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Title

**Intrraction of vermicompost and poultry manure  
and Deficit Irrigation on Cucumber Yield  
and Water Use Efficiency under  
Drip Tape Irrigation**

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# **Intracross use of vermicompost and poultry manure and Deficit Irrigation on Cucumber Yield and Water Use Efficiency under Drip Tape Irrigation**

## **Abstract**

In this study, different levels of irrigation water, vermicompost and poultry manure on ground cucumber were investigated. The experiment was performed in the form of split plots in a completely randomized design and in the form of stacks. Treatments included three levels of poultry manure (2, 4 and 8 tons per hectare), three levels of vermicompost (3, 6 and 9 tons per hectare) and three levels of water stress (100, 75 and 50% of plant water requirement). Both vermicompost and poultry manure were applied to the soil before planting. Harvest was done every three days. Fruit weight, diameter and length, plant length, protein percentage and leaf chlorophyll in each plot were carefully measured. Also, the performance and productivity of irrigation water consumption at the end of the season were calculated. The results showed that irrigation, poultry manure and vermicompost had a significant effect on the measured parameters at the level of one and five percent probability. Reduction of water consumption reduced yield and yield components, but in this regard, no significant difference was observed between 100% and 75% of water requirement. The highest yield was obtained in the treatment of 100% of plant water requirement and consumption of 4 tons per hectare of poultry manure and 6 tons per hectare of vermicompost, which in this regard, no significant difference was observed with the treatment of 75% of water requirement. According to the results obtained from this study, it can be said that there is no significant difference in terms of yield between treatments of 75 and 100% of plant water requirement. Therefore, the amount of water given to the plant can be reduced to 75% of the plant water requirement, and with proper management, less water can be consumed without a significant reduction in crop yield. The interactions of vermicompost and poultry manure showed that in the use of 6 tons per hectare of vermicompost to reduce yield and its components, the use of poultry manure should be reduced to 4 tons per hectare. However, when higher levels of vermicompost (9 tons per hectare) are used, poultry manure should be reduced to 2 tons per hectare.

**Keywords:** Chlorophyll, fertilizer management, Protein, water productivity, yield.