

Fences no boundary to salinity solution

One way farmers gather information about land management strategies is to look over the fence and see what their neighbours are doing. This article details an exciting new project which will enable producers to look across a virtual on-line fenceline to improve management of deep drainage and salinity issues on-farm.

by **Paul Hutchinson,**
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Farmers now can look across a virtual fenceline to see what is happening on their neighbours' properties thanks to new web-linked technology, which provides real-time information on drainage under different land management practices.

The drainage information will enable farmers to make better management decisions about fertiliser inputs and crop type.

In addition, the project will provide farmers with quantitative evidence of how much drainage is occurring as a result of specific farming practices. This will be of particular importance should drainage regulations be imposed on farming systems in the future.

'Across the Fenceline' is a joint research project between CSIRO and the Harden Murrumburrah Landcare Group.

The project, based in southern New South Wales, will help farmers tackle dryland salinity and develop sustainable agricultural practices through an innovative mix of automated monitoring and community education.

Remote drainage meter

In seeking better on-farm ways to manage deep drainage and the salinity problems it causes, the project team has developed a relatively inexpensive drainage meter which can monitor deep drainage remotely and then relay the data directly to farmers.

At a glance

- CSIRO has developed a relatively inexpensive drainage meter which can monitor deep drainage remotely and then relay the data direct to farmers.
- The drainage information can be used to manage the amount of deep drainage occurring beneath crops and pastures.
- The drainage meter is being used within the 'Across the Fenceline' project in northern New South Wales to provide farmers with a deeper understanding of drainage and salinity issues.



Photos: CSIRO Land and Water

The 'Across the Fenceline' project monitors deep drainage on real farms, using a CSIRO-developed tool called a tube tensiometer. The tube tensiometer measures the level of deep drainage under different land management practices and sends the data directly to farmers who can then make strategic decisions about the best crop or pasture system to grow.

The drainage instruments are installed in strategic locations, usually across a fenceline which separates two land use practices.

The drainage meters are connected to data loggers via underground cable, which sends the drainage information directly to the Across the Fenceline web site (www.clw.csiro.au/fenceline).

Local farmers and advisers visit the sites to compare the results.

Researchers are monitoring the deep drainage beneath an annual cropping system, an improved perennial pasture system and a best practice phase farming system, on a range of soil types representative of the area.

The five participating farms are all situated near Harden, NSW, and have become the regional focal point for farmers and advisers to meet with researchers to discuss water-use efficiency, crop rotations and management options.

The project will provide solutions to the area's rising watertables, salinity problems and water quality decline.

Matching water to crop type

Galong, NSW, farmer David Cusack is one of the participating producers in the Across the Fenceline project.

David is keen to discover how well his different land management practices use soil moisture and in particular how much

leakage is occurring beneath his cropping and pasture systems.

David believes the water drainage meter will enable him to match crop and pasture



The only effective solutions to the problems of salinity and deep drainage will be those which farmers can readily and economically implement on-farm. The CSIRO-developed deep drainage meter monitors deep drainage levels remotely and provides farmers with valuable information about how much soil water is moving below the crop or pasture root zone.

type more closely to the amount of soil moisture available in the soil profile — and in doing so, less water will escape into the subsoil. Drought conditions during the past two seasons have meant little deep drainage has been measured under David's crop and pasture systems.

But the project only has been running for 18 months and now that the infrastructure has been put in place, David sees the project extending into the long term and accumulating valuable soil moisture information which will drive future management decisions on his property.

On-farm solutions

CSIRO project leader, Paul Hutchinson, believes the only effective solutions to the problems of salinity and deep drainage will be those which farmers can readily and economically implement on-farm.

The fact that the Across the Fenceline project is taking place in commercial situations rather than trial plots is helping farmers and researchers better understand the complexities of deep drainage issues.

Paul said the project was based on the understanding that sometimes the old tools of community and sharing information were still the best.

In the long term, the information generated for the Across the Fenceline



David Cusack, Galong, New South Wales, believes the information generated by the Across the Fenceline project will enable him to make better land use decisions.

web site will enable landholders to make strategic land management decisions quickly and effectively to suit the individual location and conditions.

The web site allows a wide range of participants to become involved and provides other farmers throughout Australia with the opportunity to increase their understanding of crop and pasture management options.

Acknowledgements: Grains Research and Development Corporation and the Natural Heritage Trust. For more information visit the Across the Fenceline web site at www.dhw.csiro.au/fenceline/ or contact Paul Hutchinson on paul.hutchinson@csiro.au, phone (02) 6960 1558 or fax (02) 6960 1600 or Louise Hufton, Harden Murrumburrah Landcare Group, on (02) 6386 3954.



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