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RAIN WATER MANAGEMENT FOR ENHANCING WATER USE EFFICIENCY AND SUSTAINABLE PRODUCTIVITY OF RAINFED WHEAT

N.K. Sharma and U.K. Maurya
ICAR- Indian Institute of Soil and Water Conservation, 218, Kaulagarh Road, Dehradun - 248 195

Abstract

Review of research work conducted at Indian Institute of Soil and Water Conservation, Dehradun, demonstrated increased water use efficiency, wheat productivity and improved soil characteristics in the different experiments carried out in context of *in situ* moisture conservation through rain water management and recycling of nutrients by using organic mulches and performing various tillage operations in maize-wheat cropping sequence, principal crop rotation of the north west Himalayan region. Study indicated application of air-dried *Leucaena* leaves mulch, @ 7 t/ha, conserved 11 per cent moisture in 0-75 cm soil layer by checking evaporation during maize harvesting to wheat sowing. Efficacy of maize stover mulch with tillage on the seed germination and performance of rainfed wheat *(Triticum aestivum L.)* indicated that execution of tillage immediately after maize harvest followed by spreading of maize stover mulch (@ 5 t/ha reduced maximum water losses from the surface layer (0-15 cm) of soil and provided more soil moisture (15%) at the time of wheat sowing and results in an additional 23kg ha^{-1} wheat grain yield increase in per mm conserved moisture.

Key words: *Organic mulch; Soil moisture conservation, Soil properties; Maize, Wheat*

Introduction

maize-wheat cropping system (Sharma *et al*., 1998) and ii) study to see