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
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Field-Measured Furrow Infiltration Functions

Abolfazl NASSERI\*, Mohammad Reza NEYSHABORI, Ahmad FAKHERI FARD,  
Mohammad MOGADDAM, Amir Hossein NAZEMI  
Department of Irrigation, Faculty of Agriculture, Tabriz University, 51664 - IRAN

 [Keywords](#)  
 [Authors](#)



[agric@tubitak.gov.tr](mailto:agric@tubitak.gov.tr)

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**Abstract:** Furrow infiltration varies with different variables and is a complex process for modeling infiltration over the field. This research was conducted to develop empirical relationships between field-wide furrow infiltration and independent variables such as the opportunity time, initial soil water content, flow depth, flow section area, wetted perimeter and wet bulk density. Furrow infiltration was measured by blocked furrow infiltrometers at 48 infiltration sites over a 70 x 130 m field plot. Simple and partial correlations between cumulative infiltration and independent variables were evaluated. The effects of wet bulk density and flow depth on cumulative infiltration were insignificant when the effects of all other variables were removed. However, the effects of other variables such as the opportunity time, wetted perimeter, flow section area and initial soil water content on cumulative infiltration were significant. The results showed that 63.52 % of the variation in cumulative infiltration could be explained by the opportunity time when the other variables were held constant. To describe the field-wide cumulative infiltration as a function of independent variables a model was developed by using least squares regression.

**Key Words:** Infiltration functions, Infiltration, Furrow irrigation

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