STUDY OF SOME PHYSICAL AND HYDRAULIC PROPERTIES OF SOIL UNDER DIFFERENT POWING SYSTEMS IN ARID AGRICULTURE.

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ABSTRACT

Field experiment was conducted to study the effect of deferent farming systems such as subsoiler plow (with distance of 5and 10 meter between lines of plows) to break the hard layer of the subsurface ,also the disk plow was used to compare that with unplowed soil on some physical and hydraulic properties of the clay soil . During the four months of this study January , February , March and April (2009-2010) (2010-2011) soil moisture content in the best condition (February) did not reach middle value of an available water . High moisture contents were found under the soil of subsoiler (at 5 and 10 cm row) ,disk plow and then at unplowing soil . On the other hand , the data of the hydrological season during October – April indicated that calculated potential evapotranspiration were higher than twice of precipitation . Also , the calculated equivalent depth of the soil moisture content during the study period, were almost quarter of the saturated moisture content which may indicate a clear water deficit and hence of scarcity of water runoff and the ground water recharge.

Keywords: Subsoiler plow **,** Precipitation **,** Soil moisture content **,** evapotranspiration , Water deficit **.**