

KAU for post-flood soil management

Varying results found during analysis of soil samples

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After analysing the diverse effects of the flood in different regions, the Kerala Agricultural University (KAU) has emphasised the need for soil health management in the post-flood scenario.

Analysis of soil samples collected by scientists from various parts of the State shows that erosion of surface soil from high ranges and high altitude regions has resulted in loss in fertility due to leaching of nutrients. But deposits of silt and clay in plains, river, deltas and rice paddies have enriched the soil in these stretches with nutrients except magnesium and boron.

Depletion of soil organic carbon, with losses of nitrogen, phosphorus, potassium, calcium, magnesium, sulphur and boron, has been observed in areas affected by erosion. Drastic reduction in pH, resulting in increased soil acidity, is also detected. In the case of areas deposited with clay and silt, heavy metals and pesticide residues are absent. Silt deposit with near neutral pH value are useful as manure for perennial crops.

"Soil erosion, flooding and deposition of silt and sand due to torrential rains and floods have modified the soil environment in various ways. Thus the enforcement of site-specific soil-test-based recommendations, along with general recommendations, is vital," said Vice-Chancellor Dr R. Chandra Babu.

Analysis

"The multi-disciplinary teams deputed by the KAU had collected soil samples from all flood-affected areas, which were subjected to detailed analysis in our soil testing laboratories at Vellayani, Kayamkulam, Vyttila, Pattambi and Ambalavayal. While 32 samples were tested at Vellanikkara, 26 samples were analysed at Kayamkulam," he said.

The tests have concluded that the soils of the State, inherently low in organic content, have suffered further depletion in organic matter. It is found that the content of magnesium, calcium, sulphur, copper and zinc in soil of Kuttanad region has increased while phosphorous and potassium contents have come down.

In Kole lands of Thrissur, the soil analysis after de-watering reveal that the soil pH is slightly acidic whereas Electrical conductivity is within the permissible limit. Unlike the Kuttanad region, silt deposited in kole lands does not increase the fertility status of the soil with respect to organic carbon and phosphorous. The available K content shows extremely low values, indicating that the nutrient may have been lost due to leaching. Here also specific management protocol has to be devised.

Director of Research Dr. P. Indira Devi said the university had suggested a series of interventions for soil management.

Application of organic manures like compost, farm yard manure, green leaf manure etc, use of fertilizers to compensate deficiencies of nitrogen, potassium, calcium and magnesium, fortification of organic manures with bio-fertilizers PGPR-I and AMF and microbial inoculants like Trichoderma and PGPR-II have been advised. Foliar nutrition is recommended for speedy recovery and growth of surviving crops.