

# HowLeaky?

Authors: David McClymont, David Freebairn, Mark Littleboy, Dan Rattray and Mark Silburn

## What is HowLeaky?

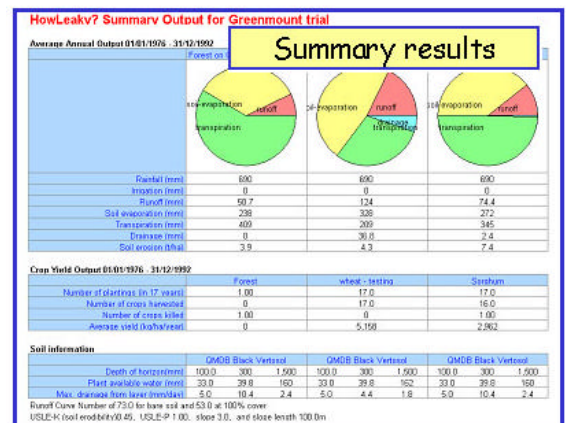
HowLeaky? is an instructive model for exploring the impact of different land uses and soil management on water balance and water quality. Its novelty lies in a user interface that provides a highly visual representation of inputs and outputs. HowLeaky? aims to put simulation technology and the insights this can provide into more hands through a more accessible interface.

## Why HowLeaky?

Simulation methodologies have much to add to the debate on the implications of alternative land uses on the environment. A need exists for a range of analytic tools to explore and present impacts of alternative land uses and management on *on* and *off-site* water balance, sediment movement, and salinity risk. While our current understanding of the science in these issues is incomplete, but still substantial, access to current science and simulation technology is poor. HowLeaky? enables land planners and managers to directly explore implications of alternative land uses for a range of locations and soil types.

## Where does it fit in?

HowLeaky? uses existing components of available models (e.g. PERFECT, APSIM, GRASP) and builds on our understanding of applications of simple computer based decision support tools (HowWet?, HowOften?, Ag ET). Simplified water use models employed in HowLeaky? have been adopted to reduce the burden of parameterising models. A pesticide degradation model has been incorporated to allow for exploration of management options for reducing agri-chemical excess in runoff.



## Typical applications

HowLeaky? is a tool for simulating the long term effects of different land uses and fallow managements (tillage), chemical movement on water balance, erosion for a range of soil types and locations, and agricultural chemicals in runoff. Key questions asked of HowLeaky? include;

- ☁️ how much water is lost as run off,
- ☁️ how much water leaks below the root zone and moves toward the ground water system?
- ☁️ How often does runoff occur soon after chemical application, and what concentrations and loads leave the paddock.

As with any model, care should be exercised in its application beyond locations where the user has a good feel for what are sensible outcomes.

## For further information

To download a copy of HowLeaky? and for further information go to <http://www.apsru.gov.au/apsru/Documents/products.htm>