



Plant Tissue Analysis - Critical for Effective Nutrient Management

Precision nutrition management of crops necessarily includes plant tissue analysis as an effective tool. Therefore, this edition of Mahadhan Jyoti covers key aspects of plant tissue analysis in the form of answers to FAQs.

What is petiole testing?

Petiole testing, also referred to as plant tissue analysis, is essentially a laboratory analysis to determine / estimate content of nutrients in the plant part/s.

What are the benefits of Petiole analysis?

- It helps in determining whether nutrient uptake is adequate/sufficient at a given crop growth stage.
- This helps in diagnosing hidden deficiency status.
- It indicates bioavailability of nutrients from the soil/ medium.
- It guides in taking up immediate corrective measures to address the deficiency status.

What is the recommended procedure to take leaf / petiole sample in different crops viz., Sugarcane, Tomato, Grape, Pomegranate, Mango and Banana?

The time of sampling and the part of the plant to be sampled are specific to each crop. Given below is the recommendation:

Crop	Plant Part and Stage of Growth
Grape	5th petiole from base at bud differentiation (45 days after April Pruning) for yield, and Petiole opposite to bloom (45 days after Oct. pruning) for quality.
Pomegranate	8th leaf from apex at bud differentiation, in April & August
Banana	20 cm ² leaf portion along the midrib of the 3rd youngest fully expanded leaf at full bloom stage or flowering stage
Mango	Leaf with petiole (4-7-month-old) from middle of shoot
Sugarcane	3rd leaf from top, 3-5 months after planting
Tomato	Leaves adjacent to inflorescence at mid-bloom

Does petiole testing help in fertilizer recommendations?

Plant analysis generally provides more current plant-based information and is therefore more suited for correcting nutrient deficiencies in standing crops.

How leaves/petioles should be packed and sent to laboratory for analysis?

- The sample must be packed in clean unused paper bags to avoid contamination. The samples should be appropriately labelled and accompanied by the contract agreement form duly filled.
- Samples should be sent to the lab such that they reach the laboratory at the earliest, preferably within 3 days of sampling.

What are the parameters recommended for analysis?

The samples should be analysed for total contents of N, P, K, Ca, Mg, S, Zn, Mn, Fe, Cu, B and Mo. In addition, if any other parameters are recommended by the advisor/s, they will have to be analysed.

Which laboratory or laboratories can take up petiole analysis?

Our own Diagnostic Laboratory in Pune carries out analysis of all the nutrient parameters. In addition to the nutrient parameters listed above, our lab is very well equipped for analysis of many other elements. However, for any specific quality parameters, suitable labs can be recommended based on requirement.

As a part of our customer support, we should encourage all our farmers for plant tissue analysis.