



Soil And Leaf Analysis Laboratory (SALAL-K)
Directorate of Horticulture, Horticulture Complex,
Rajbagh, Srinagar

The Soil Testing Laboratory was established by the State Department of Horticulture in March, 1995, at Horticulture Complex, Rajbagh, Srinagar, with the aim of providing guidance to the orchardist community on scientific lines, with regard to the basic input of all horticultural activity. i.e., soil.

Soil is the basic natural source on which Agri-Horti production is dependent. Since the development of agriculture, the most important concept of soil has been as natural medium for plant growth. Soil is the interface between the living and the dead, where plants combine solar energy and carbon dioxide of the atmosphere with nutrients and water from the soil to form living tissue.

Basically, plants growing on land depend on soil for water and nutrients. Beyond this, the soil provides an environment in which roots can grow and function. We cannot think of a substance other than soil that has been more meaningful for humanity. Soil must supply water and nutrients to the plants in adequate quantities for completion of their life cycle and an environment in which roots can function.

Soil testing is the widely used practice for soil fertility evaluation and fertilizer recommendations. It is equally helpful in understanding its potential and limitations. Soil sample collection is a primary but often neglected step in soil testing and is also a major source of error, representing 80-85 % of the total error, among all the steps. The importance of having a truly representative soil sample can be well realized from the fact that only a minute fraction of the huge soil mass is actually used for analysis in the laboratory. It is, therefore, essential that the sample so collected should be representative of the whole sampled area.

Success of fruit plantation depends upon the physico-chemical characteristics and fertility status of soil. Estimation of nutrients in the soil is a crucial step towards planning scientific nutrient management of an orchard. Soil sampling is now used in agriculture, horticulture etc. to improve soil conditions and to recommend fertilizer/nutrient dose.

Soil sampling is done in order to find out the quantity of essential nutrients in the soil, available to the plants and other related physico-chemical characteristics, i.e. acidity, salinity, alkalinity, water retention etc. which influence plant growth and adoptability.

To sum-up, the main objectives of soil testing are as under :-

- i. To provide basis for fertilizer recommendations,
- ii. To study soil suitability for different fruit plantations,
- iii. To study problem soils and recommend their remedial measures.

➤ **How We Serve You :-**

Our Department provides , to the Orchardist Community FREE OF COST facility of Analysis of Soil and Leaf samples at Soil And Leaf Analysis Laboratory (SALAL-K). We have all modern facilities and equipments, supported by well skilled staff, to conduct the analysis of soil, leaf and water samples of horticultural belts to best of your satisfaction. Our

Laboratory is not only the oldest one in the state, but the best in view of its record and performance.

RIGHT SAMPLING FOR RIGHT RESULTS

➤ SOIL SAMPLING, When :-

Sampling should be done **prior to the application of manures and fertilizers** to the soil. Alternatively, it is preferable to take the sample only after 2-3 months of fertilization.

➤ SOIL SAMPLING, Where :-

Samples should be drawn from an apparently homogenous plot/orchard, treating it as one sampling unit. **The soil sample must perfectly represent the whole orchard**. Variation in appearance, slope, color, texture, crop growth, drainage or area known to have been fertilized, manured or treated differently, should be taken into account and separate sets of composite samples need to be collected from each area.

➤ SOIL SAMPLE COLLECTION, Procedure :-

Remove the litter from the surface without much disturbing the soil. Take the sample cores from 12-15 random spots in a zig-zag pattern in the field.

In an orchard, it is advisable to go normally upto the depth of three feet, which is further divided into three layers of one feet depth each. This depth, however, can be reduced depending upon the size of the soil profile to be sampled. The soil sample of each the three layers should be collected separately, followed by the layer-wise collection of soil from all the dug pits. This will give a total of only three cores of soil from one sampling unit/orchard (irrespective of the No. of pits). Then the sample should be collected in a bucket. Mix the soil thoroughly and take at least 0.5 kg composite sample as detailed below:-

1. Spread the soil in a disc-like shape (by hand) on a clean piece of cloth, polythene sheet or thick paper and reduce the bulk by dividing it into four parts, followed by quartering, i.e., discard one set of opposite quarters.
2. Remix well the soil of remaining two quarters and repeat quartering till the sample size is reduced to 0.5 kg. Put it in a clean cloth or polythene bag, free from any contamination of fertilizers, salts, pesticides etc.
3. Air dry the sample in shade & not by direct sunlight.
4. Prepare four labels; 3 labels for each individual bag inside & one label to be tied to the neck of the main bag outside. The soil samples should be packed depth-wise in separate cloth bags & then put inside one bag.

❖ **For nursery purpose the soil samples should be drawn from a depth of 9 inch only.**

(Procedure for Collection & Handling of representative soil samples)

Precautions :-

1. Always start collecting soil samples from the lower most horizon/layer of the soil profile.
2. Do not draw sample from the extreme corners of the field, areas recently manured or fertilized, old bunds, manure piles, marshy spots, areas under tree canopy & non-representative spots.
3. Avoid sampling from furrows.
4. Do not take less than 0.5 kg of a composite sample.
5. **Care in handling the soil samples against contamination is extremely important.** Any possibility of contact with chemicals, fertilizers, salt or lime should also be avoided.
6. Use ball pen for writing on the labels.

7. To avoid any damage to the enclosed labels/tags, the same should be kept inside the small polybags.
8. Proper procedure should be followed for sampling in saline & alkaline soils, as the procedure described above is for normal soil conditions.
9. Special care is required if the samples are to be tested for micronutrient elements.

For any clarifications please feel free to contact :-

SOIL ANALYST

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Following FORM to be enclosed with the Sample

FORM

Soil Sample Information Sheet

1. Name & Parentage of the orchardist,
2. Full address, with Horticulture Zone & District
3. Kind & Age of plantation of the orchard (very important)
4. No. of samples mixed together to get the representative sample,
5. Total Sampling Area/Total Area under orchard,
6. Irrigated or un-irrigated land,
7. Drainage Condition,
8. Crop Growth,
9. Fallow or Cultivated,
10. Fertilizer Dose followed since last three years.

This information is extremely important for helping the laboratory staff to formulate recommendations of fertilizers and other management practices. It, therefore, demands maximum possible circulation amongst the field functionaries and the orchardist community.