

FINAL REPORT

Land and Water Australia project number: CRD1

Project Title: Knowledge Management in Irrigated Cotton and Grains – Stage II

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Project objectives:

Stage II Objectives as defined in LWA Project Schedule dated 13/10/06:

1. To develop and test a knowledge system model to improve the effectiveness of the transfer of (irrigation) information to growers.
2. The model's construct will aim for continuous improvement & involve partnerships across public and private sectors.
3. The model is developed and tested to allow it to be rolled out across all agricultural industries in Australia.
4. Engender, support and skill the "Professional Irrigator"

Project Team members over the life of the project:

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Steering Committee:

Bruce Pyke (chair)	Cotton Research and Development Corporation (CRDC)
Guy Roth (Murray Chapman)	National Program for Sustainable Irrigation (NPSI)
Tom McCue	Grains Research and Development Corporation (GRDC)
Letitia Cross	Cotton Catchment Communities CRC
Peter Smith	Co-operative Research Centre for Irrigation Futures (CRCIF)
Kelvin Montagu	Co-operative Research Centre for Irrigation Futures (CRCIF)
Dan Galligan	Cotton Australia (CA)
Eddie Parr	New South Wales Department of Primary Industries (NSW DPI)
Graham Harris	Qld Department of Primary Industries and Fisheries (QDPI&F)
Ben Stephens	Australian Cotton Growers Research Association – Farming Systems Committee (ACGRA)
Alison Carmichael	Irrigation Australia (IAL)
Jim O'Connor	Cotton Consultants Association (CCA)
Mark Hickman (invited observer)	Training advisor (QDPI&F & Cotton CRC)

Abstract:

A knowledge system model to improve the effectiveness of the transfer of (irrigation) information to growers was developed and tested. Knowledge can be described as information combined with experience, context, interpretation, and reflection. A frequent misconception is to equate it with information. The knowledge system depends on the way in which information is applied. Industry extension programs need to facilitate opportunities for knowledge sharing and transfer. This is significantly more complex than typical irrigation extension programs. The central feature of the model was to employ more of the five extension models rather than only the two commonly used. The main vehicle was the concept of cohesive, self-directing groups that form the core around which activities under the other models are conducted. This was achieved by production of an innovative Cotton & Grains Irrigation Workshop Series containing 7 modules; establishment of a pathway for accreditation in irrigation management; development of a model for delivering commercial irrigation services; production of a range of information resources; creation of a dedicated irrigated cotton and grains web site.

1. Summary of methods and modifications

As this project substantially tested new ground, there were no defined methods for most of it. Where methodology was existent, it is explained below.

2. Statement of results, their interpretation, and practical significance against each objective

Objective 1: To develop and test a knowledge system model to improve the effectiveness of the transfer of (irrigation) information to growers

A knowledge system was developed based on the Stage 1 project report. The components of this model were:

- training targeted at grower managers and consultants
- integration of local on-farm trials and regional extension activities
- a pathway for accreditation in irrigation management
- creation of a dedicated irrigated cotton and grains web site
- development of a business model for delivering commercial irrigation services
- case studies of growers' efficient practices and improvements
- appropriate information resources both detailed and concise

Results and achievements:

- Cotton & Grains Irrigation Workshop Series produced containing seven modules: Irrigation Benchmarking and Water Budgeting; Scheduling I; Scheduling II; Pumps; Surface Irrigation Performance Evaluation; Storage & Distribution Systems; Metering. These were delivered free to participants under separate projects 'Advancing Water Management', administered through NSW DPI, and 'Rural Water Use Efficiency Initiative III', administered through Qld DPI. Where appropriate, the delivery locations were on-farm and used local and/or trial data to build relevance.
- This workshop series is mapped to National Training Competencies so completed assessments can contribute to current qualifications and certifications in the irrigation and commodities industries
- a dedicated irrigated cotton and grains web site
www.cottonandgrains.irrigationfutures.org.au
This site has been operative since July 2007, hosted by the CRC for Irrigation Futures.
- A model for delivering commercial irrigation services has been developed to the point of effectively engaging private consultants, with varied success in increasing their irrigation capability. 14 consultants were recruited via an Expression of Interest process. They were spread across the industry with three from the Namoi Valley, two from the Gwydir valley, three from the Border Rivers/St George region and six from the Darling Downs region. The Darling Downs consultants were also participants in a complementary program run through Condamine Alliance which provided funding to irrigators for use of the services of irrigation consultants. This resulted in better engagement of the consultants and better on-ground results than the other regions.
- A range of appropriate information resources produced:
 - Detailed: irrigated grains supplement for WATERpak published and distributed to current holders and posted on relevant web sites. This was significantly delayed due to staff commitments (mainly the Equine Influenza outbreak in 2007) and slow responses of potential contributors.
 - Concise: media outputs listed in Attachment 1

Cooperative Venture for Capacity Building:

The Knowledge Broker undertook a complementary project with the Cooperative Venture for Capacity Building (CVCB) to provide guidance for the knowledge system developed in this project.

Using the five models of extension adopted by the CVCB, it was found that existing irrigation extension focussed largely on the 'technology development' model and, to a lesser extent, the 'information access' model. The 'group facilitation/empowerment', 'programmed learning' and 'consultant/mentor' models were not used to any great extent. However all but one of the recommendations from Stage 1 of the project were focussed on the latter three models.

As knowledge is a highly integrated concept, it was suggested that improved knowledge management would stem from a more balanced approach to extension. To achieve this requires a different approach to irrigation extension. Cohesive, self-directing groups should form the core around which activities which fall under the other models are conducted. These groups would not only direct the types of activities and information they desire but also form the primary knowledge transfer mechanism. Where the majority of extension personnel's time was spent on trial work and technology demonstrations, this time should be allocated to more efficiently building capacity within consultants and the groups so they can undertake these tasks themselves. The role of the extension officer would move to providing technical expertise and facilitating opportunities for knowledge transfer.

The training developed by this project was designed to be an innovative workshop style as a platform to implement this change.

Objective 2: The model's construct will aim for continuous improvement & involve partnerships across public and private sectors

The main feature of this objective was intended to be development of a business model for delivering commercial irrigation services but, as conceiving an effective mechanism for engaging the consultants required more time than expected, this became less prominent. However, the partnering of public and private sectors began with this effort and appears will continue beyond the life of this project.

- A specific goal was to increase the capacity of the private sector to deliver irrigation services (advice, performance evaluation, etc.) as the public sector resources in this area are declining. The method was to be a partnering of the sectors whereby knowledge and skills could be provided by the public sector and delivered or extended by the private sector.
- Then chairman of the Cotton Consultants Association (CCA), Jim O'Connor, was a member of the project Steering Committee
- In late 2005, preliminary discussions were held with the CCA, CRC for Irrigation Futures and Cotton Catchment Communities CRC to describe opportunities for irrigation consulting services.
- Initial efforts to engage the private sector were attending meetings and forums to raise awareness, explain the concept, and ask for parties to indicate their interest. While this had the positive effect of bringing awareness of the project, and this component in particular, to consultants, engagement was poor:
 - Knowledge Broker held a workshop session at the Cotton Consultants AGM 2006 and discussions with some individual consultants – but no consensus among the consultants
 - Knowledge Broker made further contact with certified members of CCA and other individual consultants to bring some clarity and direction to developing a business

model. While this resulted in more positive feedback, it did not clarify what services were required.

- The Knowledge Broker and Principal Investigator met with members of the CCA executive on 31st January 2007 for further discussions.
- Knowledge Broker again addressed the CCA AGM in May 2007 but interest was minimal.
- the process for developing the business model was then changed to seeking Expressions of Interest from consultants. This was widely advertised during July 2007 and closed on 1st August with a pleasing 14 responses from consultants covering both cotton and grain crops (~12% of consultants in the cotton industry).
- 21st October 2007 meeting of participants, project team and agency staff at Toowoomba. The concept was outlined in detail, those who were already delivering a service shared their experiences, and individuals developed their action plans for the coming season.
- However, progress was slow during the 2007-08 season mainly due to the weather. A dry start coupled with very low water allocations meant few consultants were able to deliver irrigation services and therefore unable to commit to their action plans. Good rainfall occurred from December causing them to be busy with opportunistic grain crops.
- Despite this, many consultants made significant progress – see Attachment 2.

Partnerships of the private and public sectors also occurred in the following activities:

- Alignment of the Cotton & Grains Irrigation Workshop Series to national competencies, qualifications and certifications involved Irrigation Australia Ltd, Cotton Australia, Tocal College, the Cotton Consultants Association, the Australian Institute of Agricultural Science and Technology
- delivery of some of the training workshops fostered cooperation with the operatives and funders of the delivery projects (eg. Namoi CMA, BR-G CMA) and joint events with private consultants (eg. Benchmarking & Water Budgeting Workshops at Gunnedah and Walgett)
- preparation of case studies and media articles required the participation of private farmers, corporate farmers, private consultants and organisations (eg. NCEA, CRC for Irrigation Futures), and agency staff
- chapters of the irrigated grains supplement of WATERpak were written completely or jointly with authors from the private sector

Continuous improvement:

The principle of continuous improvement was integrated into every component of the project particularly the fledgling business model where access and motivation for consultants to obtain the latest information was inherent, and the training series which was designed to form groups that will ultimately direct their activities and form the primary knowledge transfer mechanism for continuous improvement.

Other practical aspects enhance continuous improvement:

- The workbooks and trainers' notes for the training workshops were published separately to allow easy revision and updating
- the educational design of the workshops was structured to allow flexible delivery and incorporation of up-to-date information
- integration of local trials and demonstrations into locally run workshops
- the web site was designed with the particular facility of articles, reports, etc. able to be posted by a network of approved staff so the information would be available quickly and kept up-to-date
- recent case studies of water efficiency improvements published on the web and other media

- another facility specially developed for this web site was for Training Administration. It allowed recording and reporting of the training workshop participants' details, workshops attended, assessment evidence, etc. so trainers could file results rapidly and securely for immediate access by other trainers allowing ready awareness of a participant's learning status
- the supplemented WATERpak is a loose-leaf binder allowing easy addition or replacement with updated information

Objective 3: The model is developed and tested to allow it to be rolled out across all agricultural industries in Australia

The intent of this objective was to view this project as a pilot for innovative concepts for knowledge management and transfer with a view to applying these findings in other agricultural industries in Australia, especially those with irrigation, where appropriate.

The implementation of the components of the project has tested their usefulness in the cotton and grains industries. They have generally proven to be well accepted by the range of end users and the flexibility and refinement of the components will allow ready adaptation to other industries.

The potential for use by other industries/regions is detailed below:

- irrigation training – all the modules in this series could be used, with local adaptation, for most irrigation areas in Australia. The combination of technical and economic information has enhanced the appeal to both growers and consultants, and the flexibility of delivery allows a wide range of potential applications.
- a pathway for accreditation in irrigation management – most accreditation in Australia is now nationally based so the links in the training series are applicable across the nation
- appropriate information resources – detailed information such as contained in WATERpak is highly valued by the cotton and grains industries. It is recommended that this publication be revised to cover a broader range of irrigated crops and climatic zones and be released nationally.
- creation of a dedicated irrigated cotton and grains web site – the Irrigated Cotton & Grains web site has received positive comment from a wide range of users and is being accessed at an increasing rate. Some users have been from interstate and international, demonstrating the easy access to other industries and regions. This site could easily be broadened in scope to be beneficial for more of the nation's irrigation industry.

Another key component of the web site is the development of the Training Administration facility. It was designed for administering the Cotton & Grains Irrigation Workshop Series and suits any short course or workshop which could be presented at many locations by various presenters yet with the same participants. The ease of recording and identifying each education event by all approved presenters, the ability to keep track of the participants and their educational status, the easy reporting, and the versatility and simplicity of use are highly useful features for part-time presenters such as extension officers. This facility could be used by any short course provider with similar lack of centrality.

- development of a business model for delivering commercial irrigation services – the earlier attempts demonstrated what was not effective in the cotton and grains regions. The current concept of this model took some time to develop and appears to be workable. Given the short time and disrupted season, it is premature to conclude how effective it is but the experience of this project suggests it is applicable to other industries and regions.
- case studies of growers' efficient practices and improvements, integration of local on-farm trials and regional extension activities, and concise information resources – the

benefit of each of these has been effectively demonstrated in this project and is already widely understood throughout agricultural extension and communication in Australia.

Objective 4: Engender, support and skill the "Professional Irrigator"

The purpose of this objective was to lift the profile and status of irrigation practice as a professional skill.

The main element of this was to provide pathways for professional accreditation of irrigation owners/managers/operators. This was achieved by aligning the training workshops with national qualifications and certification programs, the integration of the training workshops with the Cotton Industry's 'Best Management Practice' program, and WATERpak designed as technical support for both. At least one manager of a large cotton enterprise is now accredited by Irrigation Australia as a Certified Irrigation Manager.

The Cotton & Grains Irrigation Training Series has been mapped to National Competencies RTE4603E, RTE4605E, RTE4609E and RTE5604E. This allows assessments from the workshop series to contribute to Cert IV Agriculture, Cert IV Irrigation, Diploma in Irrigation, IAL Certified Irrigation Manager (Cotton), IAL Certified Irrigation Agronomist, CCA Certified Cotton Consultant and AIAST AgCredited accreditation.

'Engendering' the concept of the "Professional Irrigator" was also achieved through this project simply by giving a higher profile to irrigation related matters. According to the evaluation conducted by Coutts J&R, p.38, "the *Knowledge Management in Irrigated Cotton & Grains Project* has made a significant contribution to developing a broad based knowledge management platform to service and fuel the on-going improvements in water management in the industries." The awareness and access to information about irrigation principles, systems, management, etc. has elevated the importance of irrigation, as has the promotion and media exposure of the range of components produced by the project.

'Support' of the concept of the "Professional Irrigator" has been given by the processes mentioned above, and particularly by the consultants' support program that is building and broadening the base of expertise available to irrigators.

'Skilling' the "Professional Irrigator" has been achieved directly by the various information and knowledge pathways provided by the project – the Cotton & Grains Irrigation Training Series especially where coupled to local trials and demonstrations, the web site, media articles, supplemented WATERpak, etc.

3. Pathways for adoption of outputs

The prime pathway of adoption of the new knowledge model will be continuing with the Irrigation Workshop Series for the prima facie purpose of informing irrigators but more importantly as a catalyst for the formation of self-directing groups. Once the groups are established, a planned approach to skilling and empowering them to be drivers of knowledge generation and exchange needs to be implemented, facilitated (with decreasing involvement) by extension staff.

Because this project is in essence about adoption, many of the outputs are pathways for adoption:

- Cotton & Grains Irrigation Training Series which will be continued through new projects in 2008-09 (subject to funding approval)
- Cotton and Grain Irrigation web site www.cottonandgrains.irrigationfutures.org.au
- WATERpak grains supplement – mailed to all registered holders of WATERpak.

Also an electronic version is at or linked to the following web sites:

- www.cottonandgrains.irrigationfutures.org.au
- www.cottoncrc.org.au/content/Industry/Publications/Water/WATERpak
- GRDC web site
- consultants' support program – which will be continued through new projects in 2008-09 (subject to funding approval)

Planned awareness/adoption activities:

- presentations at IAL conference May 2008, Australian Grains Industry Conference July 2008, Cotton Conference August 2008, GRDC Grower Updates
- promotional articles in end-user media eg. 'Groundcover', 'Spotlight', 'Cotton tales', 'The Land'

Potential pathways recommended for investigation:

- web-based Training Administration facility – the following parties may be interested in this:
 - the Water Education Network
 - private education providers eg. River Murray Training, Hortus, Centre for Groundwater Studies
 - providers of distance education short courses eg. TAFE's, agricultural colleges

4. Summary of communication, technology transfer or 'adoption' activities

Completed / continuing:

- Irrigation Training Workshops – 20 workshops presented to 177 end-users forming 14 separate groups as at April 2008
- workshop promotion through 'Cotton Tales' and personal recruiting
- media articles – 'Water Matters', 'Spotlight', 'Ag Today'
- web site established and promoted
- presentations at CRCIF Annual Research Forums 2006 and 2007, ANCID conference 2006 and 2007, IAL conference 2007, Cotton CRC research forum, 3rd National Water Education conference April 2008
- direct mailing of WATERpak supplement to existing WATERpak holders (approx 480)
- field day – lateral move irrigator evaluation training, Moree Nov 2007, in conjunction with 'Advancing Water Management' project

Planned:

- media articles – 'Groundcover'
- presentations at GRDC Grower Updates
- production of a detailed project report / document
- presentations at IAL conference May 2008, Australian Grains Industry Conference July 2008, Cotton Conference August 2008, GRDC Grower Updates

5. Assessment of commercial potential

Training Workshops:

See comments under 'Objective 3' above.

Coutts J&R "Evaluation of the Knowledge Management in Irrigated Cotton & Grains Project" p.39 recommends that 'a business plan should be developed to fund, drive,

maintain and continually update the training products developed through the project' and 'an annual calendar of training events considered (to complement the on-demand model) and the courses should be promoted across the industries' and that 'the use of consultants as trainers should be fostered'.

The Cotton & Grains Irrigation Workshop Series consists of seven discrete workshops or modules, complete with trainers' guides. All of these are substantially applicable to irrigators anywhere in the nation. A significant advantage is the flexibility of delivery and location and its proven effectiveness with farmers. On-farm delivery is especially appealing to them. Most modules would require some modification to suit a particular industry and locality but the substance would remain the same. A key feature is the greater integration of the five extension models and the potential this gives to reform the process of extension by developing the participant groups to be self-directing.

Most irrigation based industries are examining how to improve their productive efficiency and a training series such as this is usually central to their plans. The federal and state governments have education of the irrigation industry included in their various water programs. The potential to pass this series on to other industries, irrigation education providers, and relevant government agencies should be investigated.

Introducing a fee to participants for the Training Series should be considered with care. To date, the workshops have been presented free to participants through other funded projects, and attracting participants even then required extensive promotion and significant personal follow-up. If there was a cost to participants, it is doubtful that the level of participation would be very high. The experience from NSW DPI's 4-day 'WaterWise' Course is instructive. Across the state of NSW, this course was offered free to participants and was coupled with incentive funding following completion. Around five years of active promotion and personal follow-up was necessary before awareness throughout the industry and word-of-mouth promotion was sufficient to sustain interest. From the beginning of 2006, once the funding was exhausted, the course was offered with a fee through NSW DPI's training banner, PROfarm. The number of participants in this course since has been very low – prior to PROfarm 3,712 in 7 years (530 per year) compared to 54 in 3 years (18 per year) since PROfarm.

WATERpak:

The WATERpak compendium now supplemented with some irrigated grains information is relevant to a wide section of the Australian irrigation industry. Its value in the cotton industry, where it originated, is highly regarded – a manual of practical, relatively short, easy to find sets of information seems to be very useful to growers. With the grains supplementation, this manual now appeals to a wider audience of irrigators. As most of the information is not industry or commodity specific, the entire manual should be revised and the range of industries and commodities broadened, so that it becomes a suitable national reference.

Consultant Support Program:

The Consultant Support Program has the potential to build capacity within the commercial irrigation service sector. Where irrigation incentives have been provided, the quantum of services delivered has been significantly greater, and these services have been delivered on a fee for service basis, establishing the commercial culture.

This program should be continued and expanded at least to other grains regions to allow it to achieve success over a number of seasons, and to provide a mechanism for delivery of extension through the consultant/mentor model. Incentive programs which support consultant capacity building should be explored, with consistent availability across all regions. Complementary projects that support capacity building of consultants should also

be sought eg. funding for consultants to collect water use data thus providing useful information for industry as well as on-farm.

6. List of publication titles

- Knowledge Management in Irrigated Cotton and Grains (Phase 2) External evaluation, April 2008
- Cotton & Grains Irrigation Workshop Series workbooks:
 - Irrigation Benchmarking and Water Budgeting
 - Scheduling I
 - Scheduling II
 - Pumps
 - Surface Irrigation Performance Evaluation
 - Storage & Distribution Systems
 - Metering
- WATERpak 2nd edition (supplemented with irrigated grains information)
- Concise information publications – see Attachment 1

7. Where to obtain additional information

Peter Smith, Irrigation Officer, NSW DPI, Tamworth, NSW 02 6763 1262

Bruce Pyke, Manager Research & Extension CRDC, Narrabri, NSW 02 6792 4088

Tom McCue, Manager Extension & Grower Programs GRDC, Canberra, ACT 02 6166 4577

Mark Hickman, Principal Development Extension Officer QDPI, Toowoomba, Qld 07 4688 1206

8. Knowledge assets the project has generated

- A tested concept/model for improving the effectiveness of the transfer of irrigation information to growers and consultants
- Cotton & Grains Irrigation Workshop Series mapped to National Training Competencies
- A model for delivering commercial irrigation services
- A range of information resources eg. WATERpak supplemented for grains
- A dedicated irrigated cotton and grains web site www.cottonandgrains.irrigationfutures.org.au

Attachment 1: List of concise information and media outputs

'Water Matters' articles (in Australian Cottongrower and/or Australian Grain magazines):

Variable rate application of irrigation water	Dec-Jan 2007	
Furrow evaluation improves irrigation efficiency	Dec-Jan 2007	Case Study
Irrigation trials target improved efficiency on the Downs	Dec-Jan 2007	
The challenge of a new lateral move or centre pivot	Feb-Mar 2007	3 case studies
Positively easy centre pivot and lateral move management	Feb-Mar 2007	
What's been happening to reduce evaporation losses?	Apr-May 2007	
Solutions for storage evaporation control	Apr-May 2007	
Towards better storage management	Apr-May 2007	
Want a bigger farm? Buy it with furrow optimisation	Jun-Jul 2007	Case Study
Numbers prove Rob's efficiency push	Jun-Jul 2007	Case study
WUE: Valuable learning curve for experienced irrigator	Jun-Jul 2007	Case study
Economics of CPLM Irrigation	Aug-Sep 07	Case Studies
Review of Siphonless Irrigation	Aug-Sep 07	Case Study
Case Study – Using EM Surveys for Probe Placement	Oct-Nov 07	Case study
Seepage mitigation	Oct-Nov 07	
Calibration of Capacitance Probes	Oct-Nov 07	
Trial Report/Case Study – 2006-07 Irrimate evaluations	Dec-Jan 08	Case studies
Trial Report/Case Study – 2006-07 Variety Irrigation Trial	Dec-Jan 08	Case studies
Trial Report/Case Study – 2006-07 Whole Farm Water Balance (Watertrack)	Dec-Jan 08	Case studies
How to check CPLM performance	Feb-Mar 08	
Case Study – evaluating furrow performance	Feb-Mar 08	Case study
Fundamentals of evaluating furrow irrigation	Feb-Mar 08	
Why should you evaluate your CP&LM? A case study of results.	Feb-Mar 08	Case study
Central Downs Irrigators Seepage Study	Apr-May 08	
Storage Surveys – Phil Morgan & Murray Boshammer Case Study	Apr-May 08	Case studies

Web fact sheets/Case Studies (on Irrigated Cotton & Grains web site):

Limited Water and Planting Decisions	Sep 2007	Fact sheet
Downs Drip Irrigation Trials	Dec 2007	Demonstrations
Siphonless Irrigation Systems	Jan 2008	trial

Media Releases and other publications:

Calling Cotton and Grain Consultants to look to the Future of Irrigation	General Release		Aug 07
Article on Consultant Support Program (Cooperative Venture for Capacity Building project)	Spotlight magazine	CRDC	Feb 2008
Article on Waterpak		GRDC	Feb 2008
Cotton and Grains Irrigation Website Media Release	General Release	CCC CRC	Feb 2008
Irrigation Workshops Flier	1000 copies distributed	CCC CRC	Oct 2007
Probing for new water efficiencies	Spotlight	CRDC	Winter 2007
Number's Prove Rob's efficiency push	Spotlight	CRDC	Winter 2007
Want a bigger farm? Buy it with furrow optimization	Spotlight	CRDC	Winter 2007
Valuable learning curve for experienced irrigator	Spotlight	CRDC	Winter 2007
Article on Training	Spotlight	CRDC	Winter 2007
Article on furrow optimisation and training	Spotlight	CRDC	Spring 2007

Attachment 2: Consultants achievements through the Support Program

- Gary Chesterfield consulting (Darling Downs) has undertaken 7 surface irrigation evaluations and plans to undertake an EM survey and a storage survey.
- Brad Tatzenko (Darling Downs) has undertaken 2 surface irrigation evaluations, has received in-field support to diagnose issues with a Lateral Move machine and is planning to be involved in a Lateral Move system audit training day.
- Matthew Holding (Darling Downs) has undertaken 2 surface irrigation evaluations.
- Jamie Innes (Darling Downs) had hoped to undertake some surface irrigation evaluations however these were interrupted by rainfall events. He is now planning to undertake an EM survey and a storage survey.
- Will Woolcock (Darling Downs) left the area to work and travel overseas in January.
- Murray Boshammer has undertaken a centre pivot system audit and 3 surface irrigation evaluations.
- Nick Gillingham (Gwydir Valley) has increased his knowledge of Lateral Move irrigation systems by attending a CRCIF Centre Pivot & Lateral Move Training Course and hosting a field demonstration of an evaluation process for a client's lateral move. He has subsequently re-evaluated the machine with his client and is still working through further performance improvements.
- Mitch Carter (Namoi Valley) has undertaken a pump efficiency test with project staff.
- Russell Ison (Namoi Valley) has attended a benchmarking workshop and is keen to implement some of these techniques with his clients.

