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[home](#) [page](#) [about us](#) [contact](#)

[us](#)

Table of
Contents

IN PRESS

SWR 2015

SWR 2014

SWR 2013

SWR 2012

SWR 2011

SWR 2010

SWR 2009

SWR 2008

SWR 2007

SWR 2006

SWR Home

Editorial Board

For Authors

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Fees**
- **Submission**

For Reviewers

- **Guide for Reviewers**
- **Reviewers Login**

Subscription

Soil and Water Research

Field evaluation of various mathematical models for furrow and border irrigation systems

Ebrahimian H., Liaghat A.:

Soil & Water Res., 6 (2011): 91-101

[[fulltext](#)]

In this study, three mathematical models in the SIRMOD package including the hydrodynamic (HD), zero inertia (ZI), and kinematic wave (KW) models were tested using the data from several field experiments for both border and furrow irrigation systems. Five data sets for borders and seven data sets for furrows were used in this assessment. The results indicated that the performance of all models was satisfactory for the prediction of the advance and recession times. There was no difference in the prediction of the advance and recession times and infiltrated and runoff volumes between the hydrodynamic and zero-inertia approaches of the SIRMOD software. The HD, ZI, and KW models predicted the recession times better than the advance times for both the experimental borders and furrows. The predicted advance and recession times were estimated by these models more accurately than the infiltrated and runoff volumes. Also the accuracy of these models for the prediction of the advance and recession times was better for the experimental furrows in comparison with

the experimental borders.

Keywords:

border irrigation; furrow irrigation;
mathematical models; SIRMOD

[[fulltext](#)]

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