

## The effects of super-absorbent, vermicompost and different levels of irrigation water salinity on soil saturated hydraulic conductivity

### **Abstract**

It can be said arguably that low hydraulic conductivity is among the biggest problems in heavy-textured soils. Irrigation by low water quality and tolerance of electrical conductivity in soils, add other problems upon above problem and affect on physical and chemical properties of this soils. With the aim of dispelling this problem, a project was done as factorial in four levels of salinity of irrigation water containing sodium chloride (0.79, 5, 10, 15 dS/m) with two types of amendments of super absorbent and vermicompost, each at a level of 0.02 and 1.5 kg per square meter respectively with the control attendance and parameters of bulk density, porosity, hydraulic conductivity, Acidity, electrical conductivity and organic carbon were measured. The results showed that the effect of amendments was significant on porosity, organic carbon, electrical conductivity and acidity and the effect of salinity on porosity, hydraulic conductivity, organic carbon, electrical conductivity and acidity; bulk density, electrical conductivity, perdurability of organic carbon and Soil moisture was increased and porosity, hydraulic conductivity and acidity were decreased by increasing the salinity. Increases organic carbon, acidity, hydraulic conductivity and porosity significantly and decreases electrical conductivity by vermicompost. Increases acidity significantly and decreases electrical conductivity and decomposition of organic carbon by super absorbant, but them difference with control didn't significant. Also performance of vermicompost at differint levels of irrigation water salinity became better than super absorbant. Super absorbant decreased the soil moisture mantaning but vermy compost have a inverse effect and with time passed, losses water containing vermicompost plots greater of the super absorbant. Amendments improved evaluation parameters generally and corrective effect of vermicompost became better than soper absorbant on all the measured values.

**Keywords:** Hydraulic conductivity, Guelph Permeameter, Super absorbant, Vermicompost, Irrigation water quality, Soil physical properties, Soil chemical properties



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**The thesis submitted for the degree of M.Sc (in the  
field of irrigation and drainage)**

**The effects of super-absorbent,  
vermicompost and different levels of  
irrigation water salinity on soil  
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**June 2013**