



ICAR - DIRECTORATE OF CASHEW RESEARCH

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## Stage and time of leaf sampling in cashew

In cashew 4th leaf with petiole from the tip of matured branches, just prior to flowering is to be sampled. About 10 leaves are required to be collected from different branches from all sides of the tree.



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## Precautions in leaf sampling

- Do not sample when the leaves are soiled or covered with dust.
- Do not sample leaves damaged by insects or diseases.
- Do not sample mechanically injured leaves and do not sample when plants are under moisture or temperature stress.

## Dispatch for analysis

Enclose the collected leaves in paper bags and send immediately to soil and leaf analysis laboratory along with information such as the name of the farmer, location, the age of the tree, collection date and the parameters to be tested etc. If the leaf to be sent later, it has to be dried at 60°C after washing with 0.2% detergent solution followed by 0.1 N HCl and double distilled water.

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SOIL AND LEAF SAMPLING  
FOR NUTRITIONAL MANAGEMENT  
IN CASHEW ORCHARDS



## SOIL SAMPLING

### Importance of soil sampling

Since soil resources are being depleted over the years due to overexploitation and indiscriminate use, managing this crucial natural resource is vital for maintaining soil fertility levels to feed the ever-increasing population. Soil testing is recognised as an important tool for assessing the fertility levels and for making fertiliser recommendation to crops and for reclamation of problem soils. Soil sampling is an important step in soil testing. Only a small fraction of huge soil mass in the field is being tested to get an idea about soil fertility status of the field. Therefore the soil sample needs to be representative of the area to be sampled. Sampling for soil testing is to be undertaken to assess the suitability of land for cashew before establishing the plantation. Periodic assessment of soil fertility also required for judicious fertiliser application, by sampling in the existing plantations.

### Selection of sampling unit

On reaching the site, conduct a visual survey by walking in the field and by observing variation with respect to slope, colour, texture, cropping pattern and management practices. If all these aspects are similar, one field can be considered as one sample unit. Separate samples are required for areas differing in each of these characteristics. However, in any case, one sample is required for every 1 to 2 hectares. Areas such as recently fertilised plots, bunds, channels, near wells and compost pits etc. are to be avoided while sampling. To increase the accuracy, large areas may be subdivided into more number of smaller units based on the availability of resources.

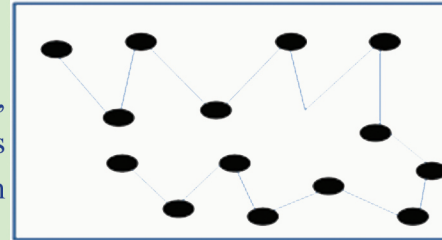
### Depth and time of soil sampling for cashew

For cashew, preferably the soil samples should be collected from different depths. The standard depths of soil sampling in cashew are 0-30, 30-60 and 60-90 cm. The sample should be taken

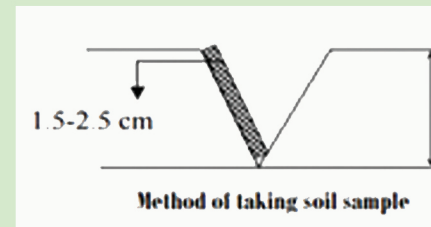
half way between trunk and fertiliser application zone. It is better to take 4 samples from all four different directions and make a composite sample. For new plantations soil samples to be drawn before establishment and for existing plantations soil samples are to be taken before fertiliser application and after cessation of heavy rains.

### How to sample

By traversing the area, decide the number of units to be sampled. For each uniform area, 10-15 sub-samples are to be collected, by traversing the field in a zigzag manner. These sub-samples can be mixed to make one composite sample per unit. While mixing care should be taken to mix the respective depths. Before taking samples, remove the debris and litter on the soil surface. The soil sampling can be performed using an auger which permits easy sampling from different depths, compared to the use of the spade. If the auger is not available a GI pipe can be used for sampling purpose.



If the landowner is interested in only surface soil sample analysis, a V-shaped cut is made in soil, and soil samples are drawn in a thin slice (1.5-2.5 cm) from top to bottom to the depth range desired (0-30 or 0-15 cm). Subsamples are drawn from all the sites marked to make a composite sample.



The mixing of subsamples to make composite samples can be done by quartering method to reduce sample size to approximately to 500 g. For this, thoroughly mix all the subsamples, spread on paper or cloth, remove large stones



and pieces of roots, make four quarters and discard the opposite quarters. This process can be continued till getting a suitable quantity. Transfer soil to clean polythene or cloth bag. Place label indicating the name of the farmer, depth of sampling, field identification mark, date of sampling both inside and outside the sample bag. Send these samples immediately to the nearby soil testing laboratory, along with the sample information, parameters to be tested and analysis fees if any. If samples are to be sent later, make sure to dry samples under shade by spreading on paper, for 2-3 days. Soil testing laboratories may charge nominal fee or do it free according to the availability of government schemes. There are a number of private soils testing laboratories also.

### LEAF SAMPLING

Leaf analysis is the quickest way to assess the nutrient supplying power of the soil. However, the usefulness of leaf analysis depends upon the correctness of leaf sampling. So utmost care should be exercised while collecting leaves for analysis.