

Impact of drip irrigation and buried diffuser systems on water conservation and pepper crop yields in greenhouse

The majority of agricultural ecosystems suffer from water shortages. The Mediterranean Basin of Northern Africa utilizes the highest percentage of total available water for agricultural food production. National requirements for domestic food production are totally dependent on adequate water supplies for irrigation of most crop production.

In regions of critical environments suffer from water scarcities, to respond to the needs of rural populations and improve their living conditions, environmental concerns and cultural values are not only enough. The use of water for agricultural production requires innovative and sustainable research issues, including water conservation and water saving tools and practices, which require an appropriate transfer of technologies at both off and on, farm levels.

The use of the right technologies for saving water identify the maximum water use efficiency of irrigated food production row crops grown in the arid lands of Tunisia, to prevent water shortage. In this paper, we are chose to compare an old and famous irrigation technique the drip irrigation system (DI) with a revolutionary new irrigation technology, which is the buried diffuser system, in order to identify the performance of buried diffuser under the arid conditions of southern Tunisia.

Recent results shows that the buried diffuser is more efficient than the surface drip irrigation system in enhancing water saving while can conservate 50 to 60 % of water to get the same yield, also in saving fertilizer, herbicides and pesticides consumption. Moreover, buried diffuser especially in green house conditions improves for the same water amount enhancement of production to attend 3 sometimes 5 times more than drip irrigation system.

Key-words: Southern Tunisia, drip irrigation, buried diffuser, water use efficiency, pepper crop yields.