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**IMPACT OF CAPILLARY BARRIERS ON SUBIRRIGATION EFFICIENCY**

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**ABSTRACT**

Controlled drainage is becoming popular as a field water management tool for managing the drainage water outflow. Drainage Control Structures (DCS) are installed near the drainage outlet to manage the field water table elevation. By providing a water supply to the upstream side of the DCS it can also be used to apply irrigation water to the field from below the root zone. The water rises towards the root zone by capillary action. However, depending on the type of soil and the crop evapotranspiration an unsaturated layer could develop between the water table and the bottom of the rootzone. As a result the hydraulic connection is lost due to the formation of the capillary barrier. This will minimize the upward migration of water leading to deep percolation of the irrigation water. The formation of such barriers can substantially decrease the subirrigation efficiency. Therefore, it is important to consider the unsaturated hydraulic properties of the different soil horizons in the soil profile before subirrigation/controlled drainage is chosen as a viable option to irrigate the crop.

**Keywords:** Capillary barriers, soil moisture characteristic curve, subirrigation, drainage control structures, controlled drainage.