Economic Analysis of Deficit Irrigation for Transplanted Tomato Cultivars

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Abstract

Tomato is one of the major agricultural products in Fars Province. Previous studies show that the tomato farms under current irrigation systems lose a large volume of water with low water productivity. In the present study, the irrigation requirement and the influence of different irrigation regimes on the yield and water productivity of three cultivars of tomato was studied. The farm under study was located in Marvdasht plain, with a heavy soil texture. The irrigation water was applied based on 60%, 80%, 100%, and 120 percent of Penman Montieth water requirement method, under drip irrigation system. Another treatment was considered and irrigated by the farmer management. Benefit-cost ratio and benefit-cost difference was calculated for economic analysis. Results show that the obtained yield increased with irrigation water while water productivity decreased. The irrigation volumes of water used for the treatments were about 3900 to 7800 cubic meters per hectare. However, only the differences between the treatments 60% and 120% were statistically significant. Economic evaluations showed that the tomato production was not economical with tomato price equal to 2500 Rials, while the water price varies from zero to 6000 Rials. In this situation, the benefit-cost ratios varied from 0.78 to 0.68, respectively. Increase in price of tomato could improve the benefit-cost ratio.

Keywords: Drip irrigation, Water productivity, Water price, Benefit-Cost ratio.