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Experimental evaluation of four infiltration models for calcareous soil irrigated with treated untreated grey water and fresh water

M.A. Gharaibeh, N.I. Eltaif, M.A. Alrababah, and M.N. Alhamad

Jordan University of Science & Technology, Natural Resources & Environment, Irbid, Jordan (mamoun@just.edu.jo, 096227201078)

Infiltration is vital for both irrigated and rainfed agriculture. The knowledge of infiltration characteristics of a soil is the basic information required for designing an efficient irrigation system. The objective of the present study was to model soil infiltration using four models: Green and Ampt, Horton, Kostaikov and modified Kostiakov. Infiltration tests were conducted on field plot irrigated with treated, untreated greywater and fresh water. The field water infiltration data used in these models were based on double ring infiltrometer tests conducted for 4 h. The algebraic parameters of the infiltration models and nonlinear least squares regression were fitted using measured infiltration time [I (t)] data. Among process-based infiltration models, the Horton model performed best and matched the measured I (t) data with lower sum of squares (SS).