

## SOIL FERTILITY MANAGEMENT: AN OVERVIEW

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Crop productivity improvements are accomplished through the application of inorganic fertilizers and raising high yielding varieties of crops during the era of green revolution. This intensification of agriculture resulted in deterioration of soil fertility as proper nutrient management strategies were not adopted. It is estimated that the different agricultural crops in India remove about 4.27 million tonnes of nitrogen, 2.13 million tonnes of phosphorus, 7.42 million tonnes of potash and 4.88 million tonnes of lime per year. About 8.34 million tonnes of nutrients are lost through erosion per year which includes macro and micro nutrients. This nutrient uptake by crops and loss of nutrients through erosion leads to depletion of nutrients in the soil. The depletion occurs when the factors which contribute to soil fertility are removed and not replaced and the conditions which support soil fertility are not maintained.

Soils in India are low in available N, medium in available P and either medium or high in available K. Among the micronutrients, Zn, Fe, S, Ca, and Mg are deficient in these soils. The soil survey on fertility status evinced that N deficiency is quite common in all the soils, P deficiency occurs in red and laterite soils, K deficiency occurs in red sandy loam soils, and Fe deficiency occurs in calcareous soils.

**Maintenance of soil fertility:** Soil fertility is the basis for better growth and development of any crop and no technology will enhance yield without soil fertility. Nutrients are continuously removed from the soil by crops in addition to losses by leaching and erosion. Hence, sound soil and

crop management strategies should be adopted to improve and maintain soil fertility for achieving sustainable crop production.

- *Application of organic sources of nutrients*
  - Bulky and concentrated organic manures
  - Biofertilizers
  - Green manuring and green leaf manuring
  - Crop residues
- *Application of inorganic sources of nutrients*
  - Nitrogenous fertilizers
  - Phosphatic fertilizers
  - Potassic fertilizers
  - Complex fertilizers
  - Mixed fertilizers
  - Proper methods of application of fertilizers
- *Application of soil amendments*
- *Adoption of integrated nutrient management strategies*
  - *Proper soil and water conservation*
    - Agronomic measures
    - Mechanical measures
    - Agrostological measures
  - *Cropping systems approach*
    - Growing of legumes as intercrops
    - Inclusion of legumes and green manures in crop rotation
    - Multistoried cropping systems
  - Adoption of organic farming
  - Integrated farming systems approach

