



Profile sampler

Manual



Meet the difference

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On these operating instructions



If the text follows a mark (as shown on the left), this means that an important instruction follows.



If the text follows a mark (as shown on the left), this means that an important warning follows relating to danger to the user or damage to the apparatus. The user is always responsible for its own personal protection.

Text

Italic indicated text indicates that the text concerned appears in writing on the display (or must be typed).

1. Introduction

The profile sampler allows taking of a sizeable and virtually undisturbed sample up to a depth of approximately 40 cm (10 cm wide and 5 cm across). All roots, up to a cross-section of 2 cm, are included in the sample.

When sampling, both U-shaped gutters are pushed alternately into the soil, until the required depth is reached, after which one side of the handle is pulled sharply upwards and the other pushed downwards, thus clamping the profile.

The profile sampler may now be extracted and opened to sample or describe the profile. Also replacing the sample taken (in order to reduce the disturbance of the location to be researched to a minimum) is easily executed.

Advantages

- Compaction and integration of the various soil layers does not occur.
- Simple determination of the volume/weight of various differing layers.
- Sampling individual layers is no problem because the layers do not become disturbed.
- The observation of quantity and distribution of the root growth is both accurate and quick.
- A sizeable volume of the soil may be sampled, whereby the horizons of the samples are easily observed.
- Suitable for almost all soils.

Applications

- Root growth research.
- Ecological/biological research of a strip layer in the forest.
- Soil surveying.
- Creating monoliths without the necessity of digging a profile pit.

2. Description

The sampler consists of two U-shaped gutters (1), held together by a pivoting clamping mechanism, which enables the gutters to move almost parallel to each other.

The U-shaped gutters have a cutting edge at the bottom (2) for root growth penetration. A curved, slanting cutting edge has been found to be the most suitable for this purpose.

The clamping mechanism acts on the principle of the slightly differing turning circles of the handle (hand beam(4)) and the vertical shafts (shorter beam).

The soil column is clamped at the bottom by this action and cannot fall out of the gutters.

The sampler can be opened to expose the soil sample by extracting the locking pin (3).

The shallow profile sampler has been developed for investigating humus profiles with a minimum of disturbance, where other simple apparatus, like gouge augers, are unsuitable because the crop residues in the service area will simply fall out.

This piece of equipment is suitable for all soils with the exception of heavy clay or those with a gravel content.

3. Use of the profile sampler

The shallow profile sampler (art. no.: 0508) is forcefully entered into the soil so that the layers of decomposing materials are penetrated.



It is important that the U-shaped gutters are as far apart as possible from each other and this occurs when the handle is completely horizontal.

The two gutters are now pushed one after the other continuously deeper into the soil (fig. 2).



It is important to observe here that when the handle is pushed downwards on the right hand side the left hand side does not move upwards and vice versa.

This may be prevented by exerting a slight pressure on the dormant side (fig. 2).

It is advisable to use a short pushing stroke otherwise the clamping effect will take place; keep the handle approximately horizontal.

Once the required depth is reached one side of the handle is pulled sharply upwards and the other pushed downwards, thus clamping the profile.

The apparatus may now be extracted (fig. 3).

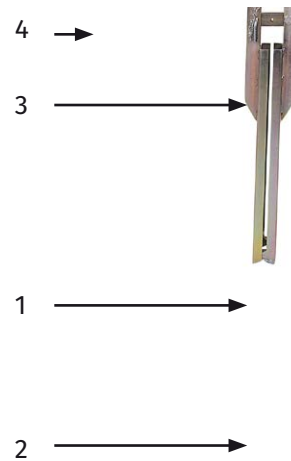


Fig. 1 Profile sampler

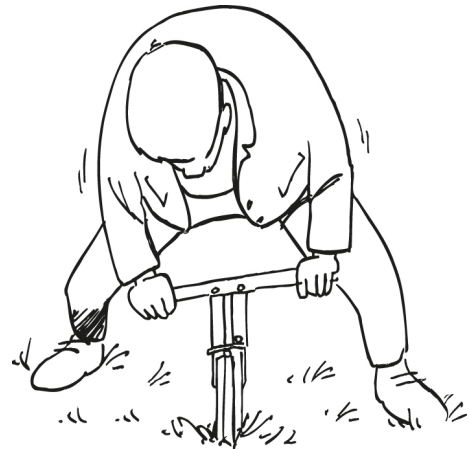


Fig. 2 By alternately pushing one of both U-shaped gutters, the profile sampler cuts itself into the soil.

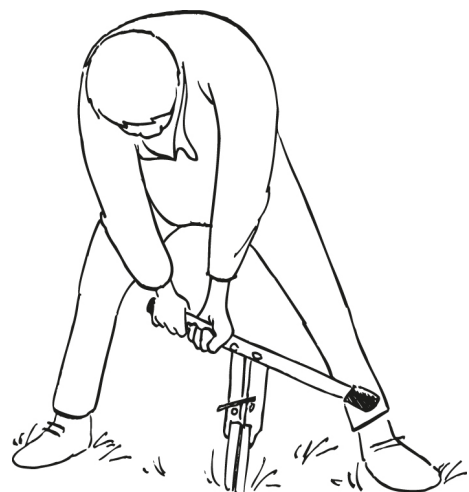


Fig. 3 Once the required depth has been reached, the profile sampler is extracted from the soil in a clamped position.

After extraction the sampler is opened by removing the locking pin (3) in the vertical shaft which allows the gutters to be separated from each other.

Figure 4 shows the opened profile sampler with a soil profile.

4. Conclusions/Applications

The profile sampler has proven to be extremely efficient in practice.

Compaction and integration of the various soil layers does not occur. The volume weight of differing layers is simpler to determine: measuring the thickness of individual layers is sufficient providing that a fixed volume is obtained.

Sampling individual layers to determine their dry weight is also of no problem because the layers do not become disturbed and integrated.

Using this method of sampling enables getting a quick and accurate picture of the quantity and distribution of roots in the profile.

An added factor is that a sizeable volume of soil may be sampled whereby the horizons of the layers are easily observed. Because sampling is efficiently executed it is possible to observe the soil life at the same time.

The profile sampler may also be used to create monoliths without the necessity of digging a profile pit.



Fig. 4 Sampled soil profile