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Rainwater harvesting and recycling for augmenting production under rainfed conditions in red soils of Central India

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The Bundelkhand region with a geographical area of 7.04 M ha in Central India is characterized by hot semi-arid climate, undulating topography, scanty and uneven distribution of rainfall and lack of irrigation facilities. About 70% area in the region is rainfed and long dry spells are common even in rainy season consequently a long duration rainy season crop or a short duration low water requiring winter season crop cannot be taken successfully on residual soil moisture without supplemental irrigation. Keeping these facts in view, a field experiment was conducted during 2002-2003 to 2005-2006 in red soils (alfisols) at CSWCRTI, Research centre, Datia, Madhya Pradesh in Central India to explore the possibilities of rainwater harvesting and recycling through a dug out pond for providing supplemental irrigation during dry spells to a long duration rainy season crop soybean and pre-sowing/life saving irrigation to winter season oil seed crops (*toria* and Indian mustard) for enhancing crop yield and returns. Results indicated that yield of different crops increased from 40 to 401% with supplemental irrigation. Increased yield of soybean and *toria* with one irrigation at pod filling and branching gave an additional net return of Rs 4,703 and 9,652 ha^{-1}, respectively, over no irrigation. Indian mustard with pre-sowing irrigation recorded an additional net return of Rs 6,674 ha^{-1} over rainfed crop which further increased to Rs 22,623 ha^{-1} with irrigation at branching. Study revealed that rainwater harvesting and recycling through a dug out pond can be practiced for providing supplemental irrigation for augmenting production and returns under rainfed conditions in red soils of Central India.

Biography

Dev Narayan has completed his Ph.D. at the age of 27 years from G.B. Pant University of Agriculture and Technology, Pantnagar, Uttrakhand, India. He is senior scientist (Agronomy) in Central Soil and Water Conservation Research and Training Institute, a premier natural resource management organization in the country. He is having more than 27 years experience in the field of soil and water conservation and watershed management. He has published more than 40 papers in reputed journals besides book chapters, bulletins and reports etc. He is serving as a referee in number of journals of repute.

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