

# Future Farming Systems Research

Project fact sheet: June 2009



## Catchment-scale water and salinity impacts of changing land use in south-western Victoria

### Background

This new research project is part of the DPI Accountable Agriculture key project, which will equip farmers with new knowledge and smart decision making tools to balance production and environmental outcomes more efficiently and effectively.

Recent years have seen substantial landscape and climate change in south-western Victoria. This has included rapid expansion of cropping and blue gum plantations. With increasing development and predicted drier climate conditions, the competition for water in the region is intense.

Catchment scale data on land use impacts on hydrology is currently poor. This project will provide valuable new knowledge about impacts of major land uses to inform sustainable land management and protection of natural resources in this region.

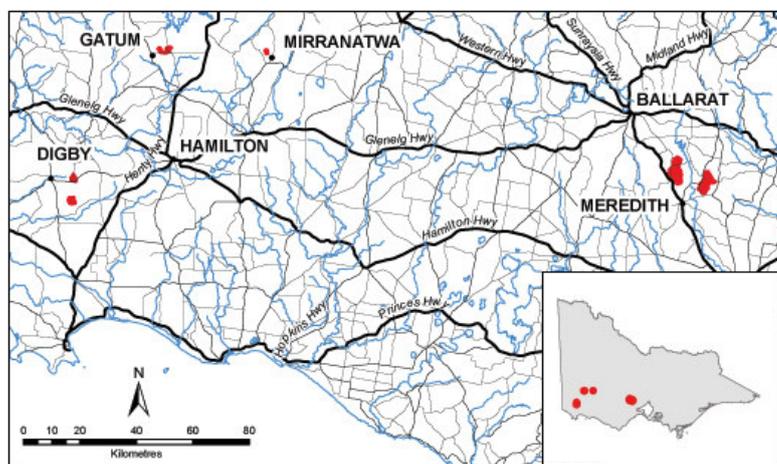
### Project objectives

- To install efficient and robust monitoring systems for measurement of water and salt balances in at least four study areas.
- To accurately quantify and compare the catchment scale impacts of major agricultural land uses on surface water and groundwater resources and salinity.
- To use the new data and conceptual models of catchment processes at each study site to validate and strengthen the current predictive catchment models.

To develop water and salt balances, it is necessary for all water and salt entering and leaving a study area to be measured. To achieve this, the project is presently establishing monitoring networks equipped with automatically monitored bores, stream gauges and rainfall stations. These are being established initially at 4 study sites (see map). The

sites are paired sub-catchments, one of each pair supporting wood plantations and one supporting grazing and cropping.

The water and salt balances will be used to accurately quantify and compare the catchment scale impacts of these agricultural land uses on surface water, groundwater and salinity.



## Deliverables

1. Installation of an integrated, calibrated water and salt budget monitoring network in at least four paired sub-catchments.
2. Quantitative data on the impacts of blue gum and pine plantations, farmland pasture and cropping on groundwater and surface water flow and salinity.
3. Improved catchment-scale predictive modelling of the impacts of land use on surface water and groundwater resources and salinity across south-western Victoria.

## Outcomes

The project will lead to better environmental accounting of agricultural land uses, greater confidence in predictive catchment modelling, and better informed land use planning and agricultural and natural resource management, particularly with respect to water and salinity.

## Key contact

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## Collaborating partners

DPI Future Farming Systems Research, La Trobe University, Ballarat University, University of Melbourne

## Key stakeholders

This project would not be possible without the support of Landholders; Ivan Field, Rob Lawrance, Harry Youngman  
Timber industry (ITC, Macquarie Bank, AKD)

Southern Farming Systems

Glenelg Hopkins Catchment Management Authority

Corangamite Catchment Management Authority

Southern Rural Water



*New tree planting adjacent saline discharge (photo P.Cook, 2009)*



*Data collection at Gatum (photo P.Hekmeijer, 2009)*

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