

Irrigation Performance

ii. Measuring the performance of Furrow Irrigations

(P02-1001)

Historically, it has been difficult to measure the performance and losses from furrow irrigation systems. While runoff losses are relatively conspicuous, it is the losses to deep drainage that have gone unnoticed.

SIRMOD is a computer simulation program that has the ability, given certain information, to simulate the furrow irrigation that has occurred and determine the amount of water applied and the amount of water lost to runoff and deep drainage.

It can allow the user to change certain factors such as inflow rates, to improve the efficiency of the system.

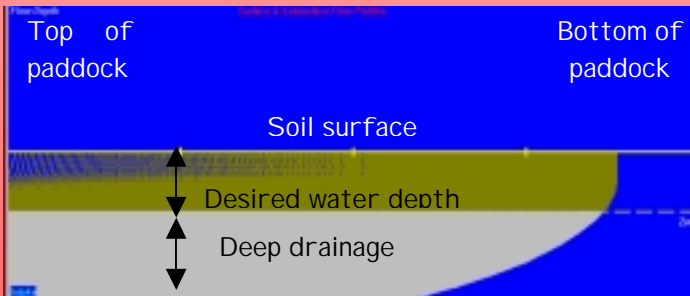
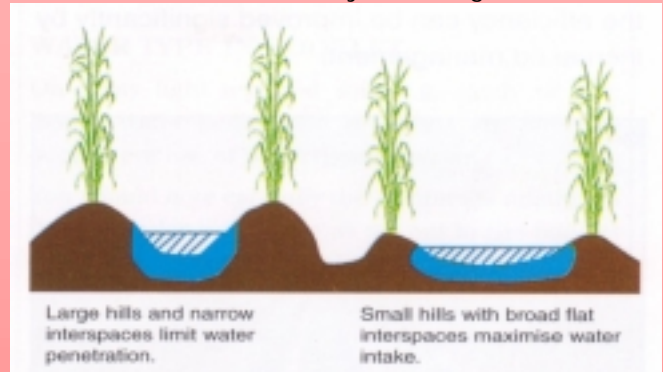


Figure 1: SIRMOD results for furrow irrigation with 80 drills, each with an inflow rate of 0.7 litres per second.

If it has been determined that the furrow irrigation is losing too much water to deep drainage or runoff, there are a number of options that a grower can take.

Minimising deep drainage by:

- changing inflow rates for different soil conditions.
- altering furrow shape/ maintaining compaction in the inter-row on freely-draining soil.



- using surge irrigation or watering every second row on freely draining soils.

Minimising runoff by:

- monitoring the arrival of water at the bottom of the block.
- cutting off water before the end of the block is reached.
- laser levelling between crop cycles to improve irrigation efficiency and drainage.
- banking the end of furrows on freely draining soils.



For more information, please ring your local Rural Water Use Efficiency Officer.

The Rural Water Use Efficiency Initiative is a joint venture between BSES, CANEGROWERS and the Queensland Government through the Department of Natural Resources and Mines.