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Soil fertility status and nutrient recommendations based on soil analysis of Jaisalmer district of western Rajasthan

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Summary

The present investigation was carried out for assessment of soil fertility status of Jaisalmer district of western Rajasthan. For this purpose 125 representative soil samples were collected from two Panchayat Samiti *i.e.* Sankda village Ujala and Jaisalmer village Basanpeer and Amersagar of Jaisalmer district. These soil samples were analyzed for soil properties, macro and micronutrient fertility status. The soils were moderately alkaline to very strongly alkaline in reaction with an average pH of 9.75. The EC value varied from 0.05 to 0.71 dS/m with average value of EC is 0.25 dS/m. The organic carbon content ranged from 0.01 to 0.70 per cent with an average value of 0.09 per cent. Available nitrogen, phosphorus (P_2O_5), potassium (K_2O) and sulphur (ppm) content of the soils ranged from 13.53 to 230.07, 5.43 to 56.72, 170.13 to 379.95 kg ha^{-1} and 0.88 to 21.76 ppm with an average value of 131.95, 25.96, 258.13 kg ha^{-1} and 11.34 ppm, respectively. However, available micronutrient DTPA Zn , Fe, Cu and Mn ranges varied from 0.04 – 1.63, 1.05- 3.94, 0.01-0.21 and 0.14-2.88 ppm with an average value of 0.51, 0.21, 0.09 and 1.55 ppm per hectare, respectively. Among major nutrients, about 100 per cent of the soil samples were low in available nitrogen, 57.60, 36.00 and 6.40 per cent soil samples were observed to be low, medium and high in available P_2O_5, 87.20 and 12.80 per cent samples were in medium and high in available K. whereas, 44.80, 54.40 and 0.80 per cent soil samples were observed to be low, medium and high in available sulphur. Nutrient indexing of the areas was low for N (1.00), Cu (1.016) and Mn (1.112), whereas, it was medium in case of phosphorus, potassium, sulphur, DTPA-Zn and Fe .With respect to micro-nutrients 66.40, 46.40, 99.2, 94.40 per cent samples were found to be deficient in DTPA-Zn, Fe, Cu and Mn, respectively. The correlation studies among the chemical characteristics showed that organic carbon contributed most towards nutrient availability and found to be positively correlated with all parameters except pH and Zn.

Key words : Soil fertility, Soil nutrient index, Zn, Fe, Mn, Cu

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