

Abstract

In order to improve the performance of drip irrigation systems, their performance should be evaluated. In this study, 5 drip irrigation systems in Bushehr province (Dashtestan province) were evaluated. One operating manifold was selected from each system and evaluations were performed on four laterals from the beginning, one third, two thirds, and the lateral end. At each selected manifold, 8 pressures were obtained at the beginning and end of the lateral tube and 32 volumes of water at the location of 16 trees for the outlet points. Mean volumes of emitters and water outlet uniformity were calculated from the obtained volumes. The minimum input pressure of the experimental manifold and the operating manifolds were also measured to determine the Efficiency Reduction Factor (ERF) and the DCF. After collecting data from field measurements using scs and maryam and chlorine estimation factors such as uniformity of water distribution from emitters (EU), real low quadrant efficiency (AELQ) and low quarter potential efficiency (PELQ) were calculated. Was done. The results showed that water distribution uniformity in M5 systems (from 77.98% in M5 system (in Saadabad with 3.79 ha of palm cultivation) to 92.12% in M3 system (in Bushkan with 1.5 ha of citrus cultivars) Was variable. Low quarter potential (PELQ) efficiency 82.91% and 70.18% and true low quadrant utilization efficiency (AELQ) with values of 92.12 and 77.98% were obtained in M3 and M5 systems, respectively. The condition is good to moderate in these systems. In general, the major problem of drip irrigation systems is the inequality of the outflow of water from the emitters, which was mainly due to their inadequate pressure distribution or clogging, as well as the low wetting surface due to inadequate layout and number of emitters, Other problems were identified as lack of proper placement of loop rings, lack of irrigation water and low knowledge and skill in using the systems.

Keywords: Drip irrigation, Evaluation indices, Distribution uniformity, Low quarter efficiency, Dashtestan.



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