

SOIL SAMPLING AND TESTING GUIDELINES

KALRO/NAVCDP/Potato production Factsheet No. 094/2024

1. What is soil sampling?

Soil sampling is the practice of obtaining soil from the field for the purpose of determining its physical, chemical and biochemical characteristics before undertaking any land use activity on it.



Sampling using an soil auger

2. Why do soil sampling?

3. What is required?

- Soil auger
 - Soil box/ bags
 - Clean bucket preferably stainless steel or plastic
 - Pen/marker pen
 - Tape measure
 - Knife
 - Note book
- ### 4. Collection of samples
- ### 5. Sampling depth
- ### 6. Number of cores

Why do soil sampling:

- To establish baseline soil nutrient status.
- To measure changes in soil nutrient status over time.
- To determine nutrient application recommendation prior to planting.
- To assess the soil pH and the need for liming.
- To avoid excessive nutrient application or soluble salts accumulation
- For soil biological characterization (biological activities are important for transformation of soil nutrient into forms that are appropriate for plant uptake; some like mycorrhizae can directly influence uptake).
- For soil physical characteristic evaluation (soil physical characteristics are crucial determinants of the plant rooting pattern (Mangale et al., 2016).



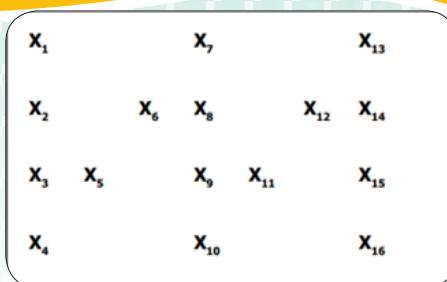
Use clean sampling tools. to avoid contamination of the soil sample, Contamination affects the results, which will not reflect the true status of the soil.

Soil sampling depth is determined by the intended type of analysis. For example, for microbial analysis, depth of 0-10 cm is most appropriate because of high microbial activity within that depth. For soil chemical/nutrient analysis, 0-20 cm depth is most appropriate because it is the feeder rooting depth of most crops.

Maintain consistent depth for sampling at between 15 cm (6 inches) and 30 cm (12 inches). It is advisable that one maintains the sampling depth for accuracy of the analysis which will influence the fertilizer recommendations. It is also advised to collect samples at similar times of the year.

9 cores per 0.5 acres

6 Sampling pattern

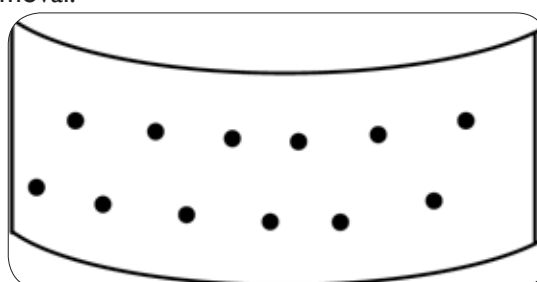


Zigzag or flat

7. Frequency of sampling

Recommended sampling is once every 3 years though it is dependent on type of soils. Sandy soils may require frequent sampling due to high rate of nutrient loss through leaching or crop removal.

8. How to sample on contour strips



9. Sampling and testing guide

1. Identify the area to be sampled. Remove plant remains, leaves and any trash.
2. Avoid areas where manure is collected, anthills, under forests, shaded areas or areas that differ in colour.
3. Using the soil auger or shovel, scoop soil from the top 15cm deep and place in the bucket.
4. Scoop more cores following a W or zigzag pattern.
5. Place samples in the bucket and mix thoroughly
6. Scoop half kg of the mixed soil, put in the soil bag/ brown paper bag and seal properly.
7. Write the name of farmer, field of interest, crop to be planted, ward, location, county and date sampled, on the bag.

Mandate Centre for Potato Research:

KALRO Tigoni

Reference Links – book, journal paper, magazine, brochure, bulletin, fact sheet, web etc.

(<http://www.kalro.org/navcdp>)

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