive to the presence of pollutants.

If you have a lake, pond, stream or river on your farm, monitoring water health can help identify sources of pollution, guide efforts to improve water quality, support biodiversity conservation and maintain ecosystem services. In artificial systems, monitoring water health can also support the effectiveness of their intended functions and prevent adverse impacts on downstream ecosystems and human users. We recommend monitoring your water bodies once per season, to see how things change throughout the year and overtime.

Equipment needed:

- Pen and paper to record results

Instructions:

Take care around water – DO NOT perform this test if it would put you or any of your team in danger.

1. If you have them on your farm, select the pond, river or stream to observe. When choosing water holding areas to sample for the surveys, consider the services they deliver and your farm priorities. We recommend choosing 1-3 that are representative of the different types of water bodies you have on your farm, their functions and your needs.
2. Spend between 5-30 minutes observing the wildlife in your water and record the species you see in the table below and the GFMRT.

You can record your results using the table below, remembering to enter them into your GFM assessment.

Water survey results template

Location of water body: ……

Type of water body (Pond/Lake, Stream/River): ……

Date of survey: ……

Time of survey: ……

Weather conditions (e.g. clear skies, cloudy, windy, rainy): ……

Wildlife	Is this observed in your sample? (Y/N)
Plants below the surface	
Plants emerging from the water	
Floating plants	
Fish	
Frogs/toads	
Aquatic birds	
Blue-green algae	

FARM HABITAT HEALTH

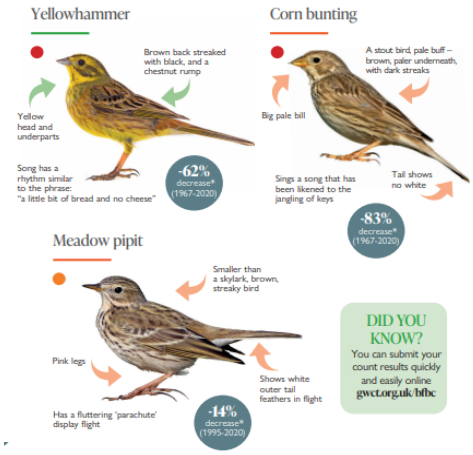
This survey answers question 11.1 in the Biodiversity category

BIRD SURVEY

Birds are indicator species for farm habitat health. The presence or absence of different bird species can therefore indicate the overall health of different habitats on your farm.

Equipment needed:

- **Bird identification guide** (e.g. GWCT Big Farmland Bird Court ID Guide) and/or **bird identification app** (e.g. Merlin)
- **Results table** found in the Global Farm Metric Field Survey Results document.
- **Binoculars** (optional)



Instructions:

1. Identify the different habitat types which cover **>5% of your land** (i.e. agricultural, upland, woodland, wetland/aquatic).
2. Pick one of these habitats and conduct a **30-minute bird survey**, recording the species observed during this time in the results table.
   NOTE: If using the Merlin app for bird identification, avoid talking and keep background noise to a minimum.
3. **Repeat** for the other identified habitats on your land.
   NOTE: There are two results tables in the GFM Field Survey Results document — if you are completing more than two surveys, please re-print the results table.