

Influence of *in-situ* soil and water conservation measures on energy efficiency and productivity of jowar crop in rainfed agriculture

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ABSTRACT : A field experiment was conducted during the *Kharif* season of 2014-15 at Agro-Ecology and Environment Centre, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola to study runoff, soil and nutrient loss, growth and yield of crop and to estimate the *in situ* soil and moisture conservation. Total seven treatments were used to study the impact of *in-situ* soil and water conservation measures on runoff, soil and nutrient losses, energy efficiency and B:C ratio. Biometric observations such as plant height (cm) and cob length (cm) were favorably influenced in treatment T₇ followed by treatment T₆, T₅, T₄, T₃, T₂ and T₁. Highest plant height 159.6 cm and cob length 32.9 cm was found in treatment T₇. Productivity of Jowar was favorably influenced by treatment T₇. Highest grain yield 17.05 q/ha was recorded in treatment T₇ followed by treatment T₆, T₅, T₄, T₃, T₂ and T₁. Water use efficiency was more dominant in treatment T₇ i.e. 6.78 kg/ha/ mm followed by 6.23 (T₆), 5.99 (T₅), 5.86 (T₄), 5.62 (T₃) and 5.44 (T₂), and 4.96 in treatment T₁. Higher B:C ratio (1.61) and Energy efficiency (14.36) was observed in treatment T₇. Data regarding soil moisture content at various depth viz., 15 cm, 30 cm, 45 cm, and 60 cm shows that highest moisture content at all depth was found in treatment T₇.

Key Words : Jowar crop, cultivation, *in-situ*, rainfed, water use efficiency.