

Comparison of Productivity of Production Factors in Fixed Classic Sprinkler and Furrow Irrigation Systems in Potato Fields of Kaboodrahang Plane in Hamedan Province

R. Bahrmloo^{1*} and S. M. Seiiedan

Assistant Prof., Agricultural Engineering Research Institute Department, Hamedan Agricultural and Natural Resources Research and Education Center, AREEO, Hamedan, Iran

r.bahramloo@areeo.ac.ir

Assistant Prof., Economic, Social and Extension Research Department, Hamedan Agricultural and Natural Resources Research and Education Center, AREEO, Hamedan, Iran

seyedan1969@gmail.com

Abstract

Trend of population growth and restricted resources highlights the necessity and importance of enhancing productivity of these resources. Increasing the quantity of agricultural products will be possible by increasing the area or yield of crops. In increasing the area of land, there would be limitations in water and other resources. The only way to increase the quantity of agricultural products is increasing the yield in the existing area, which is possible by promoting the inputs impacts. The aim of this study was to measure and compare the productivity of production factors in potato fields under sprinkler and furrow irrigation systems in Kabodarahang plane. This project was performed using the stratified sampling with a questionnaire and interviewing 95 farmers. The collected data were analyzed in Cobb-Douglas production function. The results showed that in sprinkler irrigation system, the average productivity of seed and phosphate fertilizer were 10.9, 169 kg yield/kg input, respectively, and for water 6.5 kg/m³. These parameters for surface irrigation system were 9.8, 158.6 kg yield/kg input and 3 kg/m³. According to the results, in this area, the productivity of all production factors, specially water, are higher in sprinkler irrigation system. To enhance the productivity of production factors and optimal use of resources, especially water resources, it is recommended to use sprinkler irrigation in potato production.

Keywords: Cobb-Douglas production function, Seed productivity, Phosphate fertilizer.

1 - Corresponding author: Agricultural Engineering Research Institute Department, Agricultural and Natural Resources Research and Education Center of Hamedan.

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