

EVALUATION OF A MASS CONSERVATION  
MODEL FOR BORDER IRRIGATION



THESIS BY  
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## ABSTRACT

Different phases of the flow process in border irrigation are analysed to show the interactions between various border characteristics, the operational parameters and the performance indicators. In the first part of the study the infiltration function is estimated and water distribution within the borders is determined from the measured advance and recession data. Evaluation of actual field tests on borders is carried out and a methodology for improvement in border irrigation is illustrated.

The second part of the study comprises application of volume balance approach to predict advance, recession and infiltrated water depths along the border. A computer program for a mass conservation model is formulated for complete evaluation of all the possible categories of graded border irrigation. Basic input data regarding the operational parameters and infiltration function are based on direct field measurements.

A comparison of the actual field observations and the mass conservation model predictions is shown. The model predictions for advance, recession and subsurface water profiles appear to be reasonably close to the field data. The usefulness of volume balance approach in simulating flow in border irrigation is verified from the experimental observations.