NATIONAL PROGRAM FOR Sustainable Irrigation

Irrigation *update*

sustainable irrigation

5

Volume 5
October 2005

Program ready for second phase

Given the strong results from three years of sustainable irrigation research funding, the National Program for Sustainable Irrigation Program Management Committee and Land & Water Australia have agreed to support the development of a Phase 2 of the Program.

The new phase will commence in July 2006 and conclude in June 2009 – with Land & Water Australia continuing as a partner as long as there is sufficient support from other investors.

One of the strengths of the current phase has been the number of public and private investors from across Australia.

This close partnership has meant the Program has provided a mechanism for irrigation research investors from interest groups to collaborate through constructive discussion and well-informed debate.

In addition, Program investors have also ensured that the knowledge emerging from Program-funded research is adapted and adopted for their systems, organisations and industries during research projects, providing invaluable feedback and motivation.

During its first phase the Program has concentrated on core irrigation sustainability issues, and it is proposed that this focus will continue for the next three year period.

Some fundamental opportunities are evident, and these will be developed in discussion with investors over the next few months. They include promoting partnerships across irrigation-based commodities and organisations to work on production and sustainability issues such as:

- **root zone management** and the associated water and solute by-pass issues;
- **improving harmonisation** of irrigation and the natural water systems while not undermining resilience to factors such as increased variability in weather patterns.

Phase 2 of the National Program for Sustainable Irrigation will have as its main objective substantial improvement in the environmental and productive performance of irrigated agriculture and horticulture in Australia.

Interested prospective investors are urged to discuss their interest with Program representatives:

Denis Flett
Chair, National Program for Sustainable Irrigation, phone 0418 563 627

Anwen Lovett
Manager Sustainable Industries, Land & Water Australia, phone (02) 6263 6032

Murray and Liz Chapman
Program Coordinators, phone 0427 633 214

EVERYTHING THERE IS TO KNOW: *The CD-ROM pictured left covers all irrigation research from 1993 to July 2005. To find out more read the article on* ***page 4****.*

In this issue:

Passion a hallmark of new chairman

The newly appointed chair of the management committee for the National Program for Sustainable Irrigation, Denis Flett, says he is passionate about optimising the value of water in society and about the future of regional Australia.

He will be sharing his views and settling into his new role at the forthcoming ANCID conference in Mildura in October.

Following the announcement of his appointment by Land & Water Australia, Mr Flett said he saw irrigated agriculture and associated value adding industries as "an essential part of the optimal value of water, and of prosperous and empowered regions based on the sustainable use of natural resources".

"Industry and user involvement are critical to getting research results adopted on the scale necessary to achieve better management of Australia's freshwater resources," Mr Flett said.

Denis Flett

Mr Flett brings 31 years experience working in the Victorian and national rural water sector to his new position as Chair of the Program. He is currently the manager, rural water with Sinclair Knight Merz. In addition to his new role, he is a board member of the Cooperative Research Centre for Irrigation Futures.

Land & Water Australia Chair Bobbie Brazil said she was delighted that a person of Mr Flett's standing in the irrigation industry, and with such deep knowledge of the issues involved, was able to contribute as chair of the management committee for the National Program for Sustainable Irrigation.

"There are big issues in irrigation for which we need highly relevant and adoptable research findings, and Denis has the right background and skills to keep the program focused on meeting these needs" she said.

Open Hydroponics completes first stage

The first stage of the Open Hydroponics project has now concluded and principal investigator Steven Falivene says the results show open hydroponics can improve productivity and water efficiency, but a good knowledge of soil, water and nutrient interactions is critical to successful use of the system.

Open hydroponics aims to increase productivity by optimising nutrient and water application. Water is applied by drip irrigation when needed, for example in the warmest part of the day, and every day in the summer.

Fertigation is used to ensure ongoing and balanced levels of nutrients are also supplied, and the combination means the trees are not limited for soil moisture and nutrients, meaning less plant stress.

Steven said a prerequisite of open hydroponics is the adoption of best practice management strategies. The project team concluded that the successful use of open hydroponics requires management strategies such as:

- regular checks of soil moisture status to ensure the crop is receiving sufficient moisture but not enough to cause deep drainage and potential loss of nutrients;
- on farm water storage to ensure a reliable sufficient daily supply;
- a good understanding of water management, crop physiology and fertigation;
- in most situations assistance from an experienced professional consultant.

"Early indications from orchards using open hydroponic principles are that productivity can be increased by up to 20%," Steven said.

He added that one of the barriers facing growers wanting to implement an open hydroponics system on their property is the fact that new technology and equipment is required. This often means an upgrade of infrastructure.

The project reported that open hydroponics had sparked a lot of interest in irrigation and fertigation, which in turn encouraged the upgrading of systems.

Growers are now moving towards more efficient and productive management practices.

The Open Hydroponics project, funded by the National Program for Sustainable Irrigation, was managed by Steven Falivene, Ian Goodwin, David Williams, Anne-Maree Boland and Robert Faggian. The project objectives were to review the current knowledge and status of open hydroponics, evaluate the impact on water supply infrastructure and to examine the potential impact on the environment.

Project proves value of engaging community

A project focusing on promoting stakeholder participation in research is proving the value of involving the community from the earliest stages.

Dr QJ Wang, principal investigator leading the team on the **Irrigation Futures of the Goulburn/Broken Catchment Project**, said engaging the general public and representative organisations was critical to the success of creating a vision for future irrigation that can be well- understood, and well-supported, by the local community.

"The future is uncertain and many factors external to the Goulburn/Broken region will impact on irrigation," Dr Wang said. "The key to a successful future is that the region has underlying adaptive capabilities supported by effective and robust adaptive management systems."

This region is a crucial part of Australia's food bowl. Its economic health relies on effective and sustainable irrigation, with a gross production value from irrigated agriculture of well over $1 billion. This means the challenges faced by irrigators in creating a sustainable future are of vital interest to everyone in the community. Increasing regulation and higher community expectations regarding environmental management further complicate the issues created by an infrastructure that is one of Australia's oldest.

"Regional planning is highly challenging," Dr Wang said. "It needs to deal with complex issues, significant uncertainty, and multiple stakeholders."

Researchers have conducted sessions with the local representatives and members of the public to develop a shared vision for the future of irrigation in the catchment. These sessions were used to identify major constraints and desired outcomes, and to develop an understanding of the integrated biophysical, economic and social system to investigate consequences of various regional options under different scenarios of external constraints.

The team will use this research to provide a framework to integrate this knowledge and guide future research and review.

The project is supported with funding from the National Program for Sustainable Irrigation. Program coordinator Murray Chapman said the recent results from the Goulburn/Broken project are both important and encouraging.

One of the sessions with the local community conducted by the Irrigation Futures of the Goulburn/ Broken Catchment Project.

"Making a strong connection with the community is an important ingredient in the successful transition from research to application," Mr Chapman said. "This project has been particularly valuable in exploring ways to improve the sustainability of irrigation, inform public policy and thoroughly explore the visions and values of the community in relation to irrigation and the role it will play in their future. These lessons will help other research projects to develop strong relationships and communication ability with the community in the field in which they work."

The research team has already identified key drivers for development and barriers in gaining successful community involvement, using scenario planning as a tool to develop a view of the future that is supported by all stakeholders and the general community.

"We have had excellent stakeholder involvement, with over 120 people participating in the Irrigation Futures Forum workshops at Stage 2," Dr Wang said.

"Each person contributed up to six days and over 70% of participants stayed actively involved over a six month period. They came from a wide range of sectors including primary producers, processors, environmental groups, Landcare groups, business and investment services, regional land and water management agencies, local and state governments. As an indication for the level of interest by participants, over 30 people nominated themselves as candidates for the technical working group for Stage 3.

"As a result of Stage 2, we have identified 29 strategic actions in three categories: building social capability, land, water and environmental capability, and agricultural industry capability."

"The strategies are about creating the right conditions for entrepreneurship and innovation to flourish, and at the same time protecting and enhancing environmental and community wellbeing."

Dr Wang will be reporting on the project at the upcoming ANCID conference in Mildura, in late October. More details on the project can be found at www.npsi.gov.au

Everything there is to know is on this...

The National Program for Sustainable Irrigation has updated its library of irrigation research on CD-ROM, with the new version covering all research from 1993 to July 2005.

The new CD-ROM includes a full version of the National Program for Sustainable Irrigation Knowledge Base of research reports as well as Acrobat and Firefox software for ease of use. It is compatible with Windows 98 and later systems.

The CD-ROM is available from Land & Water Australia by contacting CanPrint Communications on free call 1800 776 616 or visiting http://www.lwa.gov.au/products.asp

Quote product number PN050976. The CD-ROM is free.

Face to face with Program at ANCID

The National Program for Sustainable Irrigation program coordinators Murray and Liz Chapman will be at the premier conference for irrigators, ANCID in October 2005. You can meet them and find out all about current and upcoming major research projects in sustainable irrigation at stand 28/29 in the exhibition area during the conference, which runs from the 23rd to the 26th.

The ANCID program this year is based on the theme 'One life, one river, our future'.

National Program for Sustainable Irrigation will feature throughout the conference, with Program coordinator Murray Chapman chairing the session at which principle investigator of the Goulburn/Broken Futures project, Dr QJ Wang, will be giving the keynote address on Tuesday, October 25.

The Ecological Risk Assessment framework developed with funding from the Program will also be featured during the conference.

At the National Program for Sustainable Irrigation stand will be a host of Program products, from the latest edition of the Sustainable Irrigation research CD-ROM to the new Research Bulletins.

Newly appointed chair of the Program management committee, Mr Denis Flett, will also be at ANCID and will meet with Program investment partners at a special partners' forum on Sunday October 23rd.

The Program and the Australian National Committee on Irrigation and Drainage will also jointly announce the winner of the $7000 travel scholarship for a young professional in the Australian irrigation industry at the conference. Who will it be? Come to ANCID and find out!

Salinity project tests the waters

Dr Gerrit Schrale and his team on the **Impact of Salinity on Lower Murray Horticulture** project have moved into a new phase of research, beginning testing of their new solution extractor tool in four vine and citrus calibration sites in South Australia, Victoria and New South Wales.

The tool developed by the project has been put to work to test real field data collected by the project team and will be used to validate computer modelling results for salt movement in the rootzone.

"Precision irrigation must focus on both the water eficiency and the levels of residual salt," Dr Schrale said.

"We have achieved a great deal in terms of increasing water efficiency but our research is showing that leaching eficiency must be taken into account to avoid excessive salt build-up in the rootzone."

Wine, citrus and stonefruit producers are closely involved in the project. The result of the field sait evaluations will be critical to irrigators in the Lower Murray region and elsewhere, helping to establish a full picture of soil conditions and enable the assessment of ongoing irrigation risks and needs.

The next step for the Tri-State project will be even more exciting. Dr Schrale predicts the results will also be able to be applied to other sectors of agriculture, such as flood irrigation in dairy farming.

For further information on this project please contact Dr Gerrit Schrale on (08) 8303 9334 or email schrale.gerrit@saugov.sa.gov.au or Dr Tapas Biswas on (08) 8303 9730 or email biswas.tapas@saugov.sa.gov.au

ISBN 1 920860 79 7

The National Program for Sustainable Irrigation is managed by Land & Water Australia on behalf of the partners. The partners include irrigators, water authorities, research agnecies, state and Commonwealth departments and commodity groups. For information about becoming involved in the Program, please contact:

Anwen Lovett - Manager, Sustainable Primary Industries, Land & Water Australia
Phone: (02) 6263 6032 Email anwen.lovett@lwa.gov.au

Liz and Murray Chapman - Program Coordinators
Phone (03) 5763 3214 Email rplan@benalla.net.au

Joanne Caruso - Program Officer, Land & Water Australia
Phone (02) 6263 6005 Email joanne.caruso@lwa.gov.au

Merryn West - Communication, Land & Water Australia
Phone (02) 6263 6013 Email merryn.west@lwa.gov.au

Australian Government
Land & Water Australia

Product code: PN050976