



Soil Sampling Procedure & Nutritional Status of Soils at Gurez



Chief Patron

Prof. Nazir Ahmad Ganai
Hon'ble Vice-chancellor

Patron

Prof Raihana Habib Kanth
Director Extension

Background

Agri -scenario Gurez

- The Valley located at **8000 ft. ASL**
- High-altitude, **sub-temperate to cold arid climate**
- Short cropping season (May-Oct), crops grown include **Potato, Maize, Rajmash, wheat, Buckwheat, Millets, Pea and fodder crops.**
- Soils generally high in organic matter however, low decomposition rate.

Significance of soil testing under Gurez condition

- Predominantly traditional farming.
- No use of synthetic fertilizers or any other chemical.
- Marginal farms, fragile region.
- Poor knowledge of farmers regarding soil health and sampling procedure,
- FYM application that too with uneven quantities with no use of bio-inputs
- Therefore, soil health orientations , sampling , analysis and adoption of the recommendation becomes imperative to improve overall soil health through organic methods including Bio-inoculants besides conduct of knowledge and skill oriented programmes .

Nutritional Status of Soils at Gurez (Dar *et al.*, 2016)

Category	Parameter (s)	Status	Value / Range	Interpretation / Remarks
Physico-chemical properties	pH	Slightly alkaline	~7.6	Suitable for most crops; may limit micronutrient availability
	Electrical conductivity (EC)	Low	~0.14 dS m ⁻¹	Non-saline soil; safe for crop growth
	Organic carbon (%)	Low-medium	~0.30-0.35	Needs FYM, compost, green manuring
Macronutrients	Available Nitrogen (N)	Medium	~250 kg ha ⁻¹	Limiting for cereals; split application recommended
	Available Phosphorus (P)	Medium	~18 kg ha ⁻¹	Reduced availability under alkaline pH; placement method advised
	Available Potassium (K)	Medium	~175-180 kg ha ⁻¹	Derived from parent material; depletion possible
Secondary nutrients	Calcium (Ca)	Moderate	10.43 cmol(p ⁺) kg ⁻¹	Adequate due to alkaline soil reaction
	Magnesium (Mg)	Moderate	4.17 cmol(p ⁺) kg ⁻¹	Supports balanced nutrient uptake

Soils of Gurez valley are **moderately fertile**, characterized by **slightly alkaline reaction, low organic carbon, medium NPK status**. Improvement of soil organic matter and soil-test-based nutrient management is essential for sustainable crop production.

Procedure for soil sampling

Soil sampling is crucial for agricultural use as it provides accurate information on the nutrient status, pH, and overall fertility of the soil. It helps in identifying nutrient deficiencies or excesses, enabling farmers to apply fertilizers in balanced and economical doses. Proper soil sampling supports efficient use of inputs, improves crop yield and quality, and prevents soil degradation. It also promotes sustainable agriculture by maintaining long-term soil health and environmental safety.

Objectives of Soil Sampling

To obtain **representative soil sample**.

To assess **nutrient availability**

To facilitate soil health and other Good Agronomic Practices (GAP)

Time & Frequency of Soil Sampling

Best time: **Before sowing**

Sampling interval:

- Field crops: Every **2-3 years**

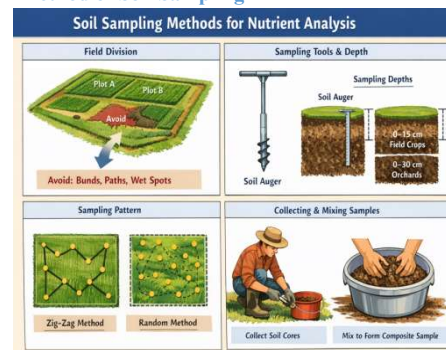
Avoid sampling:

- Immediately after fertilizer application
- After irrigation or heavy rainfall

Tools Required for Soil Sampling

Soil auger or spade, Plastic bucket, Clean cloth or plastic sheet, Sample bags, Marker/labels

Method of Soil Sampling



Field Selection

Divide field into **uniform units**
Avoid abnormal spots (bunds, manure heaps, water channels)

Sampling Depth

Field crops: **0-15 cm.**, Perennials/orchards: **0-30 cm**

Sampling Pattern

Collect **10-15 sub-samples**
Follow **zig-zag or random pattern**
Mix thoroughly to form **composite sample**

Sample Processing & Storage

Air-dry soil in **shade**, Remove stones, roots, debris, Crush gently and sieve through **2 mm sieve**, Store **200-500 g soil** in labelled bag.

Label Details:

Sample ID, Location, Depth, Date

Authors:

Mr. Manzoor Ahmad Khatana
Programme Assistant (lab)

Mr. Ravi Kumar
(Farm Manager)

Dr. Hilal Ahmad Malik
Head KVK Gurez

Dr. Jauhar Rafeeq
Scientist (Agroforestry)

Dr. Shahida Altaf
Scientist (Plant protection)

Printing & designing

Mr. Tanzeer Hussain Khan
Programme Assistant (Computers)

Krishi Vigyan Kendra Gurez

Directorate of Extension
Sher-e-Kashmir University of
Agricultural Sciences and
Technology of Kashmir
