YIELD, WATER PRODUCTIVITY AND ECONOMICS OF VEGETABLE PRODUCTION UNDER DRIP AND FURROW IRRIGATION IN EASTERN PLATEAU AND HILL REGION OF INDIA

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ABSTRACT
An experiment was conducted on evaluation of drip and furrow irrigation methods in participatory mode at the farmer’s field with an aim to develop understanding about potential benefits of drip irrigation system among the tribal farming community of the eastern plateau and hill region. Comparative assessment in terms of yield gain, water productivity (WP) and net returns was carried out for tomato, potato, cauliflower, french bean and pea cultivated in the farmers’ fields at Saraioli village of Ranchi district of Jharkhand. The study revealed that, for the selected vegetables, adoption of drip irrigation improved the yields in the range of 38.2 to 65.8 % over furrow irrigation with highest yield increase in case of pea (65.8%) and tomato (58.7%). Drip irrigation consistently recorded higher water productivity (WP) with more than five folds increase in case of potato and cauliflower. The average WP was higher under drip irrigation (6.89 kg m-3) as compared to furrow method (1.31 kg m-3). Economic analysis revealed that the average cost-benefit (CB) ratio of all drip irrigated crops was about 33% higher over furrow method of water application. Among all the crops drip irrigated cauliflower was found to be the most remunerative crop with higher net returns (1,98,336Rs. ha-1) and highest CB ratio of 2.98. The comparative economic analysis of drip and furrow irrigated crops presented in this study will assist the farmers in crop selection. Precise use of water with better productivity and higher net returns from the drip irrigated vegetable crops motivated the farmers to adoption drip irrigation technology.

KEYWORDS: Drip Irrigation, Furrow Irrigation, Yield, Water Productivity & Benefit-Cost Ratio

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