SOIL AND NUTRIENT LOSSES THROUGH SEDIMENT UNDER WHEAT MONO CROPPING AND BARLEY-LEGUME INTER CROPPING FROM UP-LAND SLOPING SOIL

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ABSTRACT

Experiment was conducted on slopping land in northern NWFP near Thana, Malakand Agency on permanent plots of wheat mono-cropping and barley-legume inter-cropping to assess soil and nutrient losses through sediment by surface runoff in comparison with bare plots. The total runoff, soil and nutrient losses were monitored for a period of one wheat crop season. The results showed that total runoff, soil loss, organic matter and nutrient losses were high from bare plots as compared to cropped plots. Surface cover reduced soil erosion by more than 30 %. Total runoff and soil loss showed good correlation with organic matter and plant nutrient losses. The total soil loss from wheat mono-cropping and barley-legume inter-cropping was comparable with each other. The loss of organic matter through sediment was higher from all plots followed by loss of K, Mn, N, Fe, P, Cu and Zn. Nutrient enrichment ratio of the sediment was greater than 1, indicating higher losses of nutrients in the sediment. It can be concluded from the results that wheat mono-cropping and barley-legume inter-cropping would prove effective cropping system for controlling long term soil, runoff and nutrient losses from the sloping land.