

THE YIELD FUNCTIONS OF GRAIN MAIZE TOWARD THE DEFICIT IRRIGATION IN THE TROPICAL CLIMATE OF NORTH KHUZESTAN, DEZFUL

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Introduction: The surface area under cultivation can be increased by the deficit irrigation in the condition of water restriction through water savings. The management of deficit irrigation is one of the savings strategies in water resources in agricultural sector. In the condition of deficit irrigation, the amount of product per unit area is less than the maximum production per unit of area, but the profit is increased.

Material and method: A factorial experiment with a randomized complete block design with three replicates was conducted in the 1389-90(AHS) crop year in order to study the yield functions toward the deficit irrigation of grain maize in the hot and dry climate of Dezful. The first factor included four levels of water I100%, I80%, I60% and I120% crop water requirement and the second factor consisted of three levels of nitrogen fertilizer, N200, N150 and N250 kg nitrogen per hectare.

Result and discussion: The result of this research showed that in irrigation treatments 60%, 80%, 100% and 120% water requirement in the fertilizer level of 150 kg of nitrogen per hectare, the slope reduction of yield was 0.14, in fertilizer level of 200 kg of nitrogen per hectare, the slope reduction of yield was 0.15 and in 250 kg fertilizer level of nitrogen per hectare, the slope reduction of yield was 0.44. The investigation also indicated that because there is no significant difference in the grain yield between the water level of 80% and 100% water requirement, in conditions which we have to apply mild deficit irrigation, the irrigation treatment of 80% water requirement for corn is recommended.

Key words: Water, Nitrogen, Maize, Grain yield, Production function



The 1st International Conference on New Ideas in Agriculture
Islamic Azad University Khorasgan Branch
26-27 Jan. 2014, Isfahan, Iran

