

ECOLOGY LAB 12

Mohamed Sabbar

Soil Sampling Method

- Background information

- **Sampling** involves the selection from the total population of a **subset** of individuals upon which measurements will be made; the measurements made on this **subset** (or **sample**) will then be used to estimate the **properties** (or **parameters**) of the total **population**. Sampling is **inherent** to any field research program in soil science because the measurement of the total population is impossible for any realistic study.

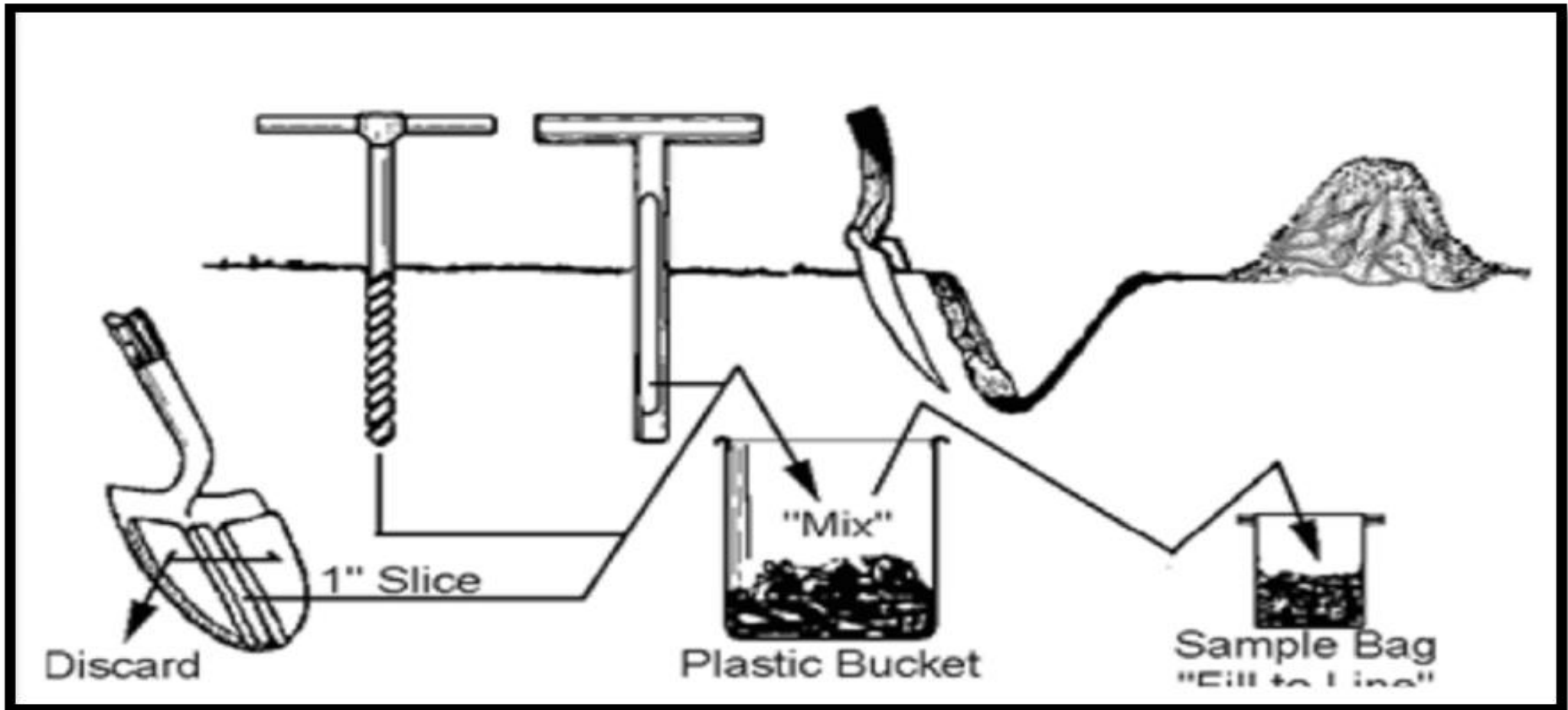
Sample Timing

- sampling for mobile nutrients should be taken as close to seeding as possible or when biological activity is low. Fall sampling should generally start after the soil temperature is **less than 10°C** at which time no further changes in the soil nutrient levels are expected. Spring sampling, before seeding, can be done as soon as the soil frost is gone.

Depth of Sampling

- Commonly used sample depth combination is **(0 to 15 cm)** and **(15 to 60 cm)**. However, if the soil nutrient of interest is expected to be stratified by depth, as with water-soluble highly mobile nutrients, then additional sampling increments would help ensure accurate recommendations. If organic matter or pH measurements are of importance, then a **(0 to 15 cm)** sample should be taken.

Depth of Sampling



Sample Handling

- To ensure that a uniform volume of soil is taken through the full depth of each sampling. Samples should be collected using soil **probes** and **augers** designed for this purpose. A **wedge-shaped** sample like that collected using a **spade** will not give consistent results. All probes should be kept **clean** and **rust free**. Avoid contamination at all stages of sample handling. In many situations, a **lubricant** will need to be applied to the soil probe to prevent the soil sticking inside the probe.

Selection of Sampling Design and Sample Numbers

- For each field or field subsection samples can be taken using a random sampling design, a grid sampling design, or a benchmark sampling design. In random sampling individual samples are collected from locations that are randomly distributed across the representative portion of the field. These random locations can be generated with a GPS. A **zigzag sampling pattern** is often used for field sampling. Typically, all samples are combined and a composite sample is taken and submitted for laboratory analysis. **Composite sampling** is comparatively **inexpensive** since only one sample from each field or subsection of a field is sent for laboratory analysis.

Selection of Sampling Design and Sample Numbers

