

WATER INFILTRATION AND STORAGE IN SOILS UNDER SURFACE IRRIGATION

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ABSTRACT:

Water storage and infiltration under surface irrigation are evaluated based on initial soil water content and inflow rate. For that purpose, a field experiment was conducted using fruitful grown grape in northern Egypt at Shibin El-Kom in 2008 grape season to evaluate water storage and conductivity under partially wetted furrow irrigation compared to traditional border irrigation as a control method. Two irrigation treatments were wet and dry conditions in which water applied when available soil water (ASW) reduced to 35% and 50%, respectively. Coefficient of variation was 6.2 and 10.2% for wet and dry treatments, respectively, under furrow systems comparing with 8.5% in border. Water was deeply percolated as 11.9 and 18.9% for wet and dry furrow treatments with no deficit, respectively, compared with 11.1% for control with 5.5% deficit percentage. Application efficiency achieved as 86.2% for wet furrow irrigation that achieved high grape yield (12.9 ton/feddan).

Key words: Surface irrigation, grape, soil water storage and infiltration, water use efficiency, irrigation eva