عنوان مقاله:

Impact of land use on selected soil physical and chemical properties in Koohrang region, central Zagros, Iran

محل انتشار:

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خلاصه مقاله:

Soil management and land use systems may change soil properties. This study was conducted to assess the impacts of land use on selected physical and chemical soil properties in Koohrang region of central Zagros, Chaharmahal-va-Bakhtiari province, Iran. The major land uses were pasture, dry-land farming, irrigated farming and fallow. Unsaturated water infiltration was measured at 100 locations (40 in pasture, 33 in dry-land farming, 15 in irrigated farming and 12 in fallow). The infiltration data were modeled using Wooding's analytical method and then the best-fit values of Gardner's parameters of saturated hydraulic conductivity (Ks) and macroscopic capillary length (λc) were calculated. The land- use affected significantly on the soil hydraulic parameters, and the differences became greater with decreasing h (towards saturation). Land use affected significantly the soil organic carbon (OC) by order of irrigated farming > pasture > fallow > dry-land farming. There was a significant negative correlation between degree of compactness and OC/clay ratio indicating that irrespective of texture, soils with high OC were less-compacted. Averaged unsaturated hydraulic conductivity values (K(h)) were lower in pasture soils when compared with cultivated lands which were associated with higher degree of compactness of pasture soils due to overgrazing. The λc was significantly greater in the fallow and pasture land uses than in dry-land farming. The dry-land farming increased water infiltration and unsaturated hydraulic conductivity when compared to the other land uses. Dry-land farming has the better conditions in terms of physical soil properties, water infiltration and hydraulic properties. Relatively high degree .of compactness in the fallow might be associated with absence of short-term soil loosening

کلمات کلیدی:

Land use; Tension infiltrometer; Hydraulic conductivity; Macroscopic capillary length, Complexed organic carbon