

Range Mgmt. & Agroforestry 39 (1) : 93-96, 2018

ISSN 0971-2070



Toposequential agroforestry based land use system for soil and water conservation in sloping lands

Pankaj Panwar^{1*}, Sharmistha Pal¹, V. K. Bhatt¹, Ram Prasad¹, A. K. Tiwari¹ and S. Patra²

¹Research Center, ICAR-IISWC, Chandigarh-160019, India

²ICAR- Indian Institute of Soil and Water Conservation, Dehradun-248195, India

*Corresponding author e-mail: dr_pankajp@yahoo.co.in

Received: 4th September, 2017

Accepted: 18th May, 2018

Abstract

Combination of suitable agroforestry systems can achieve the goal of resource conservation. In an experiment, a sloping land with 12-14 per cent slope was put under silvohortipasture and hedge-row intercropping along with water harvesting structures. Event wise runoff and soil loss was measured for the whole system. On an average agroforestry system reduced soil loss from 1.22 to 0.17 t/ha in six year period. The system was also able to increase runoff from 6.8 to 18% resulting in positive water balance in water harvesting structure created at bottom of the system which could be used as irrigation source for sustaining plantation and agricultural crops.

Keywords: Runoff, Shivaliks, Sloping land, Soil loss, Water harvesting

Shivalik region is located between 28° 57' 16" and 34° 10' 48" N latitudes and 73° 29' 24" and 80° 14' 23" E longitudes in north-western part of India stretching from Jammu & Kashmir in north-west to Uttarakhand and it passes south-easterly through Punjab, Himachal Pradesh, Chandigarh, Haryana and Uttar Pradesh (Fig 1). The region covers an area of 3.3 million hectares (Yadav *et al.*, 2015). The characteristic features of Shivaliks are undulating topography, steep slopes and easily erodible soils. Water scarcity for irrigation is one of the most critical issues constraining sustainable development of the region.

The Shivalik region is dominated by small and marginal farmers having land holding size less than one hectare. Erratic rainfall, degraded soils and poor resource base of farmers are some principal constraints affecting productivity and sustainability of rainfed farming in the