

# Soil Testing: Need & Sample Collection Procedure

## (IFDC's Interventions Under APART Project)

### What is soil testing?

The word 'soil test' in agriculture refers to the procedure of analyzing a soil sample to find out its nutrient content, pH level, and other soil properties.

### Why soil testing?

Soil tests are done through chemical analysis or other analytical methods to find out what nutrients the plants need in the soil, and how suitable the other conditions of the land are for plant growth. Soil should be tested periodically (at least once a year) to know the level of fertility of the soil. As crops are grown over the years, nutrients such as nitrogen, phosphorus, potassium, etc. are depleted from the soil. Therefore, it is necessary to know the level of nutrients in the soil from time to time and take decisions so that the yield of the crops does not decrease.

### Advantages of soil testing

- We will know which soil is suitable for which crop.
- We will know the level of nutrients in the soil and recommend fertilizers accordingly.
- Soil maps can be prepared, and fertilizer application can be recommended village-wise.
- When we know whether the soil is acidic or alkaline, we can take steps to fix it.
- Based on a soil test, we can apply only the required fertilizers to reduce the cost of production and get a higher yield.

### Types of soil tests

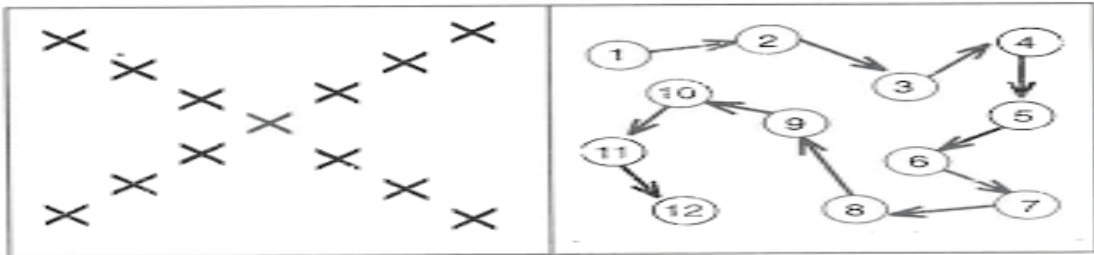
Soil analysis depends on the investigated components or features of the soil that may positively or negatively influence crop development. Usually, properties of soil—chemical, physical, biological—are analyzed and measured. For farmers, components such as pH, EC, N, P, K, Ca, Mg, S, and micro-nutrients will be analyzed.

### Materials required for sample collection

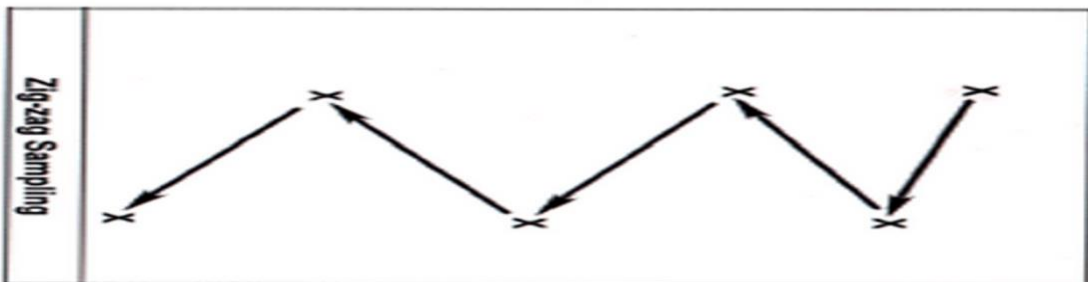
1. Spade or auger (screw or tube or post hole type)
2. Khurpi
3. Core sampler
4. Sampling bags
5. Plastic tray or bucket

## How to collect soil samples?

- The results of the soil test are based on the samples we collect. Soil samples should be taken from 10 to 15 locations per acre, rather than from one location.



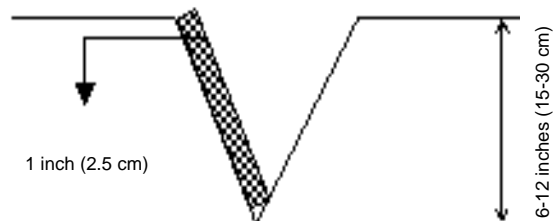
- Soil should be collected in a zig-zag pattern in the selected field.



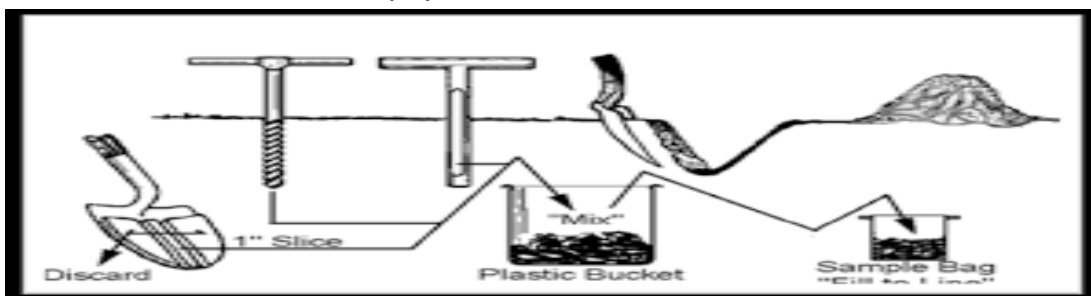
- The sampling area should be kept free of debris. Dig holes up to the depth of 6-12 inches (15-30 cm) in the shape of "V" in the cleaned places. The depth of the pit should depend on the depth of the plant roots, and the type of crop planned for upcoming the season.



V-shaped pit



- One inch (2.5 cm) thick of these pits should be scraped from top to bottom with a shovel.
- Collect the scraped soil in a small bucket or polythene bag and pour the soil on a wide stone slab or clean paper.



- In this way, soil collected from 10 to 15 places in the field is poured into a heap and mixed well.



Mix sample thoroughly



Make sample litter-free

- The well-mixed soil should be rounded and divided into four parts, number 1 and 2 should be given to the top two parts and number 3 and 4 should be given to the bottom two parts. Here, the opposite (2,4) parts should be combined, and the remaining two parts (1,3) should be removed. Now mix the remaining parts (2,4) well and make it round again.



Make four parts of the sample (quartering)



Mix up opposite parts

- The soil made round in this way should be divided again into four parts, and number 1 and 2 should be given to the top two parts and number 3 and 4 should be given to the bottom two parts. Here, 1,3 which are opposite parts should be well combined and the parts 3,4 should be removed.
- In this way, the soil collected from 10-15 places should be done several times until a soil sample weighing half a kg is obtained.



Mix up thoroughly



Collect in a clean polythene bag

- Later, this soil sample should be dried in the shade, collected in a cloth or polythene bag, and sent to the nearest soil testing center or can be tested by yourself with the help of special kits.



Label it with required information and pack it

## **Dos & DON'Ts while collecting sample**

- Samples should not be collected from places where the soil characteristics of the farm are not comparable or representative, i.e., under trees, beside ridges, along fences, footpaths, or where manure/compost are piled up.
- Soil samples should be collected during non-crop season, usually in April/May. In case of emergency, soil samples should be collected from between the crop rows.
- Soil samples should not be collected within 45 days of application of chemical fertilizers.
- Samples should not be collected immediately after irrigating the crop or from areas where the water is stagnant and muddy.
- Leaves and litter on the ground should be removed while collecting samples, but the top layer of soil should not be scratched.
- Soil taken from a highly fertile area should be kept separately from soil taken from a very shallow area; do not mix.
- In high saline fields, both types of samples are to be collected separately—one at 0-15 cm depth, and the other at 15-30 cm.
- Dig 6-foot-deep pits in three or four locations in the field where orchards will be planted and collect a sample from each foot of depth from top to bottom.

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