

## Interactive effects of Fishery's wastewater and crop residue interaction on yield and water use efficiency of cherry tomatoes under dripirrigation in greenhouse

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### Abstract

Scarcity of conventional water resources and high volume of wastewaters have increased the important role of crop residues to reduce evaporation from soil surface and optimal use of water, especially in greenhouse cultivation. In the present research, the impact of crop residues and fishery's wastewater on yield, qualitative characteristics and water productivity of cherry tomato was studied. The experiment was carried out with two main treatments (tap water (from a well),  $w_0$ , and fishery's wastewater,  $w_1$ ) and four levels of crop residues (0, 5.5, 11 and 16.5 gram crop residue per kg of soil, as  $M_1$ ,  $M_2$ ,  $M_3$  and  $M_4$ , respectively) based on a split-plot design with four replications, in Research Greenhouse of College of Agriculture, Shiraz University. Results showed that fishery's wastewater increased the yield of cherry tomato more than well water. But application of crop residues in both wastewater and well water treatments increased the yield up to a certain level (11 gram per kg soil), and in 16.5 gram crop residues per kg soil (treatment  $M_4$ ) decreased the yield and evapotranspiration. Fishery's wastewater did not have any harmful effect on fruit quality. Results also showed that water productivity of wastewater treatment, at all levels of crop residues, was more than well-water treatment. Maximum and minimum fruit yields (0.732 and 0.32 kg per plant) were obtained in  $W_1M_3$  and  $W_0M_4$  treatments, respectively. Maximum and minimum amount of net consumptive water use (434 and 348 liters) were obtained in  $W_0M_1$  and  $W_1M_4$  treatments, respectively.

**Keywords:** Unconventional water, Water productivity, Evapotranspiration, Tomato yield, Greenhouse.

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