

Importance of Soil Testing in Agriculture

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Why it is important

Soil testing gives valuable information, essential for soil quality improvement. By tracking the exact amount of soil nutrients, a farmer can easily adjust fertilization in accordance with soil and crop requirements. Using farm management software, farmers can take advantage of getting fertilizer recommendations based on data that increases plant growth for optimum yield. Additionally, soil analysis facilitates crop nutrient management by revealing the current soil pH level. Soil pH is important due to its influence on the uptake of soil nutrients. The main purpose of managing soil pH is to be able to adjust the acidity to the point where there are no toxic metals exposed to the crops, as well as to ensure that nutrient availability is at its maximum.



Reasons to test your soils

- ❖ Gain knowledge about the soil condition and how to improve it: Fertile soils are necessary to grow healthy crops. To improve soil fertility, it needs to be measured first. Soil fertility is determined by the chemical, physical and biological properties of soil. Properties such as soil texture, color and structure are visible. However, it is impossible to see the chemical composition of soil. This is what needs to be measured



and why soil sampling is essential. Soil tests are used to determine the nutrient content and pH level of a soil.

- ❖ It is the first step into soil fertility management: With a proper soil fertility management strategy, farmers can maximize the efficiency of nutrients and water use and improve their agricultural productivity. Soil testing is the first step towards proper soil fertility management. Soil testing gives valuable information and helps you improve your soil's health.
- ❖ Minimize fertilizer expenditures: You will not waste money on unnecessary fertilizers if the exact type and quantity of fertilizers your soil and crops need is known. Moreover, inorganic fertilizers in general and nutrients such as phosphorus and potassium are limited resources. Their prices are increasing over the years and because this trend is set to last it is clever to adapt now to the inevitable changes.
- ❖ Avoid over-fertilization: Applying fertilizer without knowing the actual nutrient needs of your soil might lead to over-fertilization. By testing your soils and receiving fertilizer recommendations, you can avoid using an excessive amount of fertilizer. This is better for your crops and the environment. Fertilizer burn and leaves turning yellow is the outcome of over-fertilization for crops. It might also result in nutrient leaching, water pollution and irreversible damages to the surrounding aquatic life.
- ❖ **Avoid soil degradation:** Soil degradation is a threat to every farmer. It is estimated that each year 24 tons of fertile soil are lost due to erosion which is a result of unbalanced soil management. A proper soil management is guaranteed by soil tests followed by the application of the right fertilizers at the right moment. Besides avoiding risks of soil degradation, it is a more efficient and financially more interesting practice. Moreover, soil restoration is a difficult, costly and time-consuming process.

Sample Timing

The best time of year to soil sample is in the fall directly after the crop is removed. Since results can vary depending on the time of year, it is best to sample at the same time each year. Soil tests should be completed every 2-3 years for most crops. For crops grown on



very sandy soils particularly if the crops remove large quantities of potassium such as corn silage and alfalfa, you should soil test every 1-2 years.

How to get your soil sample tested

You can get your farm's soil tested at independent laboratories, Agricultural universities, KrishiVigyanKendras (KVKs), your local cooperative extension offices, or any garden centers.

- ❖ Use a Farm Map, Measuring Cup, Soil Boxes shovel, trowel, soil probe, sampling tube, soil auger or any ideal tool.
- ❖ A sample is taken to a depth of normal tillage i.e., to rooting of plants, for field crops 0-30 cm, for permanent crops (orchards and vineyards) 0-30 cm, and 30-60 cm.
- ❖ Remove all the grass, stones, thatch or debris.
- ❖ Take 6 or 7 samples, thoroughly mix them in a plastic bucket then ensure approximately 1 pint of soil is collected.
- ❖ Spread over a dry paper such as a newspaper and let it dry for 24 hours. Most of the labs prefer dry soil. However, some moisture may remain.
- ❖ Label the sample and send it to the test center, or the lab.

