

# MANAGEMENT OF CORN IRRIGATION TO INCREASE WATER USE EFFICIENCY IN MIDDLE OF IRAQ.

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## ABSTRACT

The main objectives of this study was determine the water requirement and water use efficiency of corn under different irrigation treatments ( deficit irrigation concept ) . under middle of Iraq conditions ( Baghdad ) .

Randomized Complete Block Design ( R.C.B.D. ) with three replications was used . Corn was grown under five irrigation treatments . A control treatment ( no water reduction ) and four deficit irrigation treatments ( reduction 30 % from applied water irrigation to the control treatment ( Full irrigation ) at main growth stages : ( seedling T2 , vegetative growth T3 , flowering T4 and grain maturity T5) . The result showed that control treatment had highest consumptive water 610 mm , and decreasing to 538-574 mm at deficit irrigation treatments , The applied water reached to 620 mm for control treatment and decreasing to 539-576 mm at deficit irrigation treatments . This closeness between values of irrigation and ETa can be related to high irrigation efficiency and using of active deep according the plant developing stages in this study because of the minimization of water losses as deep percolation . There is no significant differences in grain yield between the control treatment and deficit irrigation treatments at seedling , flowering and seed maturing stages . This result pointed that stages are law sensitive to water stress ..The field and crop water use efficiencies values reduced when deficit irrigation was applied at vegetative growth stage , and increased when deficit irrigation was applied at seedling , flowering and grain maturity stages in comparison with full irrigation treatment.

**Key words :** Corn , water use efficiency , irrigation management .