

EFFECT OF ORGANIC MANURE AND SOIL MULCHING ON SALT DISTRIBUTION UNDER DEFICIT DRIP IRRIGATION SYSTEM FOR POTATO.

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ABSTRACT

The study was conducted in private farm in Al- Mameer Location 50 km west of Baghdad city during autumn season 2010, in silty loam soil classified as typic torrifluent, to study the effect of organic manure and mulching on salt distribution in soil under deficit drip irrigation on potato crop. The study included three levels of deficit drip irrigation (100%, 75% and 50% from Epan). Secondary treatment was includes organic manure (sheep+ cows+ poultry) with three levels (without organic manure, 5 ton.ha⁻¹ and 10 ton.ha⁻¹). The sub secondary treatments included soil mulching with plant residual (mixed from peatmoss+wood excelsior) and without mulching. 3 kg.m⁻² of plant residual was added percent 50:50%. The distribution of salt in soil treatments were measured in three stages during the growth season (after 45, 60 and 100 day of planting) for distance 0-30 cm of planting in vertical and horizontal from the emitter. The graphs of salt distribution were constructed using surfer program (version 9). Results showed that salt content increased far from drippers vertically and horizontally, with great rates under level irrigation 50% from Epan. But with advancement of plant growth stages was noticed decrease salt content for soil. It caused advanced growth stages to increased adding water depth depend on rooting zone, which was for control treatment and layer 10-10 cm 3.75, 4.15 and 5.1 ds.m⁻¹ adding 100%, 75% and 50% from Epan respectively in growth season initial. But when adding two level from organic manure 10 ton.ha⁻¹ with mulching and notice decrease electrical conductivity when added this level which was electrical conductivity value 1.95, 2.45 and 2.65 ds.m⁻¹ for the layer 10-10 cm when adding 100%, 75% and 50% respectively in growth season end.