

Developing a Suitable Method for Determining Soil Loss Tolerance in Iran

R. Sokouti¹ and M. Arabkhedri

Soil Conservation and Watershed Management Research Department, West Azarbayjan Agricultural and Natural Resources Research Center, AREEO, Uromiyeh, Iran. rezasokouti@gmail.com
Soil Conservation and Watershed Management Institute, AREEO, Tehran, Iran.
mahmood.arabkhedri@gmail.com

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Abstract

Soil loss tolerance plays an important role in soil conservation programs. As no well-documented soil loss tolerance values are currently available for Iran, the present study was conducted to determine well-founded limits of tolerable soil loss in Iran. For this purpose, a preliminary survey was conducted of the various definitions of tolerable soil loss reported in the literature, the factors involved in the process, the relevant estimation methods, and the advantages/disadvantages associated with each estimation method. The data currently available on Iran were compared with those thus collected to derive and develop an appropriate method for soil loss tolerance estimation in Iran. The data collected on 292 erosion plots were subjected to analysis and such factors as soil thickness, limiting layer, land use, and climate were selected as the criteria to be used in the determination of soil erosion tolerance. The tolerance values thus obtained were then tabulated to classify the factors into five categories. Based on this classification, the allowable limits of tolerable soil loss in (semi-)arid rangelands might range from a minimum of 0.25 to a maximum of 1.25 ton/ha/year. These values might have a five-fold increase for the forests located at the Zagros Range, those in semi-arid to semi-humid areas, and dry farms. Moreover, a ten-fold increase might be allowed in the coastal forests along the Caspian Sea. Finally, the values reported in the USDA recommended by US Soil Conservation Service are suggested for irrigated lands in Iran.

Key words: Soil thickness, Soil conservation, Soil loss tolerance, Soil formation rate.

¹ Corresponding author: West Azarbayjan Agricultural and Natural Resources Research Center, Uromieh, Iran.