

## **Economic Evaluation and Comparison of Sprinkler and Drip Irrigation Systems in Potato Cultivation in Hamedan Province**

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### **Abstract**

Innovative irrigation practices can enhance water consumption efficiency and economic returns. In this study, the effect of two irrigation methods and four different planting patterns on the yield and economic returns of potato crop were evaluated. For this purpose, an experiment was conducted in Ekbatana Agricultural Research Station in Hamedan for three years (2013-15), using a split plot randomized complete block design. The treatments included two main factors, sprinkler and drip irrigation, and four planting pattern in subplots. Economic analysis of the treatments was conducted by using Benefit-Cost Ratio (BCR), Internal Rate of Return (IRR), and Equivalent Uniform Annual Net Profit (EUANP) criteria. The results showed that the conventional planting in drip irrigation method was economically the superior treatment. For superior treatment, the calculated BCR was 1.48, with IRR of 287.49% and EUANP of 79.1 million Rials/ha. The impact of planting pattern in sprinkler irrigation method on economic return of the treatments was remarkable, such that the IRR and EUANP of all sprinkler treatments were more than double the conventional planting. The planting pattern with 60 cm distance in sprinkler irrigation method had the highest economic return.

**Keywords:** Irrigation practices, Planting pattern, Internal Rate of Return, Benefit-Cost Ratio.

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