EFFECT OF SOIL EROSION ON PHYSICAL PROPERTIES OF SOME SOIL SERIES IN NWFP, PAKISTAN

Farmanullah Khan, W. Ahmad, A. U. Bhatti, R. A. Khattak

ABSTRACT

Taking into consideration the severity of erosion, a survey was conducted during 1999-2000 to evaluate the effect of past soil erosion on the physical properties of some soil series of Malakand agency and adjacent areas of district Charsadda. Six soil series with different degrees of erosion were selected. These consisted of: none to slightly eroded Guliana series, slightly eroded Sakhakot, Mansooka and Bahtar series, moderately eroded Missa series and severely eroded Rajar series. Soil samples were collected from Ap, B and C-horizons and were analyzed for bulk density, total porosity, saturation percentage, available water holding capacity and organic matter. It was observed that sand content decreased and clay content increased, while silt content showed inconsistent variation (either increase or decrease) with the increasing level of erosion. Bulk density increased significanltly while total porosity, saturation percentage, organic matter and available water holding capacity (AWHC) decreased significantly with the severity of erosion and from top soil to sub-soil. To control damaging effects of erosion, soil management and soil conservation practices are suggested in the erosion prone areas of Missa, Bahtar and Rajar series. Proper fertilizer management to correct nutrient deficiencies and good soil cover are recommended to improve physical conditions of these eroded soils.