



Crop diversification with vegetable crops for rural employment in dry hillocks ecology with rain water management

R.A. SINGH, V.K. SHARMA AND I.P. SINGH

ABSTRACT

The watershed area of 2216.83 ha was treated with peripheral bund / marginal bund, submergence bund, check dam, water storage structure and masonry structure from 1997-98 to 2000-01 and, thereafter, the holistic management approach diffused in the operational area. The innovative adaptive trials on vegetable crops were laid out during 2000-01 to 2003-04 for diversification in cropping system. Pilot site is located at hill and valley area between Pahuj river and Dongari dam in Babina block of Jhansi district. The vegetable crops grown under vegetative hedge of *Ishaemum pilosum* in conjunction with small bund of loose stones gave higher yields by 137.00 q/ha of turmeric, 185.50 q/ha of ginger, 260.00 q/ha of colocasia and 395.50 q/ha of rataloo during rainy season. Similarly, onion, carrot, radish, tomato, potato and coriander yielded by 307.00 q/ha, 155.50 q/ha, 187.00 q/ha, 288.50 q/ha, 314.00 q/ha and 18.00 q/ha (green leaves), respectively, under small bund of loose stone + hedge of *Ishaemum pilosum* during winter season with protective irrigations. The yield obtained from different vegetables under other vegetative hedge was also higher over the conventional system. The area under different vegetable crops increased from nil to 73 ha, which provided the opportunity for rural employment generation. The rural employment generation increased from nil to 14600 human labour mandays per year due to raising of vegetable in dry hillocks area.

KEY WORDS : Innovative, Hillocks, Vegetative hedge, Employment generation, Water harvesting

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INTRODUCTION

Water is one of the most valuable physical natural resource for hillocks and valleys area. It plays a vital role for meeting out the demands of farm families. But when soil of such area gets eroded and water runs off, life of the poor farm households becomes miserable. Farm families of Amarpur-Bendaura-Chamraua pilot area of Jhansi district, situated between hillocks and valleys of Bundelkhand zone of U.P. faced this misery. This area was plagued by low productivity, deep water table, stony coarse *rakar* soil, high rate of erosion, deficit in food, fuel, fodder and water availability. Some families of the pilot area of rain water management site could not even afford the meals. With the objective to restore the ecosystem of degraded hillock area, the diversification in cropping system was launched.

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MATERIALS AND METHODS

The site of the operational area of Rain Water Management Project is located in Babina block of Jhansi district of U.P. between the catchments area of Pahuj river and Dongari dam. The operational area of rain water management typically represents soil, climate and socio-economics condition of Bundelkhand region. Water surplus is 168.11 mm mostly available from July to September. Water deficit in operational area is 766.15 mm. It measured by the amount of which the actual evapotranspiration (AET) falls short of the potential evapotranspiration (PET) and expressed as $WD = (PET - AET)$ from the average monthly data of 20 years of operational area. Water surplus is the amount of water supply (Rainfall) that exceeded the water needs (PET). The excess water either drained off as surface run off or lost by deep percolation after satisfying the field capacity of soil. The computation of annual water deficit and annual water surplus was done as per procedure introduced by Thronthwaite (1948) and Thronthwaite and Mathur (1955). The moisture available period for the crop growth in the pilot area is 122 days. The soils of operational area developed over alluvial and occur hillocks and valleys. Watershed land belongs to class II, III and IV of the land capability class and were suitable