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Research Article

Soil quality monitoring of the barren sodic farmer's fields after reclamation in the alluvial plains of eastern Uttar Pradesh, India

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Summary

Sodic soils are predominant in the Indo-Gangetic plains encompassing the states of Haryana, Punjab, Uttar Pradesh, parts of Bihar and Rajasthan. Reclamation and scientific management of sodic lands in India is necessary for sustaining the agricultural production and food security. In order to utilize these lands for higher productivity, Government of Uttar Pradesh through Uttar Pradesh Bhumi Sudhar Nigam, has been executing a project for reclamation of sodiclands in seventeen districts of the state with the assistance of World Bank. Remote Sensing Applications Centre, Uttar Pradesh has been assigned the responsibility of identification and mapping of the sodiclands at village level for reclamation and thereafter monitoring soil quality of the reclaimed sodic plots. To assess the sustainability of reclamation with respect to soil quality *i.e.* pH_2, EC_2 (dSm^{-1}), and SAR_2, twenty-four barren sodic fields of the farmers (area: 0.2 to 0.4 ha) were selected for soil quality monitoring in Allahabad, Raebareli, Pratapgarh and Sultanpur districts. Among all the plots selected in all the four districts, soil quality of eight plots was found to be improved continuously after reclamation. In case of another fourteen plots, soil quality was also noticed to be improved after one year of reclamation, but these plots gradually deteriorated as the soil parameters again increased after three and five years of reclamation. The continuously improved fields were found to be double cropped till the monitoring period, however, most of the plots which deteriorated with respect to soil quality after three/five years of reclamation, were single cropped after 2-3 years of reclamation and were having shallow water table conditions.

Key words : Sodiclands, Reclamation, Monitoring, SAR, Sustainability, Shallow water table

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