eurofins

Testing for Life

Soil sampling protocol

Fertilization Manager

Soil Carbon Check

Soil Life Monitor

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OFF-DO-04 V1

Definitions

Sample	Final material of the sampling procedure; it can consist of combined sub-samples, in total 1 litre.
Sub-sample	One sub-sample taken with the sampling device; several sub-samples together make a composite sample.
Soil heterogeneity	Variation in one or more soil constituents in the field.
GPS	Global Position System: this system will provide coordinates with which you can relocate earlier sampled locations (WGS84 system).
Area (unit)	1 ha = 10000 m^2; 1 feddan = 0.42 ha; 1 acre = 0.4 ha

When to sample

- The best sampling time is when growth is at a standstill (grassland) or when there is no crop (excluding green manures) on the field/arable land.
- Do not sample when the field has just been worked, limed, fertilized or harvested. Wait at least six weeks after these activities before sampling.
- Check the weather before you go sampling. Several weather conditions can influence the sampling and analysis result (e.g., deep frost, snow, heavy rain). The availability of plant available nutrients is also very much affected by rain, snow and deep frost.

How to take a sample?

Preparation

- Know the location and its heterogeneity
- Make sure that you can take a representative sample and that you can eventually re-sample the same location in the short- or long-term
- Gather your material:
    - Soil sampler
    - Clean bucket
    - Sample bag
    - Waterproof marker pen
    - Optional: GPS device or phone with GPS app

Overview

- The sample you take must be representative of the area (1 ha) you want to analyse.
- To do this, you need to take about 40 sub-samples across that area.
- The sub-samples are then mixed together to form a representative composite sample.
- In order to re-sample the same area in the future, record the sampled location in the field with a GPS device.
- To do this, record the coordinates of the middle point of the sampled area (see figures 1 and 2).

How to deal with heterogeneous and homogeneous fields

- If the soil in your field has a lot of variation, i.e., is heterogeneous (figure 1), select an area of max. 1 ha to sample.
- If your field is not very variable, i.e., is mostly homogeneous, you can sample the complete field (figure 2).
- Record the GPS coordinates of the middle point of the sampled area (see figures 1 and 2).

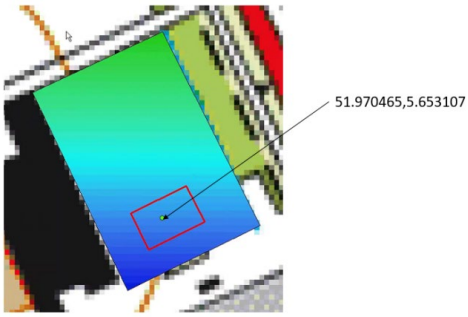

Figure 1: A heterogeneous field, therefore sample a smaller area in the field

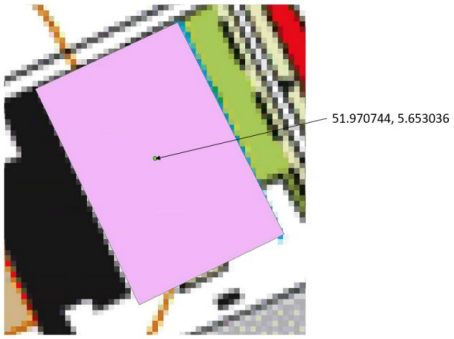

Figure 2: A homogeneous field, therefore the complete field can be sampled

Sampling method

- Use a gouge auger to sample to the recommended depth (see figure 3 and the table on page 3).

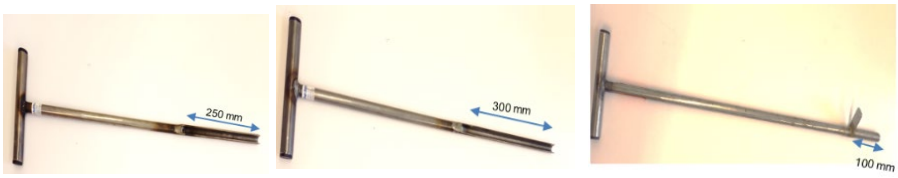

Figure 3: examples of gouge augers

- To prevent sampling compacted ground, due to trampling or heavy traffic, sample at least 5 metres from the field borders.
- Do not sample areas of heavy traffic or different use, like the entrance to the field, drinking spots, local shaded areas, old manure storage locations, etc.
- When sampling, walk in a zigzag (W) pattern across the field (see figure 4a below), making sure that you take at least six sub-samples in each leg.

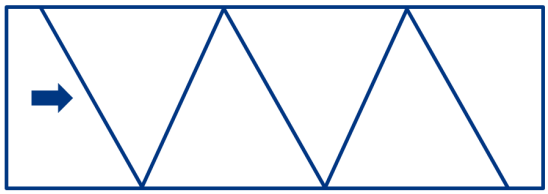

Figure 4a: W-patterns (zigzag) for collecting soil samples

- Before taking the sample, remove as much crop residue or other organic material as possible from the soil surface.
- Tip: If the field has just been ploughed, stamp down the soil where you are taking the sub-samples.
- Collect about 40 sub-samples in total. For peaty soils, collect at least 50 sub-samples.
- As you take the sub-samples, place them in a clean bucket.
- Once all sub-samples are collected, mix them together. This is your composite sample.
- Place approximately 1 litre of your composite sample in a clean, dry sample bag and send it to the lab for analysis.
- If your field is strangely shaped, you can use a combination of zigzag and a cross pattern (see figure 4b). Divide the 40 sub-samples accordingly across the different legs.

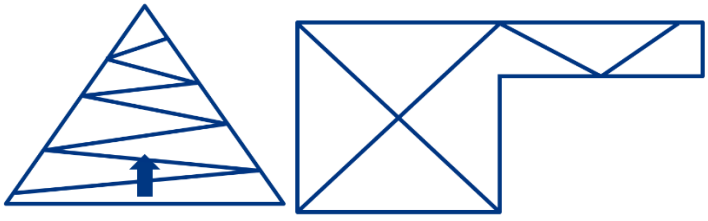

Figure 4b: combination of W, zigzag and cross pattern for collecting soil samples in oddly shaped fields

- As soon as you have finished sampling, label the sample bag with:
    - Sampling date
    - Location name
    - Name of sample taker and company
    - Sampling depth
    - Current crop in the field
    - Optional: GPS location coordinates (WGS84)

After sampling

- Keep the sample bags clean and dry
- Close the bag to prevent contamination and water loss
- Keep out of direct sunlight
- Keep the samples cool (preferably in a fridge), so no changes will occur
- Make sure the bag is labelled correctly
- Send the samples to the lab as soon as possible, with the correct paper or digital order information

Product specifications

Table 1: Sampling method specifications per product

Product	Sampling depth	Sampling area	Additional comments
Soil Carbon Check	Preference: 0-30 cm Other depths are possible	1-2 ha, max. 5 ha	Sampling area depends on heterogeneity. For a better yearly comparison, take the sample at the same sampling depth in the same period every year.
Soil Life Monitor	Pastures: 0-10 cm Arable land: 0-25 cm	Max. 2 ha	Sample a representative area of the field. Sample at low temperatures.
Fertilization Manager	Pastures: 0-10 cm Arable land: 0-25 cm Sports fields: 0-10 cm Orchards: 0-23 cm Vegetables: 0-25 cm	Complete field, Max. 5 ha	Pasture and arable land: always sample the complete field. Sports field: sample after the sports season.

Note

The above-described protocol is a general applicable protocol. Deviations (for instance, point sampling or splitting the fields into areas which are all sampled) are always possible. Important to ensure:
- Sample is representative of the location
- Sampling date and sampling depth are recorded

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