



Mahatma Gandhi Vidyamandir's
Samajshree Prashantdada Hiray Arts, Science & Commerce
College, Nampur, Tal-Baglan,
Dist-Nashik 423204
Affiliated to Savitribai Phule Pune University, Pune
ID Number PU/NS/ASC/028(1984)
NAAC Re-Accredited B Grade
Phone. 02555-234316 Fax. 02555-23215
Email. sphnampur@gmail.com
Website : <https://mgvnampursr.kbhgroup.in>



Best Practices (A. Y. 2021-2024)

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Title:
**Soil Analysis in the
Vicinity of Nampur**

Objectives:

1. **Nutrient Analysis:** Determines nutrient levels in the soil, helping optimize fertilizer application for plant growth.
2. **pH Measurement:** Assesses soil acidity or alkalinity, influencing nutrient availability and microbial activity.
3. **Texture and Composition:** Identifies soil type (sand, silt, clay) and composition, aiding in proper irrigation and drainage management.
4. **Organic Matter Content:** Measures organic material, crucial for soil structure, water retention, and nutrient cycling.
5. **Cation Exchange Capacity (CEC):** Evaluates the soil's ability to retain and exchange essential nutrients for plant uptake.
6. **Physical Parameter:** Detects Parameters like Density and Water Holding Capacity (WHC), ensuring soil quality control.
7. **Soil Health Assessment:** Provides insights into overall soil health, helping implement sustainable farming practices.

By addressing these aspects, soil testing enables informed decisions for efficient and sustainable land use.

The Context:

Our College is located in the rural and Hilly area and most of the students belong to farming background. Therefore, Soil examination provides the background knowledge on the chemical, physical and biological grade of a soil that they need in order to properly manage soils and crops.

It provides accurate and timely diagnosis of soil fertility related problems and enables to take decision on proper nutrient management strategy.

It removes the guess-work and ad-hoc application of fertilizers; and provides scientific basis for choosing right product at right time with right rate of application.

It helps to restore soil health in long term – since it advocates application of balanced nutrients and thus arrests soil mining.

Overall, it is a very efficient decision making tool regarding nutrient management for all types of crops grown in various agro-climatic conditions.

Indeed, as a way to prevent soil degradation and the reduction of soil function, there is an urgent need for soils to be sustainably managed.

The Practice:

Soil testing is a crucial agricultural practice that involves analyzing soil samples to determine their nutrient content, composition, and other properties. In the context of higher education in India, soil testing plays a unique role in supporting agricultural research, education, and practical applications.

In India, where agriculture is a cornerstone of the economy, soil testing is integral to sustainable farming practices. Higher education institutions, particularly agricultural universities and research centers, often conduct extensive soil testing to contribute to scientific knowledge and disseminate information to farmers. This process aids in optimizing crop yield, enhancing soil fertility, and mitigating environmental impacts.

The Department conducted this activity for farmers in the vicinity of Nampur. This practice is conducted in a free of cost for farmers. Our TYBSc students help in analysis of different parameters of soil. Basic parameters of soil are evaluated in the college laboratory while some parameters which required sophisticated equipments for analysis are available in the “SHEJAMI Pvt. Laboratory, Soil and Water Testing Lab, Satana”.

Evidence of Success:

- Our TYBSc students actively participate in soil analysis activity, as a result of this the students are able to know soil analysis technique
- Our TYBSc students interact and guide to the farmers regarding soil analysis.
- The following farmers in the vicinity were got benefited.

Sr. No.	Name of the Farmer	City	Date
1	Mr. Dhananjay Madhavrav Sawala	Aaskheda	02/12/2022
2	Mr. Sayaji Kapadnis	Dayane	10/11/2022
3	Mr. Sanjay Pawar	Kakadgaon	08/08/2022
4	Mr. Ashok Kautik Desale	Gorane	07/05/2022
5	Mr. Dharmraj Dadaji Kapadnis	Khamalon	27/12/2021
6	Mr. Shashikant Sawant	Nampur	23/11/2021
7	Mr. Jibhau Dharma Deore	Kupkheda	02/02/2021

Problems Encountered and Resources Required:

Soil analysis may face challenges like obtaining representative samples due to soil variability or dealing with complex soil compositions affecting accuracy. Resources needed include sampling tools (such as augers or probes), protective gear, testing kits for pH, nutrients, and contaminants and access to a laboratory equipped with spectrophotometers, balances and other analysis instruments. Moreover, skilled personnel for sample collection, handling and interpretation of results are crucial. Quality reference materials and databases aid in result comparison and analysis. To overcome challenges, investing in proper training for personnel, using standardized protocols, and employing advanced analytical technologies can enhance accuracy. Collaborating with agricultural extension services or research institutions can provide access to expertise and resources for complete soil analysis.

For testing some parameters, sophisticated and well equipped instruments are required which are not available in our Laboratory.

Notes:

Implementing best practices in soil analysis across institutions involves standardizing protocols, ensuring quality control, and fostering continuous improvement. Developing standardized sampling procedures based on recognized guidelines (e.g., from USDA or international standards) ensures consistency. Utilizing certified laboratories and regularly calibrating equipment ensures accuracy in analysis. Regular participation in proficiency testing programs helps validate the reliability of results. Employing digital tools for data collection, analysis, and storage streamlines processes and facilitates sharing information across institutions.

Collaboration among institutions encourages knowledge exchange, enabling the adoption of innovative techniques and sharing resources. Emphasizing education and outreach programs to stakeholder increases awareness of soil health and the importance of proper analysis.

We have collaborated with “SHEJAMI Pvt. Laboratories, Soil and Water Satana (Nasik)” which provides two types of soil-testing analysis - Standard & Broad Spectrum. Standard’ soil analysis package includes nutrient analysis of Nitrogen (N), Phosphorus (P), Potassium (K), Sulphur (S) and Zinc (Zn).

However, in order to get the most from a soil sample analysis, it is advised to avail our ‘Broad Spectrum’ soil analysis which includes Calcium (Ca), Magnesium (Mg), Iron (Fe), Copper (Cu), and Manganese (Mn).


HEAD
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S.P.H. Arts, Sci. & Comm. College
Nampur Tal. Anglan (Nashik)




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DEPARTMENT OF CHEMISTRY ACTIVITY OF BEST PRACTICE

Students collected soil samples from the different farms and department sent it to
SHEJAMI Laboratories, Satana; Tal: Baglan; Dist: Nasik for analysis.



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