NATIONAL PROGRAM FOR Sustainable Irrigation

exploring FUTURE visions & values

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sustainable irrigation

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SPECIAL COTTON EDITION

WHAT DO WE KNOW ABOUT KNOWLEDGE?

Knowledge is one of our most valuable and intangible assets. A research project in the cotton and grains industries has been asking the question: how is irrigation information accessed and knowledge managed to make better decisions?

It is an asset that can't be seen or touched, yet it determines the future of businesses and industries. Often jealously protected, its true value can only be realised when it is shared.

Knowledge resides within people - crudely put it is the combination of information and experience. In order to influence decision-making processes to achieve a change in practices it is critical to understand the pathways that are followed to acquire knowledge.

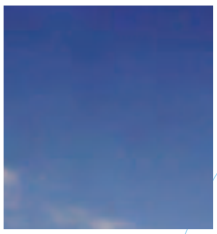
In the Australian Cotton CRC/ Sustainable Irrigation Program research project 'Knowledge management in cotton and grains irrigation' the researchers Victor Callan, Ingrid Christiansen and Graham Harris have been working to map out these pathways by asking growers, consultants, advisers, equipment suppliers and researchers.

Through interviews with 90 people the team found that growers preferred personal contact to gain information about water management. In many cases growers were actively seeking information by accessing a large number of people and resources in order to make decisions about water management. Consultants were frequently the major source of information, but own experience is a prime factor in decision-making. *Cont. p2*

Cotton growers actively seek information about water management and access a large number of people and resources through their decision-making processes.

IN THIS ISSUE:

All photographs in this issue courtesy of the Cotton Research and Development Corporation. Several of the images used were taken by people in and around the cotton industry and submitted to the CRDC as part of a photographic competition.
This page: main picture, taken by Margot Palmer, Wee Waa, NSW; inset, by Camille Kennedy, Wee Waa, NSW. Overleaf: inset, by Emma-Lea Yarrow, Bowenville, Qld. Back page: inset, by Nicole Piper.



www.npsi.gov.au

SUSTAINABLE IRRIGATION PARTNER: COTTON R&D CORPORATION

The Sustainable Irrigation Program brings together a wide range of partners from across industry and government. In each issue of Irrigation Update we will be profiling one of our partners to build understanding between our partners, stakeholders and clients. Today, we focus on the Cotton Research and Development Corporation.

Cotton is the world's most widely produced natural fibre and the world's favourite fabric. While Australia grows just three per cent of the world's cotton, we are the third largest exporter and recognised world leaders in production technology and efficiency, and fibre quality.

This success is largely due to efforts and activities of the Cotton Research and Development Corporation through targeted research, development and extension investments, and through leadership and coordination of the industry's research program. The only rural Research and Development Corporation based outside a capital city, the CRDC is closely linked with the cotton industry from its base in Narrabri, northern NSW, the heart of one of Australia's major cotton producing regions.

A partnership between the cotton industry and the Australia Government, the CRDC seeks to enhance the environmental, economic and social values associated with cotton production systems both on and off the farm, to increase benefits for the industry, regional communities and the Australian people.

During the past 14 years the Corporation has been at the heart of many significant achievements made by the cotton industry, including the development and introduction of the landmark Best Management Practices program, the ongoing development of new cotton varieties delivering improved fibre quality, agronomic characteristics and production capability, the widespread adoption of Integrated Pest Management and transgenic cotton which has seen major reductions in the pesticide applications, and improved water management and water use efficiency.

For more information about the Cotton Research and Development Corporation visit the website (www.crdc.com.au), email crdc@crdc.com.au, telephone 02 6792 4088 or fax 02 6792 4400.

WHAT DO WE KNOW ABOUT KNOWLEDGE?

Cont. from p1

The study found four key issues affecting water management. These were:

1. the availability, continued security and cost of the water
2. returns per megalitre
3. water quality
4. water scheduling

Overall growers accepted that water would be a more restricted resource in the future, while consultants saw an increasing role in providing advice about water use efficiency.

In the study area of southern Queensland and northern New South Wales crop choices were clearly being made on the basis of best return per megalitre of water applied.

A promising finding from the study was that the vast majority of growers were "change-ready" and open to new ideas. However, change was not likely to be quick as the case for change was built up over time as people accumulated new information and knowledge. Adoption proved to be an incremental process due to the sizeable financial and logistical costs involved.

On-farm experimental trials, whether being run by the grower, consultant, extension officer or researcher were important to build confidence in a new practice or technology.

The lack of security about water supply and allocation was highlighted as a barrier to change. The fear raised by interviewees was that a demonstrated level of water saving would guide future water cutbacks, and that while growers were keen to save water they were waiting until their production capacity had some security before investing in further water management strategies or technologies.

For more information contact Graham Harris, Senior Development Extension Officer (Irrigation), Dept of Primary Industries and Fisheries/Australian Cotton CRC, 07 46881559.

DIGGING DEEP IN THE DARLING BASIN

The issue of deep drainage in the rivers that come together to form the Darling is the subject of the Sustainable Irrigation Program-supported Australian Cotton CRC project Coordinating Deep Drainage Research.

Even when you can't see it, water moves through the landscape. Water that passes the root zone of plants is called deep drainage.

This is not necessarily a problem, as this water can recharge groundwater and prevent the accumulation of salts in the soil. However, experience in southern Australia has shown that the removal of native vegetation for cropping increases deep drainage and can lead to salinity issues on land and in streams.

Through the Cotton CRC project Coordinating Deep Drainage Research, the project team has brought together soil, groundwater and river scientists to consider the consequences of deep drainage in the Darling Basin. The aim of the collaboration is to identify research priorities and guide activities to improve our understanding of the water balance and foster an understanding of sound water management for the area.

A workshop held in Narrabri NSW late last year pondered the questions of deep drainage - where is it going, what it is going to do and when? With a recognition that deep drainage occurs under all landscape uses including irrigation, dryland cropping, improved and unimproved pastures and native vegetation, the workshop involved about 60 people from state and national agencies, universities, research funders and catchment management organisations.

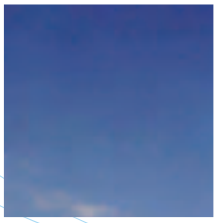
The two-day event gave scientists who were working in different parts of the landscape and the water balance an opportunity to share their latest findings with researchers that they would not normally engage with.

The group made a range of recommendations for biophysical research, methodological approaches, institutional arrangement and communication priorities, including the modelling of salt/water balance of the complete system under various land-use scenarios and improved integration between funding bodies particularly where investment is in component parts of larger projects.

Progress beyond the workshop has seen active collaboration between the partners and projects in the Northern Murray Darling Basin Working Group including a workshop on lysimeter design and operation, and collaboration about site characteristaion. Several new partners have joined the bid for the Cotton Catchments Communities CRC to ensure deep drainage doesn't get buried under other research priorities.

For more information contact Nicky Schick, Northern Murray-Darling Water Balance Group Coordinator, Australian Cotton CRC, 02 6799 1511, nicky.schick@csiro.au.

Improvements in irrigation management and water use efficiency will reduce deep drainage under irrigated fields.



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PROJECT SNAPSHOTS

The Sustainable Irrigation Program is currently investing in research projects at farm, regional and national levels involving at least 55 researchers. For more information check our website, www.npsi.gov.au.

Title: Northern Australian Irrigation Futures: Building a basis for developing sustainable irrigation across tropical Australia (CDS23)
Aim: To deliver an irrigation framework for policy makers, regulators, managers and investors to ensure irrigation is developed in a sustainable manner across northern Australia.
Contact: Dr Keith Bristow, Principal Research Scientist, CSIRO Land and Water, Keith.Bristow@csiro.au, Ph 07 4753 8596
Research Partners: CSIRO Land and Water, CRC for Irrigation Futures

Title: Sustainable Irrigation/ANCID Travel Fellowship (CID6)
Aim: To provide young professionals within the irrigation industry the opportunity to travel overseas to undertake research and gain experience and knowledge in their nominated area of interest.
Contact: Mr John Mapson, Executive Officer, ANCID, johnmap@g-mwater.com.au, Ph 0408 505 153
Research Partner: Australian National Committee on Irrigation and Drainage

Title: The Economic Benefits of Irrigation to National and Regional Economies (CIE12)
Aim: To estimate the current economic contribution of irrigated agriculture to the Australian economy and the potential impact under alternative policy scenarios to irrigators and regional economies. This will help inform irrigation public policy and future research decisions.
Contact: Dr George Reeves, Senior Consultant, Centre for International Economics greeves@intecon.com.au, Ph 02 6248 6699
Research Partner: Centre for International Economics

Title: Understanding and Developing Effective Knowledge Management Systems (CRD1)
Aim: To develop systems to assist public and private sector organisations in managing knowledge to assist clients make irrigation decisions.
Contact: Mr Graham Harris, Senior Extension Agronomist, Queensland Department of Primary Industries, Graham.Harris@dpi.qld.gov.au, Ph 07 4688 1559
Research Partners: Queensland Department of Primary Industries, Australian Cotton CRC

Title: Coordinating Deep Drainage Research in the Northern Darling Basin (CRD2)
Aim: To develop an agreed understanding by peak stakeholders of deep drainage in the Northern Darling Basin, and to identify gaps in knowledge and strategies to overcome them.
Contact: Ms Nicky Schick, Research Liason Officer, Australian Cotton CRC, nicky.schick@csiro.au, Ph 02 6799 1511
Research Partners: Cotton Research and Development Corporation, Australian Cotton CRC

Title: Tri-State Project - Impact of Salinity on Lower Murray Horticulture (DEP15)
Aim: To determine salinity relationships for the Lower Murray horticulture area, including the variability of soil water EC and leaching efficiency under known irrigation management. Simulate the performance of vines & citrus under different scenarios at Morgan and provide input into the Murray Darling Basin Salinity Strategy, ICM Plan and Living Murray initiative.
Contact: Dr Gerrit Schrale, Department of Water, Land and Biodiversity, South Australia, schrale.gerrit@saugov.sa.gov.au, Ph 08 8303 9334
Research Partners: Department of Water, Land and Biodiversity, South Australia, South Australian Research and Development Institute, Victorian Department of Primary Industries, Mallee Catchment Management Authority, CSIRO Plant Industry, NSW Agriculture, Murray-Darling Basin Commission Catchment Water Management Board, South Australian Centre for Natural Resource Management

Title: Research Review to Inform Sustainable Irrigation (RUP1)
Aim: To capture, synthesize, and extract knowledge 'products' or 'lessons learnt' from completed research to identify directions, changes, standards or practices that can enhance the sustainability of irrigation.
Contact: Liz Chapman, RuralPlan Pty. Ltd. rplan@benalla.net.au Ph 03 57633214
Research Partner: RuralPlan Pty. Ltd.

Title: Changing Irrigation Systems and Management in the Harvey Irrigation Area (SOU3)
Aim: To bring innovation to irrigation systems and agronomy on-farm in the South West Irrigation Area (WA) that will increase water use efficiency, farm productivity and reduce ecological impacts through factors such as water and nutrient seepage to the water table, downstream nutrient run-off and soil structural problems. To understand the impact on water demand and supply and the energy balance of the changed operating system.
Contact: Mr Kenneth Moore, Boorara Management and Consulting, kenn@boorara.com, Ph 08 9388 1172
Research Partners: Boorara Research and Management, Harvey Water, Horizon Farming WA Pty Ltd, Kuzich & Co. Irrigation Specialists, Dale Hanks Farming Enterprise, Department of Agriculture, WA

Title: Delivering Sustainability through Risk Management (UMO45)
Aim: To achieve an improved level of adoption of (ecological) risk assessment and risk management methods in the Australian irrigation industry and in regulatory agencies.
Contact: Professor Barry Hart, Director, Water Studies Centre, Monash University, Barry.Hart@sci.monash.edu.au, Ph 03 9905 4070
Research Partner: Monash University, University of Melbourne

Title: Irrigation Futures in the Goulburn-Broken Catchment (VPI3)
Aim: To develop a shared vision on irrigation for the Goulburn Broken Catchment, to inform decision processes and to build consensus on regional response options on irrigation.
Contact: Q.J. Wang,Principal Scientist - Soil and Water, Institute for Sustainable Irrigated Agriculture, Department of primary Industries, Victoria, qj.wang@nre.vic.gov.au, Ph 03 58 335 348
Research Partners: Department of Primary Industries, Victoria, Goulburn-Murray Water, Goulburn-Broken Catchment Management Authority, Department of Natural Resources & Environment, Victoria

Title: Use of Reclaimed Effluent Water in Australian Horticulture (VPI4)
Aim: To undertake a coordinated national approach to assessing the benefits and drawbacks of irrigation with reclaimed water in Australian horticulture
Contact: Anne-Maree Boland, Horticulture Scientist, Department of Natural Resources & Environment, Victoria, anne-maree.boland@dpi.vic.gov.au, Ph 03 9210 9203
Research Partners: Department of Natural Resources & Environment, Victoria, Horticulture Australia, Primary Industries Research Victoria, CSIRO Land and Water, Water Corporation WA, Department of Environment WA and Department of Agriculture WA

The National Program for Sustainable Irrigation is managed by Land & Water Australia on behalf of the partners. The partners include irrigators, water authorities, research agencies, State and Commonwealth Departments and commodity groups. Suitable projects are being integrated into the new CRC for Irrigation Futures. For information about becoming involved in the Sustainable Irrigation Program, please contact:

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