Abstract:

Three fallow and three barley cultivated field plots (3 x 10 m each) were laid out randomly to evaluate soil loss by rain from a semi-arid mollisol (fine, mixed, thermic, lithic, haploxerol). The study area lies near al-Hamama, Libya, located approximately at longitude 21°E and latitude 30°N. Three rainfall erosivity factors were regressed against soil loss to ascertain the best fit and, hence, the best erosivity index in two rainy seasons. The three factors gave excellent fit with soil loss, but EI30, which is the total kinetic energy times the maximum 30-min rain intensity (having $r^2 = 0.9$ and 0.87, $n= 27$, in the first season and second season, respectively), was chosen in this study. These factors were further used to estimate the soil erodibility factor which amounted to 0.023 and the barley crop cover factor which amounted to 0.1. These soil erosion factors were used to predict soil loss in the study area, using the universal soil loss equation. It was concluded that deforested lands in this area should not be left fallow if the present day shallow soil depth is to be maintained or improved.