



OPTIMIZATION OF RESOURCES USE ON IRRIGATED AND RAIN-FED FARMS OF EASTERN UTTAR PRADESH : SEN'S MULTI-OBJECTIVE PROGRAMMING (MOP) METHOD

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Abstract : This paper investigates the utilization of available resources on irrigated rain-fed farms of Eastern Uttar Pradesh. Varanasi and Sonbhadra districts were purposively selected because these districts are having differences with respect to irrigated and rain-fed farming systems, respectively. The required data were collected from 200 randomly selected farmers for the year 2016-17. The alternative resource use plans have been formulated for increasing income and employment and decreasing fertilizer use on both irrigated and rain-fed farms. All the three plans have generated conflicting results in achieving the desired income, employment and fertilizer use. Hence, the Sen's Multi-Objective Programming has been used to achieve all the objectives simultaneously. The optimized plan has increased income by 11.83 percent, employment by 7.43 with decreased fertilizer use by 11.83 over existing farming plan on irrigated farms. On the rain-fed farms, the income and employment increased by 8.90 percent and 7.29 percent respectively with reduced fertilizer use by 8.59 percent over existing farm plan.

Key words : Linear Programming, Optimization, Maximization, Minimization, Multi-objective Programming (MOP).