

Soil loss prediction model under different land uses in scarcity zone of western Maharashtra

■ V.A. STHOOL, S.K. UPADHYE, R.V. SANGLIKAR, A.A. ATRE AND J.R. KADAM

Received : 02.10.2013; Revised : 28.01.2014; Accepted : 13.02.2014

See end of the Paper for authors' affiliation

Correspondence to :

J.R. KADAM

All India Coordinated
Research Project for Dryland
Agriculture, Krishak Bhavan,
SOLAPUR (M.S.) INDIA
Email : zarssolapur@rediffmail.
com

■ **ABSTRACT** : Soil loss prediction model considering crop canopy as one of the most important parameters was developed by conducting a runoff plot based study for effective crop planning and reducing the erosion losses from agricultural lands. The study was carried out during 2007 to 2010 on a set of eight standard runoff plots on 1% slope at AICRPDA, Solapur. The treatments comprised of seven common crops and intercrops of the region (T₁- Greengram, T₂- Pearl millet, T₃- Pearl millet + Cowpea (6:3), T₄- Pearl millet + Pigeonpea (2:1), T₅- Sunflower + Pigeonpea (2:1), T₆- Sunflower, T₇- Blackgram) and one runoff plot was maintained as cultivated fallow (T₈). The field crops were sown during middle of the July on contours and standard agronomic practices were followed. The observations on storm-wise runoff, soil loss and canopy were recorded to develop a soil loss prediction model. On the basis of storm-wise data on crop canopy, runoff, soil loss, rainfall and rainfall intensity for 30 minutes (I₃₀), a multiple linear regression model was developed for prediction of soil loss under different treatments. Analysis of variance of regressions revealed that in most of the cases the effect of regression was significant and in some of the cases the values of co-efficient of determination reached to a level of 0.98 which indicated that the relative contribution of different independent variables (crop canopy, runoff, rainfall and rainfall intensity) on dependent variable (soil loss) was upto 98%. The model developed can be used for estimating the soil loss from medium deep soils up to 1 % slope under different land uses in scarcity zone of western Maharashtra under similar set of conditions with fair degree of accuracy for effective soil and water conservation planning for minimizing erosion.

■ **KEY WORDS** : Crop canopy, Soil loss prediction model, Rainfall, Runoff, Soil loss, Land use

■ **HOW TO CITE THIS PAPER** : Sthool, V.A., Upadhye, S.K., Sanglikar, R.V., Atre, A.A. and Kadam, J.R. (2014). Soil loss prediction model under different land uses in scarcity zone of western Maharashtra. *Internat. J. Agric. Engg.*, 7(1) : 50-55.