

عنوان مقاله:

Soil loss and runoff generation in rangeland, rain-fed and abandoned rain-fed agriculture land-uses under simulated rainfall

محل انتشار:

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خلاصه مقاله:

Soil erosion is a global challenge, seriously threatening soil and water resources and environmental qualities. One of the important factors to consider in the process of runoff generation and soil erosion is the physical and chemical properties of soils under different land-uses. The aim of this study is to estimate soil erosion and runoff in rangeland, rain-fed and abandoned rain-fed agriculture in Karafs Watershed (Sarduyeh) in Jiroft County using rainfall simulation. The experiment was conducted in 2012 and three land-uses with uniform soil and lithology were considered. Simulated rainfalls were 46 and 88 mm.hr⁻¹ of intensity with 3 iterations, which totaled 36 samples. Soil samples were taken close to the locations of rainfall simulation from the top 0-20 cm and transferred to the laboratory for further analysis. The results showed a significant effect of land-use on runoff and erosion indifferent rainfall intensities, so that the highest runoff was generated in the abandoned rain-fed agriculture at the intensity of 88 mm.hr⁻¹, with the least being generated in the rain-fed agriculture at the intensity of 46 mm.hr⁻¹. Likewise, we found that land-use changes had a large impact on soil erosion, with the highest levels at the abandoned rain-fed agriculture which resulted in the increased runoff generation. This factor could be explained by the increased clay, silt, and lime content at the expense of the removal of sand from these areas. Increasing rainfall intensity to 88 mm.hr⁻¹ led to respectively 14% and 47% higher runoff volumes and sediment loads compared to the initial intensity.

کلمات کلیدی:

Erosion, Runoff, Rainfall simulator, Land-use

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