



## Method of Soil Sampling and Processing

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Soil sampling is perhaps the most vital step for any analysis. Since a very small fraction of the huge soil mass of a field is used for analysis, it becomes extremely important to get a truly representative soil sample from it. For collecting a representative soil sample, due to consideration must be given to the following step.

1. A field can have treated as a single sampling unit if it is appreciably uniform. Generally, area not exceeding 0.5 ha is taken as one sampling unit.
2. Variation in slope, colour, crop growth and management practices are the important factors that should be taken into account for sampling. Separate sample are required areas differing in the characteristics.
3. Recently fertilized plot, bunds, channels and area near tree, compost piles or other non-representative location must be carefully avoided during sampling.
4. An area of about 2-3 m along all the sides of the field should be left in the larger filed.
5. Larger area may be divided into appropriate number of smaller homogeneous for better representation.



Grinding of soil sample

### Depth of Soil Sampling

The penetration by plant roots is an important consideration in deciding the depth of sampling. Therefore, the following factors may be kept in mind.

1. For cereals, vegetables and other seasonal crops the samples should be drawn from 0-15 cm.
2. For deep rooted crop or long duration crop such as sugarcane or in dry farming condition, sample should be collected from different depth depending on the requirements of individual situations.
3. For fruit tree or plantation crop composite sample from 0-30, 30-60, and 60-90 cm

depth should be made from 4-5 pits dug in about 0.5 ha field.

- 0-15 cm soil depth from surface for testing of soil salinity, alkalinity and acidity.

### Soil Sampling Tools

Soil sample can be drawn with the help of i) Soil tube ii) Screw type auger iii) Post-hole auger iii) Phawda and iv) Khurpi



Soil sampling tools

For sampling of moist and soft soil, a tube auger, spade or khurpi in an appropriate tool. A screw type auger is more convenient on hard or dry soil while the post hole auger is useful for the sampling excessively wet area such as rice. If a khurpi is used a “V” shaped cut may be first made up to plough layer vertical depth 15 cm and 2 cm uniformly thick slick is taken out from one clean side.

### Sampling Procedure

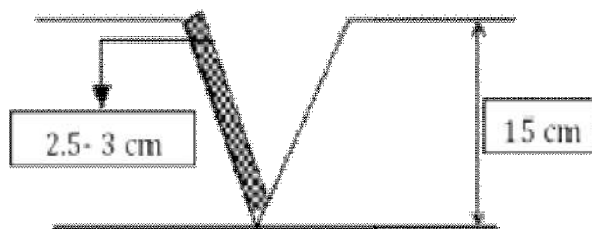
Prepare a map of the area to be covered in a survey showing different sampling unit boundaries. A plan of the number of samples and

manner of composite sampling is entered on the map, different fields being designated by letters A, B, C etc. Each area is traverse separately. Generally, 15 to 20 spots must be taken for one composite sample depending on the size of the field.



Air dry of soil sample

Scrap away surface liter obtain a uniform thick slice of soil from the surface to the plough depth from each place. A “V” shaped cut to a depth of 15 cm in the sampling spot using spade to remove 1 to 2 cm slice of soil. The sample may be collected on the blade of the spade and put in a clean bucket. In this way collect samples from all the spots marked for one sampling unit. In case of hard soil, samples are taken with the help of augur from the plough depth and collected in the bucket.



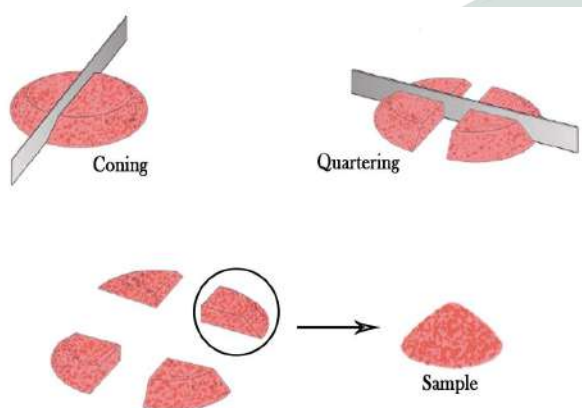
V shaped method of soil sampling

## Preparation of the soil sample in the laboratory

It involves the following steps

Drying > Grinding > Sieving > Mixing > Partitioning > Weighing > Storing

Pour the soil from the bucket on a piece of clean paper or cloth and mix thoroughly. Spread the soil evenly and divide it into 4 quarters. Reject two opposite quarters and mix the rest of the soil again. Repeat the process till left with about 0.5 kg of soil, collect it and put in a clean cloth bag.



Quarter method of soil sampling

## Precautions of Soil Sampling

Special care in collection and handling of the soil samples is required in order to prevent contamination. Following precaution should be taken to minimize error.

1. Avoid contact for the sample with chemicals, fertilizers or manures.
2. Use stainless steel augers instead of rusted iron khurpi for sampling for micronutrient analysis.

3. Do not use bag or boxes previously used for storing fertilizers, salts or other chemicals.
4. Store soil sample in clean, preferably new, cloth or polythene bags.
5. Use glass, porcelain or polythene jar for long duration storage.



Preparation of soil sampling

## Dispatch of Soil Samples to the Laboratory

Before sending soil samples to the testing laboratory by a farmer, it should be ensured that proper identification marks are present on the sample bags as well as labels placed in the bags. It is essential that it should be written by copying pencil and not with ink because the ink will smudge and become illegible. The best way is to get the soil sampling bags from soil testing laboratory with most of the information printed or stenciled on them with indelible ink. Compare the number and details on the bag with the dispatch list. The serial numbers of different places should be distinguished by putting the identification mark specific for each center. This may be in alphabets, say one for district and another for block/county and third for the village.

**Rating chart for soil test values of primary nutrients**

Nutrients	Rating		
	Low	Medium	High
Organic carbon (%)	< 0.5	0.5 – 0.75	> 0.75
N – Alkaline KMnO <sub>4</sub> (Kg ha <sup>-1</sup> )	<280	280 - 560	> 560
Olsen' P (Kg ha <sup>-1</sup> )	< 10	10-25	>25
Amm. Acetate-K (Kg ha <sup>-1</sup> )	<120	120-280	>280

