Australian Government
Cotton Research and Development Corporation

TRAVEL, CONFERENCE or SCIENTIFIC EXCHANGE REPORT 2016

Part 1 - Summary Details

Please use your TAB key to complete Parts 1 & 2.

CRDC Project Number: RRDP 1710

Project Title: 2016 Smarter Irrigation Technology Tour – Southern NSW

Project Commencement Date: 5/12/16 **Project Completion Date:** 10/02/17

CRDC Research Program: 1 Farmers

Part 2 – Contact Details

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Signature of Research Provider Representative: _____

Date Submitted: _____

Part 3 – Travel, Conference or Scientific Exchange Report

1. A brief description of the purpose of the travel.

The purpose of the 2016 Smarter Irrigation Technology Tour (an intensive three day tour to Northern Victoria and Southern NSW) was to:

- To examine a range of surface irrigation layouts, the hydraulics, performance and suitability.
- To learn about automation technologies currently adopted in the irrigation industry, and see these technologies in action.
- To understand the application of automation equipment currently available, and how it could potentially benefit a farmers irrigation system.
- Improve participants understanding of various water management technologies (precision application, soil moisture sensors, EM survey).
- Showcase the irrigation research undertaken in the Smarter Irrigation for Profit Project and other CRDC funded irrigation research.
- Provide a networking opportunity for irrigators, consultants and industry personnel from the rice, cotton, dairy and sugar industries.

2. What were the:

a) major findings and outcomes

- The tour was very successful and generated a lot of discussion and enthusiasm for looking at new surface irrigation layouts and irrigation automation.
- The evaluation results from the tour found the majority of participants were enthusiastic to implement new ideas as a result of the trip.

Fifteen irrigators and consultants managing 19,500 ha have a better knowledge and understanding of surface irrigation layouts and irrigation automation technologies.

The tour group's average level of confidence in automation technologies doubled as a result of going on the tour.

Ninety-three % of participants indicated that they would do something differently as a result of what they had learnt on the tour including:

- Trial PTB's
- Engage an irrigation designer
- Talk to manufacturers
- Buy automated weather station
- Check current irrigation performance
- Fit automated gates

The Victorian farmers described how improved water management through soil water monitoring and automated application had reduced waterlogging and increased production and water use efficiency.
"I plan to follow more closely the effects associated with water logging"

Four researchers from the Smarter Irrigation for Profit Project provided updates on their research projects including:

- Sam North, NSW DPI – Developing design recommendations for basin surface irrigation systems
- Malcolm Gillies, NCEA - Modernisation of furrow irrigation in the sugar industry
- Malcolm Gillies, NCEA - Towards autonomous furrow irrigation using small PTB's
- Monique White, DA - Optimised dairy irrigation farms
- John Hornbuckle, Deakin University - IrriSAT - Weather based irrigation scheduling

One hundred % of tour participants indicated that it was beneficial to visit farms in other irrigation sectors.

The networking opportunities provided by the tour were invaluable. Contacts between irrigators, consultants and researchers were shared. The following comments demonstrate this.
"Ability to ask questions and engage with irrigators who were happy to discuss the basics
"Irrigation technologies, the contacts and having everyone from farm designers to manufacturers on the tour"
"Seeing different irrigation systems & technologies first hand"
"Meeting new people and the fields covered by them - Knowledge!"
"Talking to the other participants & learning from them"
"Meeting a range of people from the irrigation industry"
"Networking"
"Exposure to commercial providers"
"Good contacts from the tour"

b) other highlights

The tour provided an opportunity for participants from different irrigation industries to come together, network, discuss ideas and share their knowledge on a range of surface irrigation layouts and irrigation automation and importantly go home excited about what they had seen and keen to make some change.

For further information, please see the attached report

3. Detail the persons and institutions visited, giving full title, position details, location, duration of visit and purpose of visit to these people/places. (NB:- Please provide full names of institutions, not just acronyms.)

1) Rubicon, Mr Tony Oakes, Director, Rubicon Water, Mr Peter Moller, General Manager – Farm Connect & Mr David Robson, Account Manager.
   1A Wheeler St Shepparton
   Rubicon Factor – Farm Tour
   - Rubicon overview of water technologies
   - Rubicon Water Engineering
   - Total channel control (TCC)
   - On-farm solutions. Farm connect and on-farm case study.
   - Visit Rubicon manufacturing facility and test lab to pretest flow meters

2) Russell and Cathy Pell, Dairy Farmer, 411 Emily Jane Rd, Wyuna, Vic
    - Dairy farmer, irrigated cropping and pasture
    - Russell's farm is fully automated dairy farms, 2ha bays using Rubicon Water's FarmConnect automated watering system and soil moisture probes.
    - Russell is also a member of the MDBA Basin Community Committee.

3) MacKenzie Craig, Irrigator, 2098 Barmah-Shepparton Rd, Nathalia, Vic
    - Fat lamb production, irrigated cropping
    - MacKenzie's farm is fully using Rubicon Water's FarmConnect automated watering system and soil moisture probes.

4) Ray Thornton, Irrigator, 686 B Waaia Bearii Rd, Yalca, Vic
    - Corn, irrigated cropping.
    - Ray's farm used Rubicon Water's FarmConnect automated watering system.

5) Padman Stops, Mr John Padman, Director, Mr Shawn Padman, Director, Mr Bruce Bartett, Customer Relations Manager, Danny Cleary, Digital Media Communications.
    - 4948 Murray Valley Highway, Strathmerton, Vic.
    - Tour of Padman sites and manufacturing facility.
    - Padman structure and automation products

6) Noel Baxter, Irrigator, Pyles Lane, Berrigan, NSW
    - Broad acre irrigation, cotton, sorghum, maize and winter cereals.
    - Pipes through the bank using Padman Stops structures and portable electronic dual timer to automate.

7) Rob Black, Irrigator, Farm 536, Kyola Rd, Coleambally, NSW
    - Broad acre irrigation, maize, cotton and winter cereals.
    - Pipes through the bank with 450mm pipe feeding 40 x 1.8m beds using Padman Stops structures and portable electronic dual timer to automate.

8) Ben Witham, Mundoora, Ercidoune Rd, Coleambally, NSW
    - Broad acre irrigation, maize, cotton and pastures.
    - Pipes through the banks with 450mm pipe feeding 36 – 40 beds in each bay using Padman Stops structures and portable electronic dual timer to automate.

9) Matt Stott, Point Farm, Darlington Point, NSW
    - Broad acre irrigation, cotton and almonds, winter cereals.
    - Siphons. Had bankless system, but converting back to siphons.

10) Peter and Dallas Stott, Farm 1710, Whitton Rd, Whitton, NSW, 2705
    - Bankless Channel – roll-over bed in bays
    - Bankless Channel – Terraced bays

11) Irrigation Research and Extension Committee (IREC) Field Station and regional trial site. Iva Quarisa, Executive Officer, IREC, Rob Houghton, Chair, IREC, Kieran O'Keefe, Deputy Chairman, IREC, Richard Stott, Irrigator, IREC site.
    - Background to IREC and the regional trial site.
    - Cotton
    - Bankless Channel – roll-over bed in bays.

12) Tim and Roger Commins, Whitton, NSW
    - Siphon and bankless irrigation systems
    - Fish, cotton, malt, stainless steel wine storage……

4. a) Are there any potential areas worth following up as a result of the travel?

- All participants should be contacted in 6 months time to see what changes they have made within their farm business as a result of attending the 2016 Smarter Irrigation Technology Tour.
- Case studies can be developed from those that have made changes.
- Fact sheets should be developed that describe each of the main surface irrigation layouts including basic design and hydraulics descriptions.
- There is confusion regarding terminology used to name various surface irrigation layouts and the design components and infrastructure used. As an industry a glossary and standard definitions would be a valuable document. Irrigation Australia had a special interest group 5 or 6 years ago that started this process, but it was never completed.
- Rubicon has developed flow meters that don't require the 10X diameter length down stream/5X diameter length upstream. It's a short pipe that has multiple sensor sites. https://www.rubiconwater.com/catalogue/blademeter-usa https://www.rubiconwater.com/catalogue/flumemeter-usa https://www.rubiconwater.com/catalogue/slipmeter-usa
  Water flow measurement has always been difficult, these meters show potential for use on farm to measure water on and off a field which would improve on-farm water measurement.

b) Any relevance or possible impact on the Australian Cotton Industry?

- The tour has shown participants different surface irrigation layouts with various levels of automation providing ideas and inspiration for change to improve labour and water use efficiencies.
- This tour has been well received now on three occasions, with good numbers attending and valuable outcomes including:
    - Irrigators have come on the tour to be educated, look for new ideas, examine different technologies and engage with other farmers and consultants.
    - Evaluation results show that the 2016 Smarter Irrigation Technology Tour has been successful in achieving these outcomes. This is demonstrated by the following evaluation result:
        - 95 % of participants agreed that the tour met their aims and expectations.

- 100% agreed that it was beneficial to visit farms in other irrigation sectors
- 93 per cent of participants indicated that they would do something differently as a result of what they had learnt on the tour.
- The group's average level of confidence in automation technologies doubled as a result of going on the tour.
- The group's average level of knowledge and understanding of automation technologies (how they could be used on their own farms and different types of automation available) doubled as a result of going on the tour.
- There are a number of irrigators that have attended past tours that have since implemented change:
    1. Murray & Ben Watson, Lloma, Wee Waa – Depth sensors to see water levels in main supply real time. Ben spoke at the 2016 Cotton Conference to discuss this early entry step into irrigation automation.
    2. Shawn Fresser, Darling Downs – Trialing Smart Siphons in the 2016/17 season.
    3. Tom Siddens, St George - Converted from siphons to a hybrid system that is a pipe through the bank system with the ability to back up tailwater (as per bankless system) to reduce irrigation run time. Tom has designed these systems with Glenn Lyons (Irrigation consultant, St George) who attended the 2015 Irrigation Automation Tour.
    4. Ralph Grey, Mungindi – Converted two fields from siphon to pipe through the bank with potential to automate. Worked with Mike Henderson, SMK, in designing the new system. Mike also attended an irrigation automation tour.

For further information - please see attached report

5. How do you intend to share the knowledge you have gained with other people in the cotton industry?

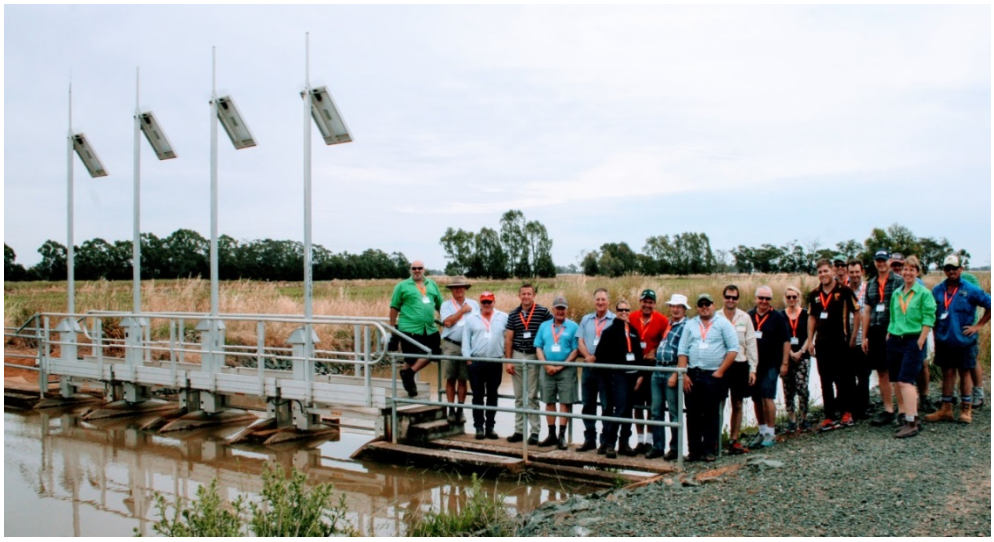
A comprehensive evaluation of the automation tour was conducted and the results can be found in the attached report. A tour booklet has been completed and available here on the CottonInfo website. Various communications have been conducted to date to share knowledge gained with the cotton industry. A complete list of communications can be found in the attached report.

6. Please list expenditure incurred.
Please see attached financial report

Date	RECEIPTS	Amount excl. GST	GST	Total
3/11/2016	Farm Visit Gifts	$415.00	$41.50	$456.50
4/11/2016	Travel Snacks	$72.73	$7.27	$80.00
20/11/2016	Ezi Tags Name Tags	$109.12	$10.91	$120.03
26/11/2016	Wrapping paper and sticky tape for presenter gifts	$29.82	$2.98	$32.80
1/12/2016	Drinks and snacks	$376.46	$29.70	$406.16
3/12/2016	Eskys	$81.77	$8.18	$89.95
4/12/2016	Water	$6.09	$0.61	$6.70
5/12/2016	05/12/16 Breakfast (Macdonalds Narrabri)	$82.50	$8.25	$90.75
5/12/2016	5/12/2016 Morning tea (Dubbo Visitors Centre)	$25.45	$2.55	$28.00
5/12/2016	5/12/2016 LUNCH (Peckish Café West Wyalong)	$142.91	$14.29	$157.20
5/12/2016	5/12/2016 Accommodation and Dinner & Breakfast (Parklake, Shepparton)	$3,353.26	$335.24	$3,688.50
6/12/2016	6/12/2016 Lunch (Saleyard Café, Shepparton)	$165.45	$16.55	$182.00
6/12/2016	6/12/2016 Dinner (Barooga Hotel)	$598.09	$59.81	$657.90
6/12/2016	6/12/2016 Accommodation and Breakfast (Barooga Country Inn Motel)	$2,157.14	$215.76	$2,372.90
7/12/2016	Printing Tour Booklet	$590.00	$59.00	$649.00
7/12/2016	7/12/2016 Accommodation and Breakfast (Kidman Wayside)	$3,067.61	$306.89	$3,374.50
7/12/2016	7/12/2016 Morning tea (The Big Strawberry)	$106.82	$10.68	$117.50
7/12/2016	07/12/16 Jerilderie Bakery	$252.59	$24.81	$277.40
7/12/2016	07/12/16 Dinner (La Scala, Griffith)	$1,440.00	$144.00	$1,584.00
8/12/2016	Bus	$6,038.18	$603.82	$6,642.00
8/12/2016	08/12/16 Lunch at IREC (Café Deli)	$220.58	$21.72	$242.30
8/12/2016	8/12/2016 Accommodation and dinner	$2,058.64	$205.86	$2,264.50
9/12/2016	09/12/16 Breakfast MacDonalds Dubbo	$93.73	$9.37	$103.10
	TOTAL	**$21,390.21**	**$2,130.38**	**$23,623.69**

Please email your report 30 days after travel/conference to: research@crdc.com.au

2016 Smarter Irrigation Technology Tour
5th December – 9th December 2016



Abstract

Automating surface irrigation systems can deliver both improved efficiencies in labour and water use. The precise control of flows and water levels throughout a farm can also result in improved production and reduced costs of production improving profitability.

Twenty-nine irrigators, consultants and researchers participated in the 2016 Smarter Irrigation Technology Tour which visited the manufacturing facilities of Rubicon Water and Padman Stops. The tour also included ten farm visits to hear direct from farmers who are have already adopted automation equipment to deliver water around their farms. Some farms were fully automated allowing irrigators to control their irrigation remotely. There was a range of irrigation layouts and automation equipment across all ten farms.

The tour has generated significant interest in investigating ways to automate surface irrigation systems in the Australian Cotton Industry. A comprehensive evaluation of the tour was conducted which showed that all participants have an increased knowledge and understanding of the automation equipment currently available and how it could be used on their farms. While all participants were keen to adopt some level of automation in their surface irrigation systems, the greatest barrier to adoption was identified as the cost of the equipment and redevelopment.

The tour provided an important networking opportunity for irrigators, consultants, researchers and retailers across the cotton, dairy and rice industries.

Janelle Montgomery, Water Use Efficiency Technical Specialist, CottonInfo/Research & Development Officer, NSW DPI

Amanda Waterman, Communications Officer, NSW DPI STBIFM

02 January 2017

Janelle Montgomery | CottonInfo | P 0428 640 990 | www.cottoninfo.net.au

Acknowledgements

The 2016 Smarter Irrigation Technology Tour was a collaborative event organised by CottonInfo, NSW DPI Sustaining the Basin: Irrigated Farm Modernisation (STBIFM) program and Smarter Irrigation for Profit project.

The tour was supported through funding from the Australian Government Department of Agriculture and Water Resources as part of the Rural Research and Development for Profit and Sustainable Rural Water Use and Infrastructure Programmes, in addition to CRDC, RIRDC, Dairy Australia, Sugar Research Australia, NSW DPI, STBIFM, NCEA, Rubicon and Padman Stops.

Thanks go to:

- The irrigators who allowed us to visit their farms and see their irrigation layouts, automation and water management technologies including Russell Pell, Mackenzie Craig, Ray Thornton, Noel Baxter, Rob Black, Ben Witham, Matt Stott, Dallas Stott, Iva Quarisa, and Roger Commins.
- Peter Moller and David Robson who arranged the Rubicon factory and farm tour and Rubicon staff who led the tour around the Rubicon manufacturing facility and test laboratory. Rubicon Water also sponsored dinner at the Parklake Hotel, Shepparton.
- John Padman, Bruce Bartlett and Marcus Jordon, Padman Stops for providing a tour around of their manufacturing facility along with organising farm visits and the Padman Stops staff who helped with organisation. Padman Stops also sponsored dinner at La Scala, Griffith.
- Mike Naylor, Irrigation Designer, Leeton for helping with the organisation along with his local knowledge and networks which greatly assisted the success of the tour. He also shared his extensive experience and knowledge of the southern NSW irrigation industry with tour participants.
- Keiran O'Keeffe, Regional Extension Officer, CottonInfo for providing the portable PA system.
- Iva Quarisa, EO, IREC for arranging lunch on day 4 and helping with the itinerary.
- Guy Roth, Project Leader, Smarter Irrigation for Profit for assisting with planning, providing industry contacts and funding.
- Amy Fay and Monique White, Dairy Australia for assisting with the itinerary and promoting the tour within the Dairy Industry.
- Andres Jaramillo, SRA for promoting the tour through the Australian sugar industry.
- Leah Whyth, Rice Growers and Gaye Plunkett, Rice Extension for promoting the tour thought the Australian rice industry.
- Researchers from the Smarter Irrigation for Profit project including Malcolm Gillies, National Centre for Engineering in Agriculture (NCEA), Sam North, NSW DPI, Monique White, Dairy Australia, John Hornbuckle, Oliver Delves, CCREFF, Deakin University and Tom Dowling, Goanna Telemetry Systems.
- Ruth Redfern, CottonInfo Communications manager who designed the layout for the 2016 Smarter Irrigation Technology Tour Booklet.
- Amanda Waterman, NSW DPI STBIFM Communications officer who conducted all the necessary communications both pre and post tour. Amanda was also responsible for all the photography during the tour.

- Peter Verwey, Project Officer, NSW DPI STBIFM for capturing video footage and producing our tour videos.
- The irrigators and consultants who attended the tour and for sharing their stories and irrigation design experiences.

Pictured overleaf: **Irrigators and consultants attending the 2016 Smarter Irrigation Technology Tour (A.Waterman)**

Table of Contents

Summary of Tour Outcomes

Fifteen irrigators and consultants managing 19,500 ha have a better knowledge and understanding of surface irrigation layouts and irrigation automation technologies.

The tour group's average level of confidence in automation technologies doubled as a result of going on the tour.

Ninety-three % of participants indicated that they would do something differently as a result of what they had learnt on the tour including:

- Trial PTB's
- Engage an irrigation designer
- Talk to manufacturers
- Buy automated weather station
- Check current irrigation performance
- Fit automated gates

The Victorian farmers described how improved water management through soil water monitoring and automated application had reduced waterlogging and increased production and water use efficiency.

"I plan to follow more closely the effects associated with water logging"

Four researchers from the Smarter Irrigation for Profit Project provided updates on their research projects including:

- Sam North, NSW DPI – Developing design recommendations for basin surface irrigation systems
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One hundred % of tour participants indicated that it was beneficial to visit farms in other irrigation sectors.

The networking opportunities provided by the tour were invaluable. Contacts between irrigators, consultants and researchers were shared. The following comments demonstrate this.

"Ability to ask questions and engage with irrigators who were happy to discuss the basics
"Irrigation technologies, the contacts and having everyone from farm designers to manufacturers on the tour"
"Seeing different irrigation systems & technologies first hand"
"Meeting new people and the fields covered by them - Knowledge!"
"Talking to the other participants & learning from them"
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Janelle Montgomery | CottonInfo | P 0428 640 990 | www.cottoninfo.net.au

1.0 Tour Information

1.1 Background

Following the success of the 2015 Cotton Irrigation Automation Tour, a second tour was planned, with the intention of bringing together irrigators and consultants across four commodity sectors – cotton, sugar, rice and dairy, through the Smarter Irrigation for Profit Project. While farmers from these industries produce different products, the efficient use of water, fertiliser, labour and energy unite them in their quest for better farming options.

The objectives of the 2016 Smarter Irrigation Technology Tour were:

- To examine a range of surface irrigation layouts, the hydraulics, performance and suitability.
- To learn about automation technologies currently adopted in the irrigation industry, and see these technologies in action.
- To understand the application of automation equipment currently available, and how it could potentially benefit a farmer's irrigation system.
- Improve participants' understanding of various water management technologies (precision application, soil moisture sensors, EM survey).
- Showcase the irrigation research undertaken in the Smarter Irrigation for Profit Project and other CRDC funded irrigation research.
- Provide a networking opportunity for irrigators, consultants and industry personnel from the rice, cotton, dairy and sugar industries.

Automation has the potential to deliver substantial labour savings and labour efficiency. In addition precise control of flows and water levels throughout a farm can have positive impacts on both crop production and associated costs.

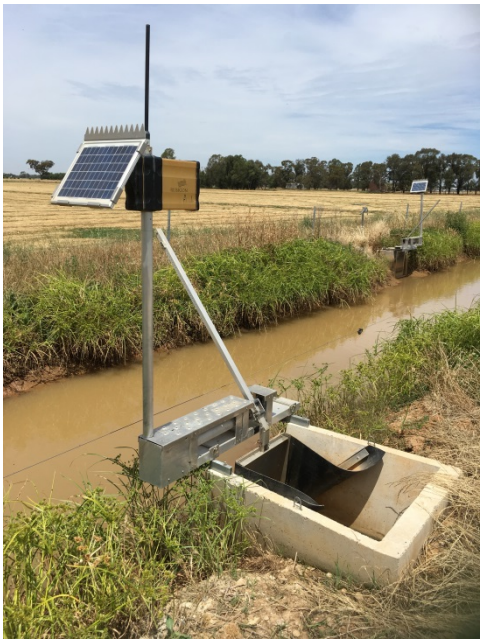
The three day tour included ten farm visits which included a mix of irrigation layouts, enterprises and automation technology, along with the Irrigation Research and Extension Committee (IREC) Field Station and Regional Trial site. Participants were also given a tour of the Rubicon Water manufacturing facilities and testing laboratory and presentations of the FarmConnect software and various irrigation scheme and on-farm projects. The tour group also visited Padman Stops and was treated to a display of irrigation infrastructure, history of automation research and current automation technologies.

Importantly, the automation tour provided networking opportunities for irrigators with a range of irrigators and consultants located right across Australia who were present on the tour. There is nothing like looking over the fence, and having the chance to meet irrigators from other regions and industries.

A copy of the tour flyer, program and registration form is attached in Appendix A1, A2 and A3 respectively.

1.2 Farm visits

Farm 1: **Irrigator: Russell Pell**
Address: 411 Emily Jane Rd, Wyuna, Vic
Enterprises: Dairy, irrigated cropping and pasture
Irrigation system: Border Check
Further information:
http://www.rubiconwater.com/catalogue/russell-pell-farmconnect-case-study
An 800 ha dairy farm where they irrigate maize, lucerne, millet and pasture in a border check irrigation system where bay size is around 2 ha and is watered using a "fast watering" technique; in-channel BayDrive™ actuators to manage water through the farm channel system; and BayDrive™ bay outlet actuators. Additionally, soil moisture sensors and a rain gauge were installed to provide accurate information on crop water demand. Each device is connected to a farm radio network and remotely monitored and controlled by cloud-based FarmConnect software.



With high-flow gates, the Pells can apply water to bays at 25 ML/day, 2.5 times the previous rate. Irrigation duration has reduced from around six hours per bay to around 1.5-2 hours. This reduces deep drainage below the root zone, runoff and waterlogging. Using FarmConnect software, gates open and close automatically to schedule, which is a big improvement on Russell having to go to site and open and close gates through the day and night. The software sends regular status updates and if there are any problems, the system will send a text message to Russell's phone.

"Having 49 bays to irrigate and eight control checks, automation is essential with fast flow watering"
"Installing automation - feel good knowing it's the best I can do with no further effort"
"Decreased waterlogging, crops stronger and yields increased, my maize production has gone from average 15t/ha before installing this system, to 26-27 t/ha"
"We had funding for the first section we converted, but it was so good we paid for the rest and didn't want to wait until the farm was fully automated!"

Farm 2: **Irrigator: MacKenzie Craig**
Address: 2098 Barmah-Shepparton Rd, Nathalia, Vic.
Enterprises: Mixed grain and prime lamb
Irrigation system: Border Check
Further information: http://www.rubiconwater.com/news/usa-latest-news/farmconnect-customer-wins-top-water-award-usa

An 800 ha (200 ha developed for irrigation) mixed grain and prime lamb enterprise in northern Victoria, Australia. In 2011 they commenced upgrading and automating 130 ha of surface irrigated area to border check layout with Padman bay outlets (Flat Stop) with erosion wings and automated water control using Rubicon FarmConnect. The FarmConnect technology installed includes:

- Sensors which monitor soil moisture to indicate optimal time to irrigate
- Remotely controlled automated field devices to precisely manage water application
- A smart meter connected to their farm turnout which enables them to accurately calculate the volume of water applied by providing real-time flow information
- Cloud-based FarmConnect software which enables the system to be managed from their computer and smartphones
- Working with Rod Smith, NCEA to optimise irrigation application

"I love technology and very comfortable to use it because being a city boy I don't have the experience to rely on, so I use the technology to overcome a shortfall in experience"
"Laugh and learn from failures!"
"Automation in itself doesn't save water, its fast flow and scheduling that will save water, but it's almost unmanageable to do manually"

Farm 3: **Irrigator: Ray Thornton**
Address: 686B Waaia Bearii Rd, Yalca,Vic,
Enterprises: Corn, irrigated cropping
Irrigation system: Pipes through the bank
Further information:
http://www.rubiconwater.com/catalogue/ray-thornton-farmconnect-case-study

Farm of 240 ha irrigating maize, winter cereals, canola and faba beans with a pipe through the bank irrigation system. Bay size is 2 ha (50 m x 400 m) where water is delivered via Rubicon Bay Drive outlet actuators which automatically open and close the gates. Each gate is connected to a farm radio network which can be remotely monitored and controlled. With flow rates of around 12 ML/day (although can be has high as 20 ML/day), the bay run time is around 90 minutes.

"$3000/ha to develop and automate"

"Getting higher yields with less water with automated fast flow system"

"Maize yields 12 t/ha using 6 ML/ha, whereas as with the old system we had lower yields and used 6.5 to 7 ML/ha"

"As the owner/operator I had to automate to continue operating"

Farm 4: **Irrigator: Noel Baxter**
Address: Pyles Lane, Berrigan, NSW
Enterprises: Cotton, maize & sorghum
Irrigation area: 6000 ha's (1000ha PTB)
Irrigation system: Pipes through the bank (PTB).

Noel and Glen Baxter were one of the earlier adopter of cotton in Southern NSW. Previously growing rice, layouts were

Irrigation system:
Padman drop box fitted with a water tight rubber flap, pipe and bubbler combo which is opened and closed with a winch. With a flow rate of 15 ML/day, water runs through the Padman Stop structure into a distribution pontoon (48 beds wide) which fills and spills into the paddock. Each bay is around 5.5 ha, 80.16m wide and around 700m long. There is a continuous slope from top to bottom no difference in the first 50m, mostly 0.05% (1:2000) grade or .06 the flattest we have is 0.03% (1:3000). The country is considered too flat for a bankless channel layout. The PTB irrigation system is simple and relatively cheap to install.

"We have eight portable timers per paddock and you can go any time in the day (set up six or eight timers depending on whether you are working on 6 or 8 hour shifts). For example, set six timers (in lots of two for 8 hours) which will give 24 hours of watering without having to be there. Paddock will water while you're not there!"

Farm 5: **Irrigator: Rob Black**
Address: Farm 536, Kyola Rd, Coleambally, NSW
Enterprises: Maize, cotton
Irrigation system: Automated pipes through the bank (PTB).
Further information:
http://www.padmanstops.com.au/rob-black-explaining-his-thru-the-bank-setup-how-he-uses-our-automation/

The farm has 1366 ha developed for irrigation with only 100 ha of siphon irrigation left, which he plans to convert to PTB's. The PTB irrigation system consists of a Padman Stops PEXL (pipe end also known as a dropbox), 18" (450 mm) pipe and bubbler combo. The drop box is fitted with a water tight rubber flap door, which is opened and closed with a winch and automated using a Padman Stops Portable Dual Timer.

"I grow cotton using beds in bays and automated furrow irrigation. I had a problem: no sleep at night and all those siphons - the solution was an automated system, with portable gate openers and timers. It's the way to go: getting full efficiency is very important"

Farm 6: **Irrigator: Ben Witham**
Address: Mundoora, Eridoune Rd, Coleambally, NSW.
Enterprises: Cotton, beef
Irrigation system: Pipes through the bank

Farming 1100 ha property with 680 ha developed for irrigation. The PTB irrigation system consists of a Padman Stops PEXL (pipe end also known as a dropbox), 450 mm pipe and bubbler combo. The drop box is fitted with a water tight rubber flap door, which is opened and closed with a winch and automated using a Padman Stops Portable Dual Timer. Each gate has a flow rate of 30 ML/day watering 36-40 1.8 m beds with a field length of 700 m.

"It's a labour issue, difficult to find labour to change siphons, PTB's have been the solution"

Farm 7: **Irrigator: Matt Stott,**
Address: Point Farms, Darlington Point, NSW.
Enterprises: Cotton, almonds, popcorn
Irrigation system: Siphon, 100 ha bankless channel – GL Bays.
Irrigation area: 1200 ha

The bankless channel system (GL Bays) has been run for three years, but prefers the precision of siphons ie watering individual rows. The reasons for changing our bankless field back to siphons includes:

1. Wind – field in a windy position (40-50km/hr) and it can blow the water to one side in the bays resulting in 1/2 the bay underwatered.
2. Soil – good soils that sub well so don't need a bankless system to improve subbing.
3. Design of bankless is critical for even water flow, "Everything has to be 100% right".
4. Find siphons easier to manage on our farm

Farm 8: **Irrigator: Peter and Dallas Stott,**
Address: Whitton Rd, Whitton, NSW.
Enterprises: Cotton
Irrigation system: Bankless channel – furrows across bays with rollover banks & furrow along bays.

Site 1: Andersons Block, 311 ha furrows across bays with rollover banks, where banks are replaced with a low road with a shallow feed bankless each side. High flow rates means water on and off each field in 10 hours per 25 ha bay and water moves into next bay (150 mm step between bays) eventually the main supply is turned off and the drainage water irrigated the last bay with no further tailwater. This system can be easily automated. Bay size ranges from around to 25 ha to 10 ha.

Site 2, near house: traditional terrance beds in bays (furrow along bays) where water is pushed into the field via a bankless channel, once beds have subbed, gates into the next bay are opened and the water drains back through the gate into the next bay. Bay size is about 10 ha, run length 440 m, 136 x 1.8 m beds per bay. With an interest in automation and electronics, Dallas along with his brother-in-law, Andrew have developed their own automation to open and close the gates between bays.

"Our favorite design is the Mike Naylor roll-over system where we have no tail water to recycle and long machinery runs"
"We have the ability to use fallow fields as a temporary storage in the bankless systems"
'We can successfully grow cotton in poor subbing soils using a bankless irrigation system"

Farm 9: **IREC Field Station and Regional Trial Site**
Irrigator: Richard Stott
Enterprises: Irrigated crop/trials, cotton.
Irrigation system: Bankless channel – furrows across bays with rollover banks

A 35 ha bankless development consisting of a beds in bankless layout with roll over banks. Automation includes Rubicon ultrasonic depth probes and BayDrive fitted to a Padman Stops PE900 pipe ends and maxi flow 1200 mm center sections on rollover beds in bays. A BayDrive is a remotely operated farm channel gate actuator designed to automatically open and close the gates.

Farm 10: **Irrigator: Roger & Tim Commins**
Address: Whitton, NSW.
Enterprises: Cotton, Fish, Malt, Stainless steel tanks, Biochar stoves
Irrigation system: Bankless channel, siphons

This farm visit blew everyone away! How two brothers have been such a success with their endless ideas which they have been able to put into action. Maximising returns per ML with a change in cropping systems, layouts and now product, with the expansion of their fish enterprise.

They also displayed a steel fabricated model of two surface irrigation layouts - furrow along bays and furrows across bays with rollover banks (see Plate 1).

Plate 1: Models fabricated by the Commins brothers to describe the irrigation layouts, furrow along bays (LHS) and furrows across bays with rollover banks (RHS).

2.0 Evaluation Summary

A comprehensive evaluation was conducted to assess the impact and effectiveness of the tour. Evaluation data was collected through anonymous feedback sheets (refer Appendix A4) that assessed changes in knowledge, aspirations, skills and attitudes (KASA) as a result of attending the tour and through interviews that focussed on participant experiences.

A total of 19 evaluation feedback sheets were received at the conclusion of the tour, a 65 percent response rate.

Evaluation findings will be used to assess the effectiveness of the tour in achieving its objectives and to improve future tours and communication and engagement activities.

The results of the evaluation are summarised in this section.

2.1 Demographics

There were a total of 29 registered participants in the irrigation automation tour, including 13 irrigators, 2 consultants, 8 researchers and development officers and 6 retailers (Refer Figure 1). While we had hoped to attract irrigators from across the cotton, dairy, sugar and rice industries, we ended up with only 1 person from Dairy, Monique White, a consultant with Dairy Australia. Unfortunately no sugar industry people attended due to a clash with sugar harvest, however they hope to send some sugar irrigators to the Northern NSW Smarter Irrigation Technology Tour to be held in February 2017. The Rice Growers Extension and Development Officer, Gay Plunkett was able to join the group on the final day. The consultants and retailers who attended service all four industries.

Participants came from regions right across Australia including Western Australia (4), South Australia (1), Victoria (5), NSW (13) and Qld (6). Irrigators were from six different irrigation regions as shown in Figure 2. The irrigators and consultants who responded to the evaluation managed around 20,000 ha land developed for irrigation.

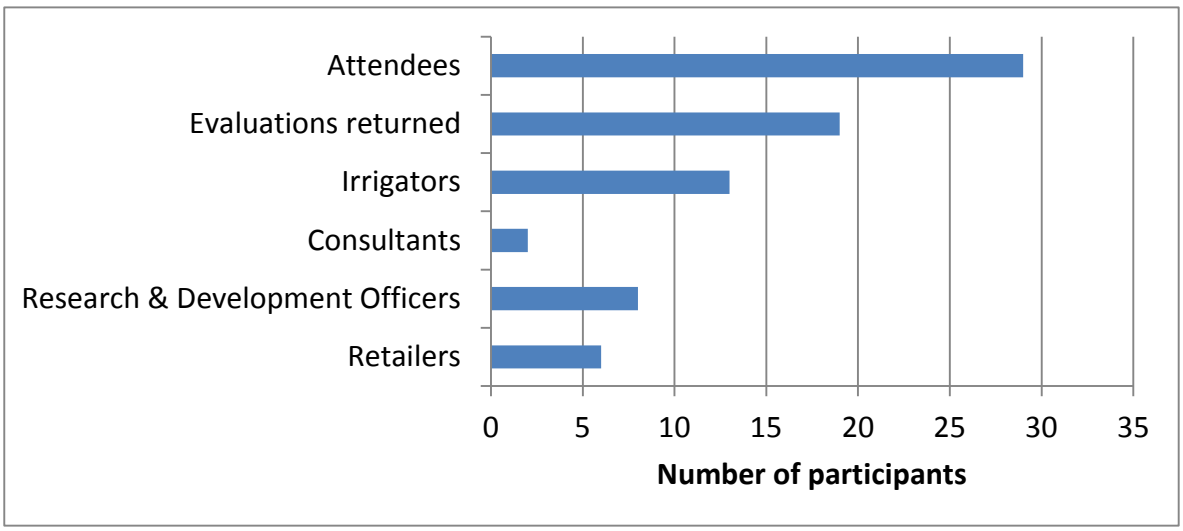


Figure 1: Classification of evaluation respondents who attended the 2016 Smarter Irrigation Technology Tour

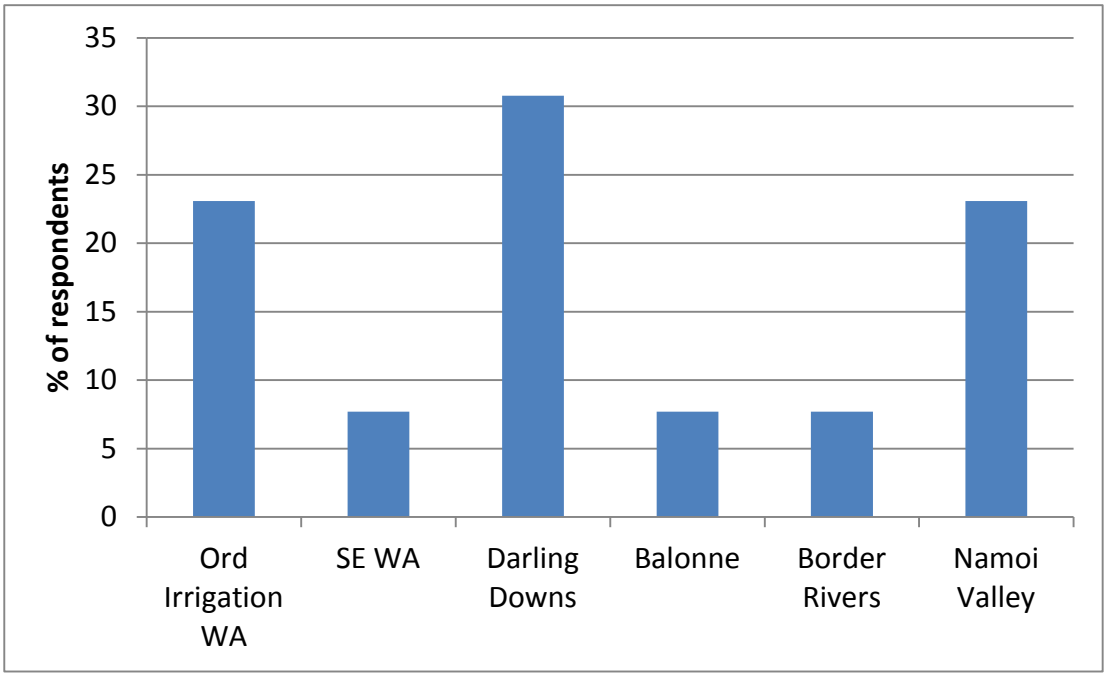


Figure 2: Distribution of irrigators who attended the tour across the irrigation regions

2.2 Event publicity and reasons for coming on the tour

While 33 per cent of participants heard about this tour through CottonInfo (refer Figure 3), 40 per cent found out through other means including Irrigation Australia, Rural R&D and local irrigation schemes.

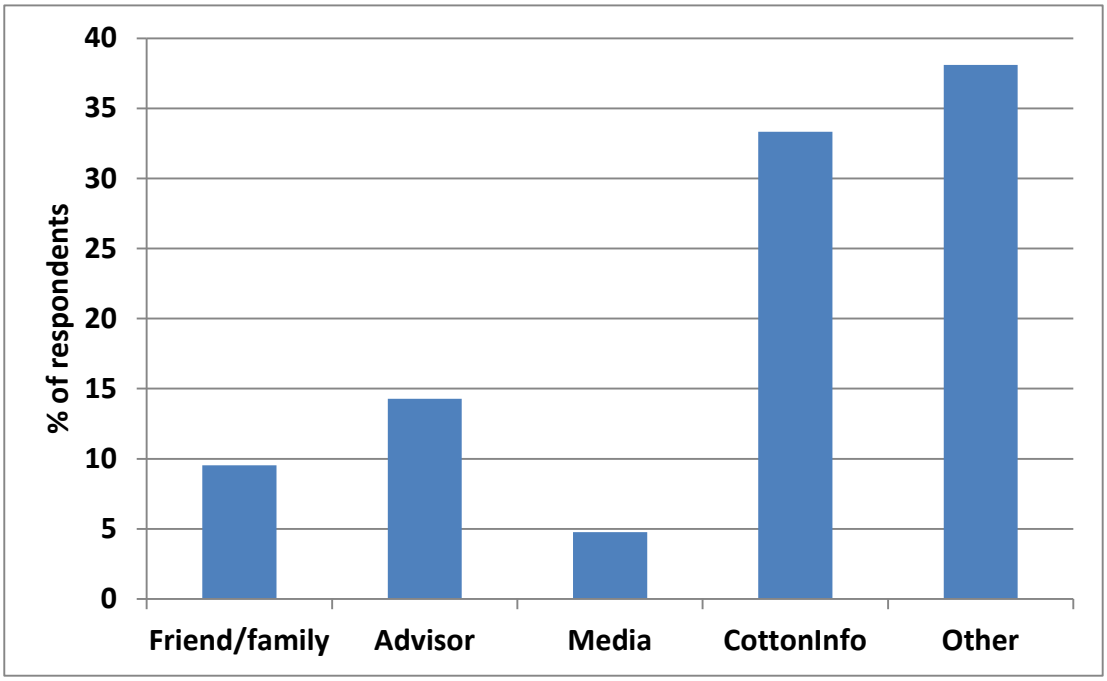


Figure 3: How participants heard about the 2016 Smarter Irrigation Technology Tour

Participants were asked what their main reason was for coming on the tour and their responses are presented in Table 1.

Table 1: What was your main reason for coming on the tour?
Understand on-farm irrigation systems better & see government's investment on ground.
Education, engage with irrigators
Learn about other irrigation methods
Education
To find new ways/techniques for our irrigation needs
Look at automation of fast flow irrigation to inform redevelopment
To see what communication technology was being used to automate farming/irrigation systems eg radio, wifi, cellular.
To see if we can support the tour with pump efficiency/supply/ Communication, energy check
Seeing what other irrigation options are out there
Best value for water management
To improve my own irrigation system through both WUE and labour/energy savings
Learn about different irrigation systems and automation
Look for new ideas on automation
Learn about other irrigation systems in other industries
Find new technologies to use on farm to cut down costs (for example, labour)
I was requested to come along, but I was keen to see advances in technology and pasture in southern regions.
To see how irrigating was done in a different region
Interest in irrigated systems
Hearing from other growers and making new contacts

Ken Carrigan, Boomi
100km north of Moree
I have seen the conversion from a grazing enterprise to irrigated and dryland cropping.
I'm here to see the new innovations that are going on in the south for best value for our water and hopefully take some of those ideas home if they are affordable to our farm.

Greg Bender Chinchilla
Our farm is just south of Chinchilla and we had irrigation on overland flow development. There was an opportunity to take delivery of treated CSG water and over the last three years develop the whole farm for irrigation. Ninety % flood. Recently put in a large lateral move that covers 600 ha, 1220m wide! Here to have a look. Now that I have the flood country up and running , workload in running this area and looking for ways to improve efficiencies. Just to see how it's all done down here.

Nathan Hewitt, Macalister, Darling Downs
Primarily irrigated cotton. Due to the general lay of the land, fields a bit smaller, fair few gradient changes from one field to the next. Not always suitable for overhead irrigation. Looking to see if we

can get some labour savings and try to get rid of some of the inherent problems of flood irrigation (deep drainage and water logging).

2.3 Current and future irrigation automation on-farm

Only one tour participant had automated parts of their surface irrigation system, adopting Padman Timers on Mait gates.

Participants were asked what new automation technologies they were considering on their farm and their responses are provided in Table 2. They were also asked what other automation ideas show promise for the cotton industry, see Table 3.

Table 2: What new automation technologies are you considering for your farm?
Underbank with pontoons
Padman, Rubicon and Mait Demo for next discussion group
Very interested in the fast flow adoption
Pipe and riser system with programmed start/stop
Remote pump stations and flow meters
Extension of rubicon system
Small things from trip to our farm
Bankless channel, PTB, smart siphon, SPTB
Rubicon - channel level and distribution automation, Padman Stops - Portable timer operated openers
Remote monitoring
Water Level Sensors
PTTB systems for flood irrigation
Sensors from Rubicon

Table 3: What other automation ideas show promise (may not suit your system) for the cotton industry?
Double feed rollover bakless channel
"The system", one app that does weather and SMM and outlets, pumps etc
Padman stops with automation
Rollover system, anything that gets water on and off quickly, automation that prevents over-watering
Padman stops with timers
Changing from siphons to flat fields
They all show promise, just capital expense is the limiting factor for both land levelling and autonomous/telematic infrastructures needed, particularly for bankless irrigation
Dallas Stott - dual feed rollovers
Gate control
Padman stops
Roll over system or bankless irrigation
Rubison for internal farm channel systems
Bankless irrigation

2.4 Smarter irrigation technology tour - content and delivery

Overall, participants indicated that the field days had met their aims and expectations. Ninety five % of respondents either agreed (32%) or strongly agreed (63%) that their aims and expectations of the tour had been met as shown in Figure 4. Field day participants found the presentations to be of a high standard and delivered at a level they could understand (Figure 4). All tour participants found it beneficial to visit farms in other irrigation sectors as shown in Figure 5.

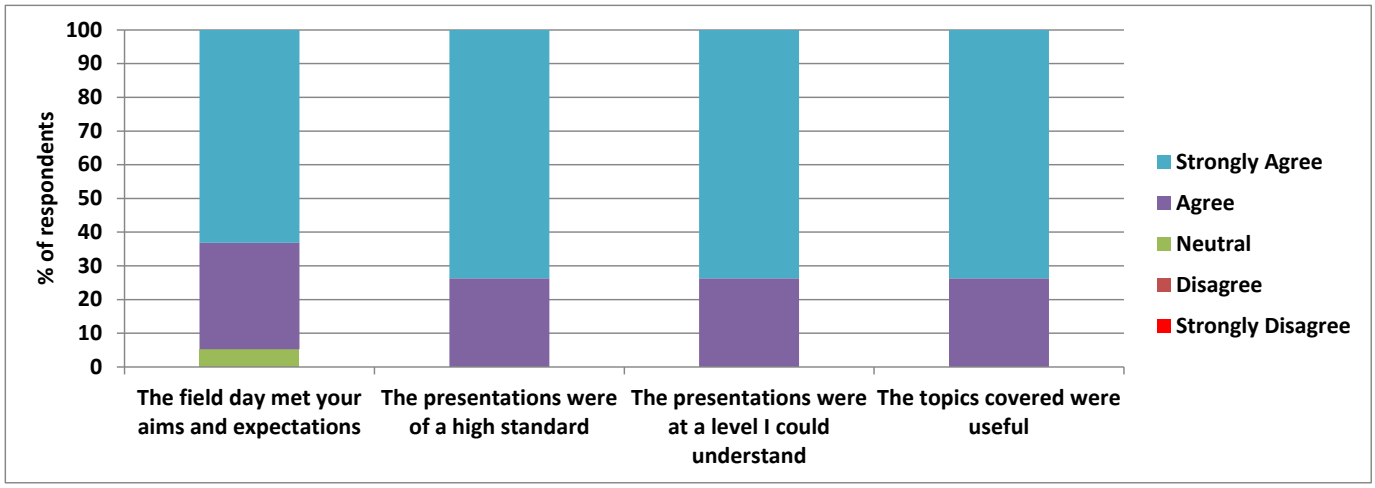


Figure 4: Tour content and delivery including ability to meet aims and expectations and standard of presentations

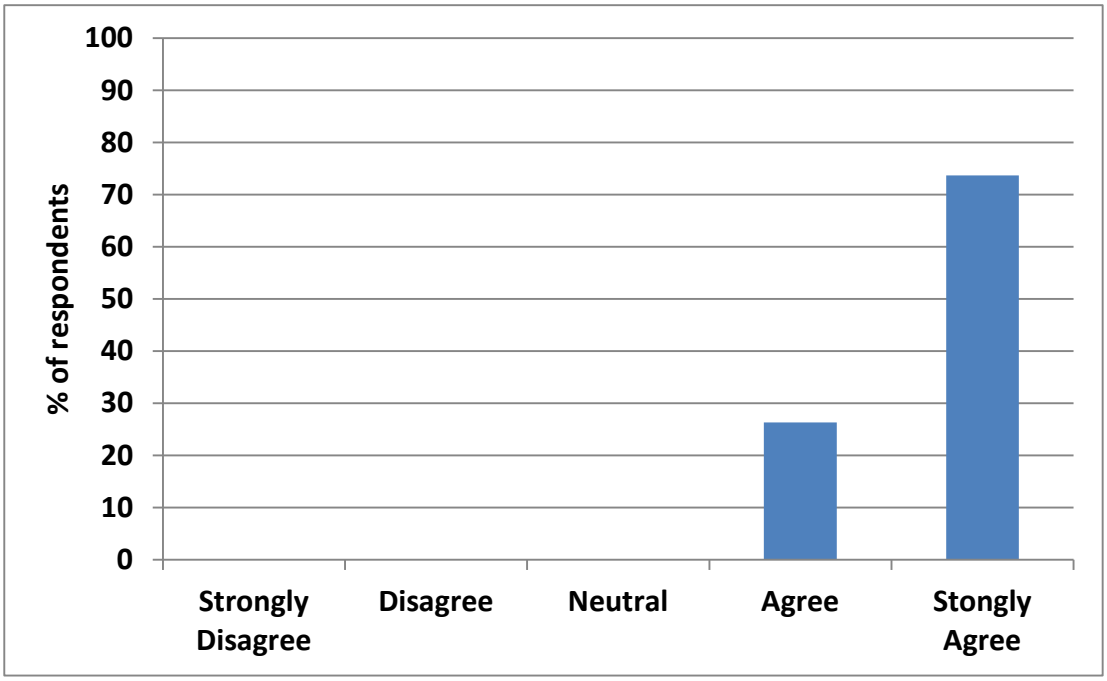


Figure 5: Was it beneficial to visit farms in other irrigation sectors?

Respondents were asked to provide suggestions on what improvements could be made to make the tour days more useful to them. The responses were:

- More varied crops, but perhaps not realistic with constraints
- You had high quality presenters, it is then up to the participant to get information out of it
- Possibly having the options so farmers can see/evaluate the water flow movement
- Would have liked to see more piped systems but understand primarily cotton, open channel tour
- I would have liked to have been here for the whole tour
- Have growers discuss their figures for cost of development, payback period and water savings or yield increase. Other than that, nothing it was great
- Although very interesting maybe a couple less of the really small irrigators
- Little bit more time on agronomics
- Cotton industry focus
- Include overhead systems for cotton; include hard research data on bankless channel performance
- Being more related to cotton

2.5 Automation tour - changes in KASA (knowledge, awareness, skills and aspirations)

To identify changes in knowledge, awareness, skills and aspirations, partipants were asked:

1. to indicate their level of confidence in automated technologies;
2. their level of understanding and knowledge of irrigation technolgies and how they could be used on their farms; and
3. their level of knowledge of the auomation technologies currently available in the irrigation industry both before and after the tour.

Figure 6 shows that tour participants had an increase in confidence, level of understanding and knowledge of automation technolgies as a result of participating in the 2016 Smarter Irrigation Technology Tour. In fact the group's average level of confidence in automation technologies doubled as a result of going on the tour. The individual responses are provided in Figure 7. Sixty-five% of participants stated that their level of confidence in automation technologies had shifted from basic to good (Figure 7a).

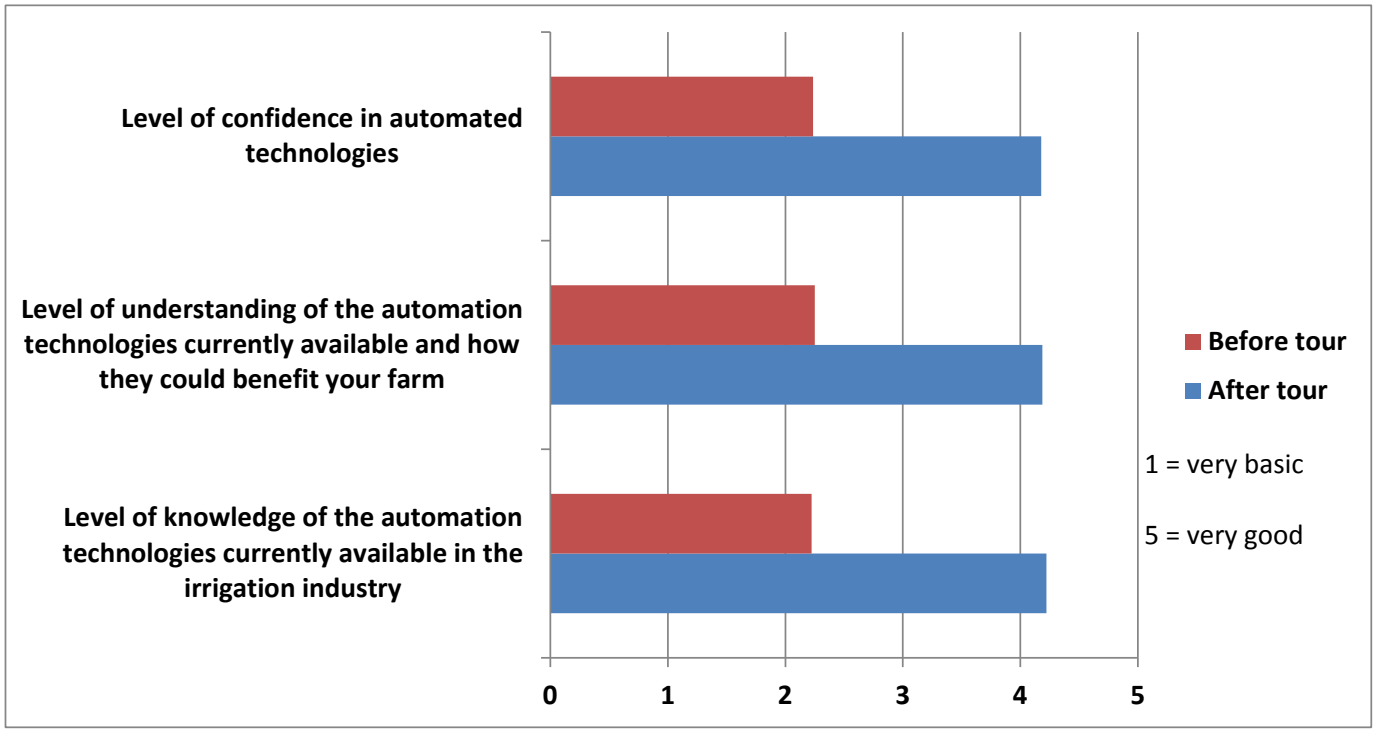


Figure 6: Average level of confidence, understanding and knowledge of irrigation automation technologies before and after attending the irrigation automation tour

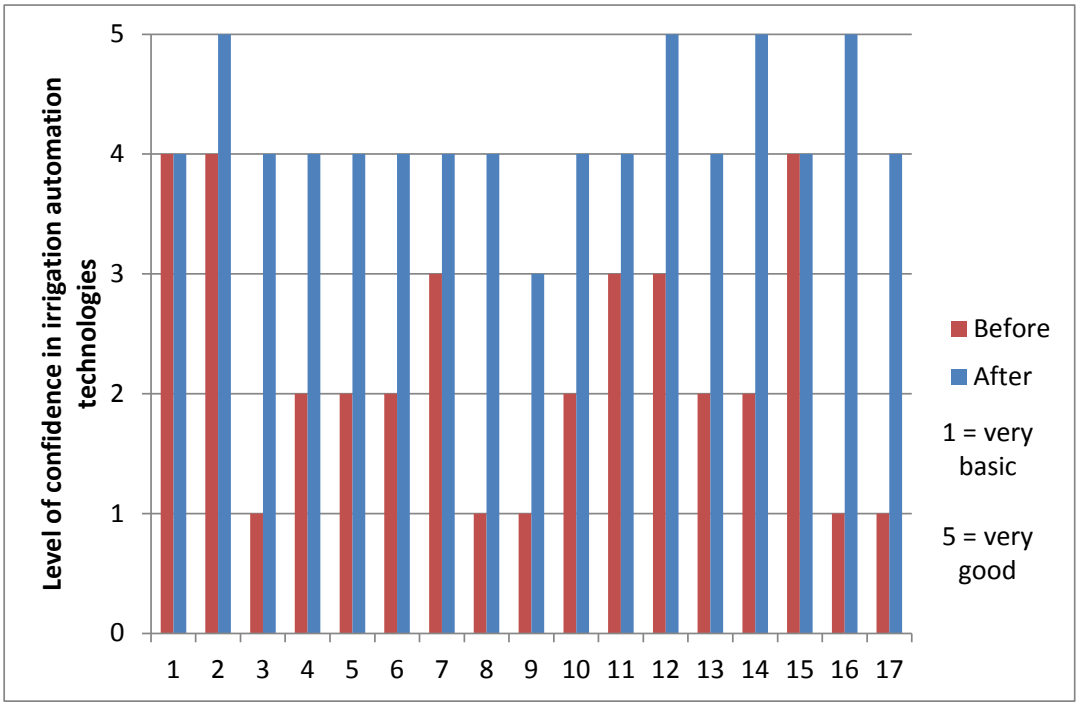


Figure 7a: Individuals change in level of confidence in irrigation automation technologies before and after attending the irrigation automation tour

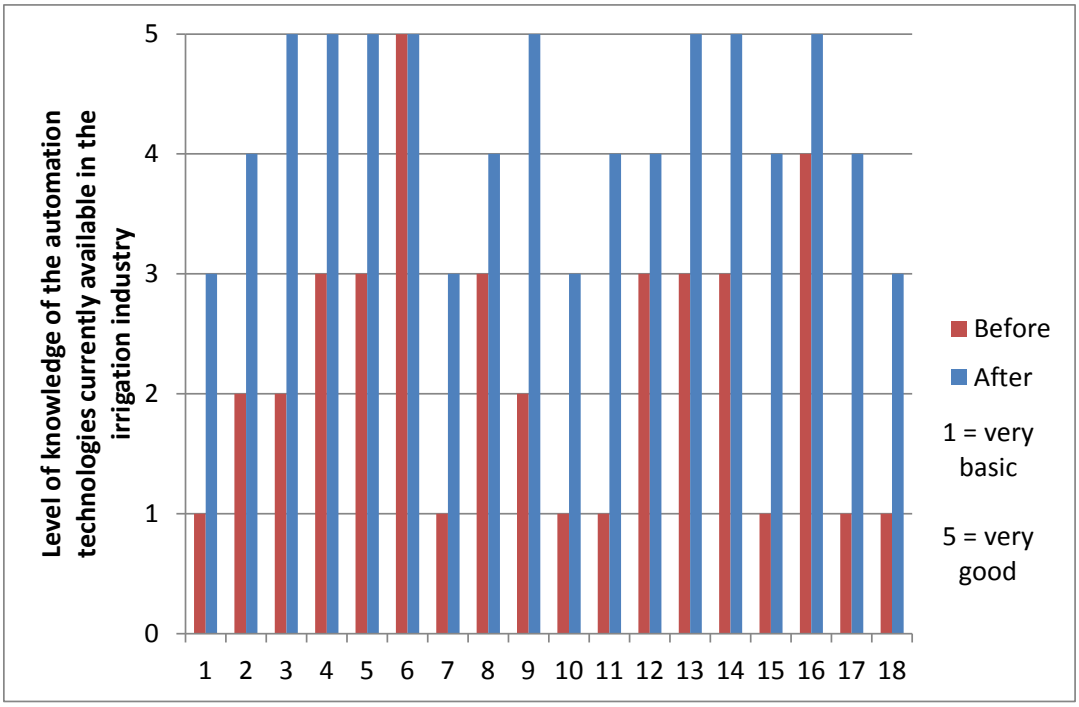


Figure 7b: Individuals change in level of knowledge of the automation technologies currently available in the irrigation industry before and after attending the irrigation automation tour

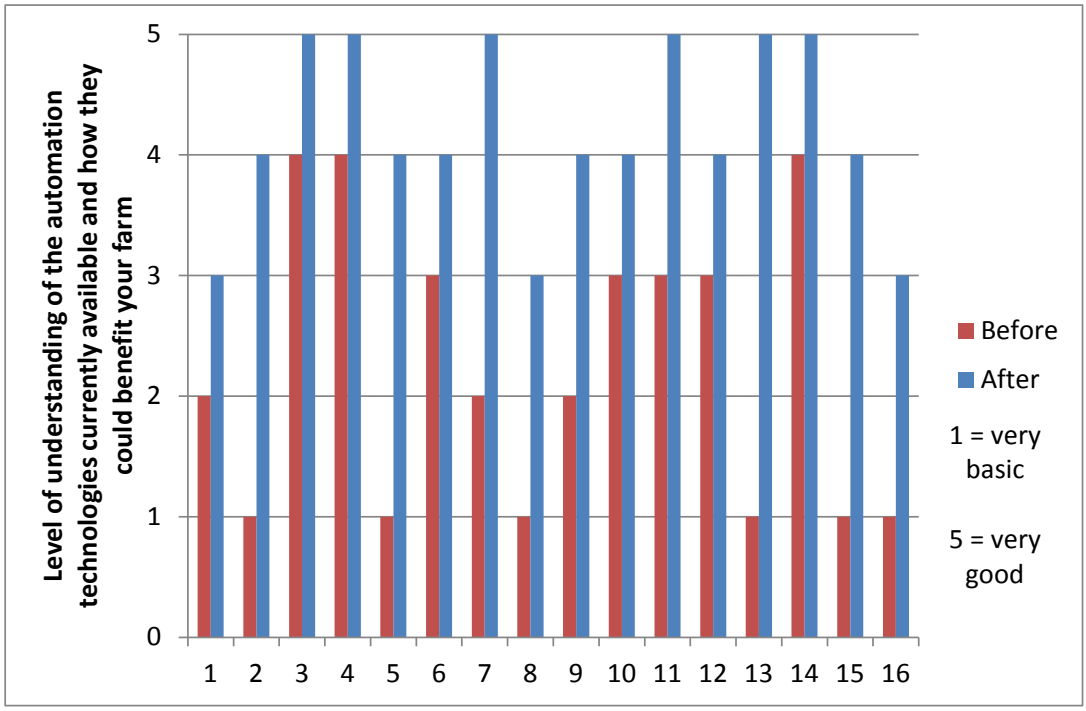


Figure 7c: Individuals change in level of understanding of the automation technologies currently available and how they could benefit their farm business before and after attending the irrigation automation tour

2.6 Increase in potential efficiencies as a result of adopting automation

Participants indicated that automation could potentially result in labour and water use efficiencies. They suggested that that labour efficiency could increase between 10-80 % and water use efficiency between 0-40% (see Table 4). Individual responses from participants are provided in Figure 8.

Table 4: Percentage increase in labour and water use efficiency you believe you could achieve by adopting automation in your surface irrigation system

	Percentage increase in efficiency		
	Minimum (%)	Maximum (%)	Average (%)
Labour efficiency	10	80	48
Water use efficiency	0	40	17

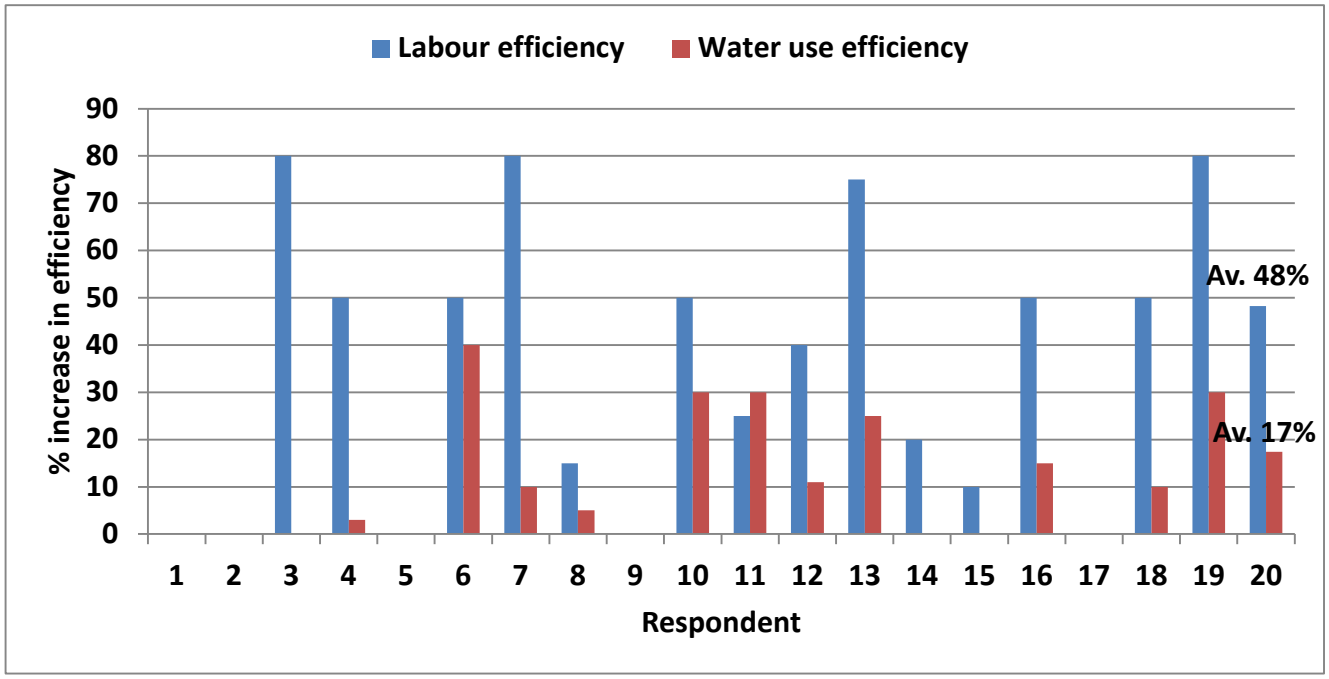


Figure 8: Individual responses from participants on expected labour and water use efficiency gains with automation. Average response was 48% for labour and 17% for water.

2.7 Barriers to adoption

While there was significant interest in irrigation automation technology by tour participants and a genuine desire to adopt some level of automation, participants indicated a number of barriers to adoption as described in Table 5, with cost of automation and re-development being the greatest barrier to adoption.

Table 5: What are the barriers to adopting automation in your (clients) farm business
Our water provider doesn't have automated delivery
Business profitability, commodity price, Business growth stage
Existing layouts
Telemetry would be an issue with limited phone/sms coverage
Cost/ha, also until now, not having piped infrastructure on farm
Reliability of water, telecommunications
Price, 10 different crop types! (Horticulture)
Converting full siphons to bankless
High cost of the automation infrastructure, cost of levelling due to uneveness of our fields, trust in sensors for when an uneven change is 'finished'
Cost, reliability, internet speed, mobile phone reception
Reliability and economics
Furrow irrigation systems not much to automate
Cost of the system. Need to do trials to test if it will work.
Costs, confidence of cost:benefit, accessible backup & support
Being able to water small sections of paddock in research trials
Size

2.8 The value of the tour to irrigators and consultants

The tour continues to deliver important benefits to the irrigators and consultants who attend. This is demonstrated by participant responses when asked what they found most valuable from the tour. The main response was the opportunity to see and hear direct from farmers who have changed their layouts and adopted automation technologies providing first-hand experience. The responses are provided in Table 6.

The tour provided an opportunity to get irrigators in contact with researchers and consultants. Having a bus to transport participants around the various farms provided the perfect avenue to start conversations between the various groups as did the tour dinners at the end of each day.

The long haul between Moree and Shepparton and the return trip from Griffith to Moree once again provided over 10 hours of interaction between irrigators, consultants, NSW DPI and CottonInfo. There were great conversations about their enterprises, potential for layout changes and automation. The 12 hour trip to Shepparton and the return 10hrs from Griffith went remarkably quickly- evidence of good company and interesting conversation.

Table 6: What did you find most valuable from this tour?
Seeing different irrigation systems & technologies first hand
Ability to ask questions and engage with irrigators who were happy to discuss the basics
Irrigation technologies, the contacts and having everyone from farm designers to manufacturers on the tour
Farmer confidence/profitability
Wednesday & Thursday
Meeting new people and the fields covered by them - Knowledge!
Exposure to commercial providers
Good contacts from the tour
Seeing irrigation types in person. Talking to the other participants & learning from them.
Visiting different farms and their way of changing to a better system
Hearing 1st hand the actual problems to be encountered with each system, and governing factors behind which method to use.
Seeing level sensing technology working in large schemes, Rubicon and distribution working.
Looking at different farm layouts
Seeing different systems working & hearing farmers experience
People you meet in the industry and the farm tours
Networking
Learning about automation and the use of Padman Stops in irrigation
All. Seeing how others made irrigation systems work.

"The main reason I came on this tour was to see what else was out there. In Kununurra we are very isolated and it's hard to go out and see what's available. To have the opportunity to see different set ups in different industries. There's always something we can learn from other people. There's no need to reinvent the wheel. Some of the set ups we saw – I don't how we can apply them on the farm, but it has given us a lot of ideas to do or even trial" **Christian Bloecker, Bothkamp Australia Farm, Kunanurra:**

"The reason I like this system (Noel Baxter's Pipe through the bank) is because it's so simple and cheap to install. At present we are flood irrigators with traditional siphons and rotabuck areas and a lot of labour requirements. This system is so easy to install and trial on-farm. Basically we would grade out our rotabuck area into a pontoon, install a PTB with the right equipment and give it a go. I can't believe that such a simple system works so well. I can't wait to get this system at home and try it" **Ian Hayllor, Dalby**

"Portable timers are terrific, especially in the cotton industry as you are only growing cotton every second year, so your technology is not tied up and invested in only one field. You can pick it up and move it to different fields every year, which spreads the cost of innovation" **Martin Mead, Auscott, Narrabri**

"Gave us a great chance to see the benefits of the programs. Rural R&D for Profit program – 2 rounds already $80 million – funded some of the research and innovation that we've seen on the tour.

Great opportunity to engage with the farmers, see the programs and funding in action. Given us a lot to take back to Canberra – motivation and general awareness of what our funding does" **Brett Ward, DAWR – SRWUIP**

2.9 Changes as a result of attending the tour

Ninety-three % of respondents plan to do something differently as a result of attending the 2016 Smarter Irrigation Technology Tour (see Figure 9). Many are keen to do a small trial of automated pipe through the bank (see Table 7). Other responses indicated the potential adoption of irrigation best practice such as engaging a professional to help with irrigation layout design and evaluating system performance.

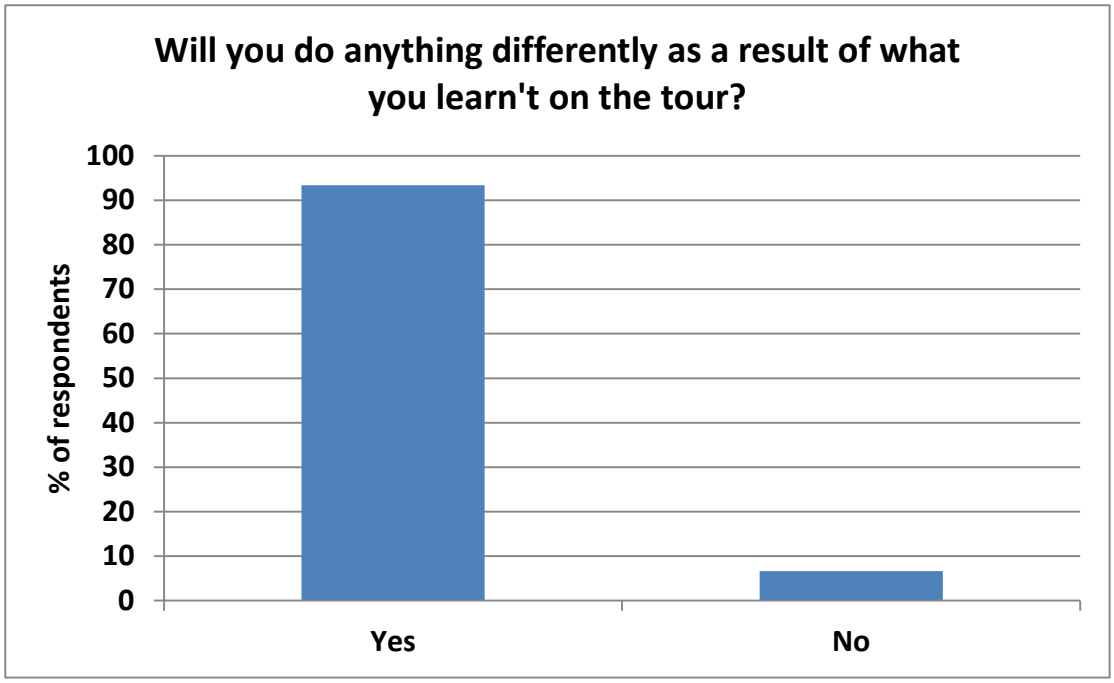


Figure 9: 93 per cent of respondents plan to do something differently as a result of attending the 2016 Smarter Irrigation Technology Tour

Table 7: What will you do differently as a result of what you have learnt on the tour
Recommend surface water irrigation as an efficient water use alternative to my farmer friends
Trial with underbank and pontoons
I will be able to talk confidently about a wider range of systems
Follow more closely the effects associated with water logging
Engage an irrigation designer for design of the bays
Need to do further reading and chat to service providers
Talk to Rubicon, buy automated weather station, do more research into distribution manifold system
Small test on farm
Start preparing some small trials of our own of various systems
Check lateral move performance, apply telemetry to lateral, install larger pipe through bank system.
Adopt remote monitoring
PTTB look worth trying. A permanent siphon will also be tried
I want to do a trial on the PTB system and see if we can use it at home
Provide better informed advice
Fit Padman stops

2.10 General comments

The evaluation provided an opportunity for participants to provide general comments regarding the tour. A list of these comments is provided in Table 8.

Table 8: Further comments
Roger Commins was brilliant!!
Thanks
Great organisation by Janelle. Fantastic commentary by Mike Naylor & John Padman especially. Good Company. Well done.
Capital cost of a pump is 10% cost of the life of a pump. Farmers using pumps can be educated on the running cost.
Our hostess and assistants were great
Great tour, very well run & coordinated. Will be waiting to see smart siphons and SPTB/permanent siphons in the near future.
A well organised, well run, fast paced, interesting tour, thankyou Janelle, Amanda and Peter
Well organised and managed tour

2.11 Gaps in irrigation research

Importantly, a tour of this kind provides an opportunity to identify current gaps in irrigation research. It was evident on this tour that there is a lack of basic understanding of the types of surface irrigation layouts and their hydraulics. The irrigation industry requires further research into the main surface irrigation layouts to examine suitable soil types and slopes for the various designs. Their performance needs to be evaluated in terms of application efficiency, evenness of application (distribution uniformity). There is good interest in alternative systems and people are looking at bankless channel and pipes through the bank for increased labour efficiencies, but in terms of optimised application, siphon irrigation was always considered the key for maximising water efficiency. New in-field designs for bankless and PTB's appear to be improving the performance of these layouts, but measurement is necessary.

Tour participants were asked to list current gaps in irrigation research. These included:

- Evaporation reductions
- Coordination across farms and regions
- Some lack of confidence in efficiencies of the systems and uniformity achieved. Fill these gaps & look at holistic efficiencies, water, energy, labour of the system
- Seems to be a gap between layout/engineering & crop agronomy
- The time frames or penetration levels in soil content need a basis for new farmers
- Communication systems
- Water deficit vs yield, water applied NUE of gas vs granular
- Although working on them, scheduling i.e. need versus time
- Looking at reducing evaporation losses
- Testing if these systems will work on the soils we have on the Darling Downs
- Bankless channel performance, water efficiency and financial benefits of automation
- Trying the new technology on all soil types

3.0 Post Field Day Evaluation Material

3.1 Emails

Thanks so much Janelle – it was a great week. I hope you have caught up on some rest.

The Lower Murray Farmers had a look at the tour booklet and a few photos last night and are planning for a review of the tour at their February discussions group meeting

Monique White, Dairy Australia

Hi Janelle,
Thank you very much for such an enjoyable and informative week, it was the first time I had visited the area and was impressed with what we saw. I will certainly be looking at what system we can try on farm and will report back on what the results were.
Cheers,
Ian Hayllor, Darling Downs.

3.2 Actions from 2015 Automation Tour:

- What capacity is there for Smart Irrigation Project to follow up on barriers to adoption? Key things capital, cost and trust in equipment to automate. Can Smarter Irrigation project put some information together on these issues? Previous research, proforma on how to work out costs?
- Plan for factsheet publication that describes irrigation system design, layout and automation at each farm site – will be used for IREC Southern Automation Tour **– Completed, 2016 Smarter Irrigation technology tour Booklet** **http://www.cottoninfo.com.au/publications/water-smarter-irrigation-technology-tour-booklet**
- There is opportunity for Rural R&D Irrigation project and STBIFM to publish a couple of stories specific to their programs e.g. one on Russell Pell, dairy farm, also STBIFM proponents
- Southern growers couldn't go on tour due to harvest. There was interest, so plan to run another Automation Tour in February. **– Successful tour in February with 55 people attending.**
- Plan a northern Surface Irrigation Automation field day at Waverley, Wee Waa this season with NCEA and Rubicon **– Completed March 2016**
- Cotton Conference and IAL conference may be opportunities to promote automation technologies **– Session 7b: Fresh Approaches to Crop & Water Management at Cotton Conference included presentation by Joe Foley on irrigation automation and Ben Watson, 1st steps to irrigation automation.**
- At IAL Guy Roth is sponsoring a workshop to showcase some of the smarter irrigation projects. Might be an opportunity to look at capital costs and get discussion/feedback to designers/manufacturers
- Follow up in 4-6 months with growers/consultants to see what they have done as a result of attending the tour **– Completed.**
    - **Murray and Ben Watson, Wee Waa delivered a presentation at the 2016 Cotton Conference** **http://www.australiancottonconference.com.au/presentationspapers/2016-proceedings/watson-ben/**
    - **Case study on Tom Siddins (in press)**
    - **Article in Spotlight Magazine on Ralph Grey** Jensen, M. 2016. Having a field day with innovation…, CRDC Spotlight on R&D, Winter 2016, pp 23, **http://www.crdc.com.au/publications/spotlight-magazine-winter-2016.**
    - **Case study on Ralph Grey (in press)**

4.0 Actions as a result of the 2016 Smarter Irrigation Technology Tour

The 2016 Smarter Irrigation Technology Tour has been successful and generated further interest in surface irrigation automation. It's important that CottonInfo, STBIFM, Rural R&D Irrigation project capitalise on the interest generated from these tours and keep the momentum which has been created.

4.1 Communications:

A number of communication products have been developed post field day. A list is provided below with hard copies included in Appendix A5.

4.1.1 Tour Booklet

Montgomery, J., Waterman, A. & Redfern R 2016. "2016 Smarter Irrigation Technology Tour – Sth NSW", http://www.cottoninfo.com.au/publications/water-smarter-irrigation-technology-tour-booklet

4.1.2 Media – Magazine, newspaper and website articles

Waterman, A. 2016. "Smarter irrigation technology tour – lessons from the south", Australian Cotton Grower Magazine, Feb/Mar 2017

Waterman, A. 2016. "Smarter irrigation technology tour – lessons from the south", Spotlight Magazine, Autumn 2017

Waterman, A. 2016. "Irrigation funding program informs, educates and engages irrigation communities", IAL Journal, Autumn 2017

Waterman, A and Montgomery, J. 2016 "Smarter irrigation technology tour – lessons from the south", NSW DPI Active, 16 December 2016

4.1.3 Social Media

- Twitter – a number of tweets related to the event were sent from members of the CottonInfo and NSW DPI STBIFM team. A selection is provided in Appendix A5.
- A selection of photographs of the event are available on-line https://www.dropbox.com/sh/lo1qefhpchcs2di/AAAtWHDOh0b1ArXiFlm_km42a?dl=0

4.1.4 Video

- Verwey, P., Waterman, A. & Montgomery, J. 2016 Smarter Irrigation Technology Tour – Overview (to be posted on CottonInfo website http://www.cottoninfo.com.au).
- Verwey, P., Waterman, A. & Montgomery, J. 2016 Smarter Irrigation Technology Tour – Automating Surface Irrigation System (to be posted on CottonInfo website http://www.cottoninfo.com.au).

4.2 Future factsheets

- NSW DPI and CottonInfo in collaboration with Padman Stops, Rubicon and Mike Naylor (Irrigation Designer, Leeton) will develop 4 fact sheets describing the design and hydraulics of four surface systems:

- Pipes through the bank
- Furrow along bays
- Furrows across bays with rol over banks
- Bankless GL Bay

4.3 Future events

- 2016 Smarter Irrigation Technology Tour – Nth NSW
- GVIA Annual field day
- Farm walks Smart Siphon trials

Conclusion

The 2016 Smarter Irrigation Technology Tour was a successful capacity building activity. Fifteen irrigators and consultants and 14 research and development officers increased their knowledge and understanding of the automation equipment currently available. Importantly they also have an increased level of confidence in using automation since hearing from farmers who have already automated their surface irrigation systems.

While all of the tour participants indicated that they would like to adopt some kind of automation to their surface irrigation systems in the future, the greatest barrier to adoption is the cost of automation and re-development. A number of irrigators indicated that they would conduct a small trial before moving to a larger development. Adoption of automation systems can be carried out over a number of stages.

This tour was an example of how a number of project teams (CottonInfo, NSW STBIFM and Smarter Irrigation for profit) working in collaboration can connect growers and researchers, not only to provide an avenue for growers to learn about the latest irrigation research, but for researchers to receive feedback about their current and future irrigation research needs.

Appendices

2016 smarter irrigation technology tour

Southern NSW

Are you an irrigator or consultant with an interest in surface irrigation layouts, automation and irrigation management technologies? Want to see these tools in action, meet the experts, and go on farm with growers using them?

Following the success of the 2015 Cotton Irrigation Automation tour, CottonInfo has joined forces with CRDC, RIRDC, Dairy Australia and Sugar Research Australia to showcase the research currently being undertaken within the *Smarter Irrigation for Profit* project.

Join us for three full days of farm visits in northern VIC and southern NSW to see various irrigation layouts and automation technologies already in use in the southern irrigation industry - plus technologies used to improve irrigation management - in action.

Travel with irrigators from the cotton, sugar, dairy and rice industries along with irrigation design and automation specialists, including NCEA researcher Malcolm Gillies; Rubicon's Peter Moller and David Robson; Padman Stops' John Padman; and Leeton irrigation designer Mike Naylor.

Hear about the latest innovations from irrigation researchers Mike Morris, DEDJTR; Malcolm Gillies, NCEA; Sam North and John Smith, NSW DPI; and Monique White, Dairy Australia.

DID YOU KNOW? Automation delivers substantial labour savings and labour efficiency, and precise control of flows and water levels throughout the farm.

DATE: Monday 5 to Friday 9 December 2016

LOCATION: Shepparton VIC to Griffith NSW. Places visited will include:

- Rubicon Farm and Factory Tour, Shepparton;
- Padman Stops, Strathmerton;
- Farm visits in Northern VIC, and at Coleambally and Griffith; and
- A visit to the IREC field station at Whitton.

TRAVEL: Travel between Shepparton and Griffith will be via coach. Growers can choose to join the coach travelling to Shepparton, which will be leaving Moree on the morning of Monday 5 December, and stopping along the Newell Highway. Growers do have the option to make their own way to Shepparton on Monday 5 December to join the tour, which commences with dinner in Shepparton on Monday evening.

COST: $550 (inc. GST) including all travel (coach from Shepparton to Griffith), accommodation and meals during the tour.

FURTHER INFORMATION:

- NSW DPI STBIFM: Peter Verwey, NSW DPI, 0409 812 497, peter.verwey@dpi.nsw.gov.au
- COTTON: Janelle Montgomery, CottonInfo, 0428 640 990 janelle.montgomery@dpi.nsw.gov.au
- DAIRY: Monique White, Dairy Australia, 0400 972 206, monique@dairysa.com.au
- SUGAR: Andres Jaramillo, Sugar Research Australia, 0475 973 282, ajaramillo@sugarresearch.com.au
- RICE: Gae Plunkett, rice extension coordinator, 0419 790 019, gplunkett@rga.org.au

TO REGISTER: Go to www.cottoninfo.com.au/events/2016-smarter-irrigation-technology-tour

This project is supported through funding from the Australian Government Department of Agriculture and Water Resources as part of the Rural R&D for Profit and Sustainable Rural Water Use and Infrastructure Programmes, in addition to CRDC, RIRDC, Dairy Australia, Sugar Research Australia, NSW DPI, STBIFM, NCEA, Rubicon & Padman Stops.

Australian Government
Department of Agriculture and Water Resources

NSW Government Department of Primary Industries

NSW Sustaining the Basin – Irrigated farm modernisation

Rubicon FarmConnect

Padman Stops – Innovative Irrigation Solutions

2016 smarter irrigation technology tour: itinerary

Day 1 - Monday 5 December: Travel to Shepparton	
4:45am	Coach departs Moree, NSW, and picks up along Newell Highway.
6:30pm	Coach arrives Shepparton, VIC. Growers making their own way to also arrive. Accommodation: Quality Hotel Parklake, Shepparton.
7pm	Tour welcome dinner: Quality Hotel Parklake, Shepparton.
Day 2 - Tuesday 6 December: Rubicon farm and factory tour. Shepparton to Cobram	
8:30am	**Rubicon:** • Overview of water technology • Overview of the Total Channel Control network, which has been rolled out in the Goulburn/Murray, Coleambally and Murray Irrigation districts • On-farm solutions: FarmConnect on-farm case study • Visit to Rubicon's manufacturing facility and flow test lab (used to pre-test water flow meters)
12:15pm	**Farm visit 1:** Russell and Cathy Pell, Wyuna. Dairy farm, irrigated cropping and pasture.
2:15pm	**Farm visit 2:** MacKenzie Craig, Nathalia. Fat lamb production, irrigated cropping.
4pm	**Farm visit 3:** Ray Thornton, Yalca. Corn and irrigated cropping.
7pm	Accommodation: Barooga County Inn Motel. Dinner at Beach Cafe.
Day 3 - Wednesday 7 December: Padman Stops facility and farm visits. Cobram to Griffith	
8:15am	**Padman Stops:** Overview of irrigation structures and associated automation.
10:30am	**Farm visit 4:** Noel and Glen Baxter, Berrigan. Cotton, maize, automated Padman Stops system.
2pm	**Farm visit 5:** Rob Black, Coleambally. Cotton, maize, pipes through the bank, portable automation.
4pm	**Farm visit 6:** Ben Witham, Coleambally. Cotton, grain, automated pipes through the bank.
7:30pm	Accommodation: Kidman Wayside Inn, Griffith. Dinner at LaScala.
Day 4 - Thursday 8 December: Farms and research facility, Darlington Point and Whitton	
8am	**Farm visit 7:** Matthew Stott, Darlington Point. Almonds, cotton, grains, GL bankless and siphons.
10am	**Farm visit 8:** Tim and Roger Commins, Whitton. Cotton and fish, siphons and bankless.
12pm	**Farm visit 9/Research facility:** IREC field station and regional trial site, Whitton.
2:15pm	**Farm visit 10:** Peter and Dallas Stott, Whitton. Cotton, grains, automated bankless.
4pm	TBC (Overnight in Griffith, or commence journey home)
Day 5 - Friday 9 December: Travel home	
	Travel home. Arrive back in Moree.

Australian Government
Cotton Research and Development Corporation

Dairy Australia
Your Levy at Work

Sugar Research Australia

Australian Government
Rural Industries Research and Development Corporation

University of Southern Queensland | NCEA National Centre for Engineering in Agriculture

IRRIGATION AUSTRALIA

Irrigation Research & Extension Committee

RICE EXTENSION

ITINERARY 2016 Smarter Irrigation Technology Tour – Sth NSW

JANELLE MONTOMERY 0428 640 990

Date	Depart	Arrive	Approx travel Time	Details Accommodation/Meals	Notes
Monday 5/12/16					
	Moree 4.45 am NSW time Reynolds and Fogerty Bus Depot 5 Greenbah Rd, Moree NSW 2400 Phone: 02 67522287 Email: office@moreebus.com.au	**Narrabri** 6:00 am NSW time McDonalds Narrabri Cnr Maitland and Killarney ST Narrabri Phone: 02 67924396	1hr 15 mins	Up to 6 cars can be left at Bus Depot. Secure parking in Moree.	Please be at depot by 4:30am so we can leave at 4:45am NSW TIME sharp. Reynolds and Fogarty Bus Depot is located opposite the golf club (Large white shed on RHS heading south on Greenbah Rd (ie the road to Collarenebri). Secure parking at Moree Bus Depot. Pick up Moree: Ken Carrigan, Nathan Hewitt, Ian Hayllor, Greg Bender, Sean Ryan, Janelle Montgomery 30 min breakfast and pick-up at Narrabri McDonalds Narrabri Cnr Maitland and Killarney St

					Pick up Narrabri : Martin Mead, (Bill Back??) Adam Hatton, Scott Goodworth, Peter Verwey
	Narrabri 6:30 am NSW time	**Coonabarabran** 7:45 am NSW time Park for toilets	1hr 15 mins	15 min rest break at Coonabrabran	Pick up: Peter Smith
	Coonabarabran 8:00 am NSW time	**Dubbo** 9:45 am NSW time Dubbo Visitor Information Centre Macquarie St, Dubbo, NSW 2850 Phone: 02 6801 4450	1 hr 45 mins	15 min break and pick-up at Dubbo Information Centre. Coffee and snacks available at Dubbo info centre. Ph: 02 68014450	
	Dubbo 10:00 am NSW time	**Parkes** **11:30am NSW Time**	1.5 hrs		Pickup: Amanda Waterman
	Parkes **11:30am NSW Time**	**West Wyalong** 1:15 pm NSW time Café Peckish 221 Main St (in McCann Park), West Wyalong. Ph: 02 69724733	1 hr 45 mins	60 min lunch break at West Wyalong. Café Peckish 221 Main St (in McCann Park), West Wyalong. Ph: 02 69724733	Order off menu on the day.
	West Wyalong 2:00 pm NSW time	**Narrandera** 3:30 pm NSW time Narrandera Visitor Information Centre, Cadell St, Narranderra. Ph: 02 69595545 Toilets and snacks, cool drinks, icecream (no coffee).	1 hr 30 mins	30 min break and pick up Narrandera Information Centre	Pick up: Mike Naylor and Monique White.
	Narrandera 4:00 pm NSW time	**Shepparton** 6:45 pm NSW time The Quality Hotel Parklake 481 Wyndham Street Shepparton VIC 3630 Ph: 03 5821 5822	2 hrs 45 mins	Accommodation and breakfast	
	Dinner at Shepparton Parklake			The Quality Hotel Parklake	Dinner sponsored by Rubicon

	Hotel 7:15 for 7:30 pm			for Dinner Sponsored by Rubicon Water. Welcome: Tony Oakes, RubiconWater Background Smarter Irrigation for Profit: Monique White Irrigation Automation Research: Malcolm Gillies	Water Buy your own drinks. Buffet: Carvery pork, lamb, salad or vegetables
Tuesday 6/12/16					
	Breakfast from 6:30am				
	Shepparton 8:00 am Depart Parklake Hotel from Rubicon	**Rubicon** 8:20 am Rubicon Travel to Pells via Goulburn Murray Irrigation Scheme to see flume gates and automation.	Travel 10 mins Rubicon 3 hrs	Morning tea at Rubicon Rubicon 1A Wheeler St Shepparton, 3630 Ph: 03 5820 8800 8:30 Introductions 8:45 Rubicon overview of water technologies Rubicon Water Engineering 9:00am Total channel control (TCC) 9:15am On-farm solutions. Farm connect and on-farm case study. 10:15 Discussion 10:30 Visit Rubicon manufacturing facility and test lab to pretest flow meters 11:15 Depart for farms	Lunch from Saleyard Café Lot 1 Wheeler St Shepparton.
	Rubicon 11:30 am Rubicon	**Wyuna** 12:15 pm Russell and Cathy Pell Dairy farmer, irrigated cropping	Travel 45 Mins Farm visit 1 hr	Lunch provided Farm visit 1 Researcher: Monique	

		and pasture 411 Emily Jane Rd, Wyuna.		White, Dairy Demo Sites	
	Wyuna 1:45 pm depart Pells farms	**Nathalia** 2:15 pm MacKenzie Craig Fat lamb production, irrigated cropping. 2098 Barmah-Shepparton Rd, Nathalia	Travel 25 min Farm visit 1 hr	Farm Visit 2	
	Nathalia 3:15 pm depart McKenzie Craig	**Nathalia** 3:40 pm Rest Stop in Nathalia	Travel 15 mins Rest Stop 10mins	Afternoon tea provided	
	Nathalia 3:55 pm depart	**Yalca** 4:00 pm Ray Thornton Corn, irrigated cropping. 686B Waaia Bearii Rd, Yalca	Travel 5 mins Farm visit 1 hr	Farm Visit 3 Researcher: Sam North, NSW DPI	
	Yalca 5:00 pm depart Thornton's farm	**Cobram/Barooga** 5:45 pm Barooga County Inn Motel Golf Course Rd, Barooga Ph: 03 58734357 Email: info@golfclubmotel.com.au	Travel 40 mins	Barooga County Inn Motel Golf Course Rd, Barooga Ph: 03 58734357 Researcher: Sam North, NSW DPI	
	7:00 Depart Barooga County Inn Motel for dinner	7:00 for 7:30 pm Dinner		Barooga Hotel 2-6 Vermont St, Barooga NSW 3644 (03) 5873 4340	
Wednesday 7/12/16					
	Breakfast from 6:15 am				
	Barooga 7:30 am Barooga Country Inn Motel	**Strathmerton** 8:15 am Padman Stops, 4948 Murray Valley Highway, Strathmerton 3641 Ph: 1800 25 45 94	Travel 40 mins Padmans 1hr 45 mins	Padman Stops, 4948 Murray Valley Highway, Strathmerton 3641 Ph: 1800 25 45 94 Morning tea provided	

				Rest Stop Barooga	
	Strathmerton **10:00**	**Berrigan** **10:40am** Noel & Glen Baxter Pyles Rd, Berrigan	Travel 40 mins Farm Visit 1 hr	Farm 4	Was rice, changed to cotton/maize. Family farm with transport business. Automated Padman stops cropping on beds, PTB.
	Berrigan 11:45 am Baxters	**Jerilderie** **12:30pm** Rest stop and lunch at Jerilderie Bakery 0358861449	Travel Time 30mins Lunch	Rest stop & Lunch	
	Jerilderie 1:30 pm	**Coleambally** 2:15 pm Rob Black Coleambally R & S Black, Farm 536 Kyola Rd, Coleambally, NSW, 2707	Travel 15 mins Farm Visit 1.5 hrs	Farm Visit 5	Pipes through the bank with 450 pipe on 45 foot beds .
	Coleambally 3:45 pm	**Coleambally** 4 pm Ben Witham, Mundoora Ercidoune Rd, Coleambally	Travel 15 mins Farm Visit 1.5 hrs	Farm Visit 5	Pipes through the bank with 750mm pipe, 75 foot beds
	Coleambally 5:30 pm	**Griffith** 6:30pm Dinner 7:30pm	Travel 50 mins	Kidman Wayside Inn	
	7:00 Depart Motel dinner	**7:30am** Dinner at Las Scala, Griffith 455B Banna Ave, Griffith NSW 2680		Dinner Sponsored by Padman Stops	
Thursday 8/12/16					
	Breakfast from 6:15 am				

	Depart Griffith 7:15 am	**Darlington Point** 8:00am Matthew Stott	Travel 30 mins Farm Visit 1.5 hrs	Researcher: John Hornbuckle, Deakin University	GL Bankless and siphon. Almonds, cotton, grains
	Depart Darlington Point 9:30 am	**Whitton** 10:00 am Peter and Dallas Stott PA & LS Stott, Whitton Rd Whitton, NSW, 2705	Travel 30 mins Farm Visit 1.5 hrs	Farm 7	
	Depart Stotts 11:45 am	**Whitton** 12:00 am IREC Field Station and regional trial site IREC, Richard Stott, Rob Houghton, Iva Quarisa Irrigation Research & Extension Committee (IREC)	Travel 15 mins IREC Visit 1 hr + lunch	Lunch at IREC. IREC Field Station NSW DPI MAX PROJECT TRIAL SITE Peter Moller/Dave Robson: Rubicon automation	EVALUATION for those leaving the tour
	Depart Whitton 1:15 pm	**Whitton** 1:30 pm Tim and Roger Commins Cotton, fish and stainless steel	Travel 15 mins Farm Visit 1.5 hrs		
	Whitton Depart by 3:30pm	**Parkes** 7:00pm Bushman's Comfort Inn 9-13 Peak Hill Road, Parkes Ph:02 6862 2199.	Travel time 3.5 hrs	Accommodation	Need to drop some people to Griffith airport by 4pm. Plane leaves 4:40pm Evaluation for those at Bus.
	Dinner	**Parkes**		Dinner at Motel Restaurant	
Friday 9/12/16					
	Depart Parkes Early! 6:00am Breakfast at Dubbo.	**Moree** By lunch time			

2016 smarter irrigation technology tour

Southern NSW

Date: Monday 5 to Friday 9 December 2016
Cost: $550 incl. GST
Inclusions: All accommodation, travel and meals.

Contact Details			
First name		Last name	
Home address			
Postal address			
Email address			
Home telephone		Mobile	
Organisation			
Position	□ Irrigator □ Consultant □ Researcher □ Retailer □ Other please specify		
Irrigation Region eg Gwydir _____			
Travel Arrangements (please tick)			
Monday 5 December 2016: Picking up the bus from:-			
□ Moree □ Narrabri □ Dubbo □ Shepparton □ Griffith			
□ Other please specify eg Making own way to Shepparton _____			
Friday 9 December 2016: Departing bus from:-			
□ Moree □ Narrabri □ Dubbo □ Griffith			
□ Other please specify eg Making own way home from Griffith on Thursday night _____			
Accommodation(please tick)			
Do you require four night's accommodation? □ YES □ NO			
If **NO** please state which nights are required? □ Monday 5 Dec □ Tuesday 6 Dec □ Wednesday 7 Dec □ Thursday 8 Dec			
□ Single □ Twin Share Preference who shared with? (write name) _____			

Meals and Dietary Requirements (please tick)																
Lunch required: □ Monday □ Tuesday □ Wednesday □ Thursday □ Friday																
Dinner required: □ Monday □ Tuesday □ Wednesday □ Thursday																
Dietary Requirements (please tick) □ Vegetarian (with milk, eggs and fish) □ Vegetarian (NO milk, eggs and fish) □ Gluten Free □ Diabetic □ Other please specify _____																
Credit card details																
Name (As it appears on the card)																
Type of card	☐ Visa ☐ MasterCard															
Number																
Expiry date: month/year			/			CVC: last 3 digits on back of card										
Cost of Tour	$550 plus credit card surcharge 0.4%															
Signature				Date												
Return Registration Form with credit card details via email: **by: Monday 21 November 2016** **to: sandra.maybury@dpi.nsw.gov.au**																
CANCELLATION: Notification required by COB Friday 28 November 2016 for a full refund																
Contact Information																

Peter Verwey	DPI -STBIFM	M: 0428 640 990	E: peter.verwey@dpi.nsw.gov.au
Janelle Montgomery	Cotton	M: 0428 640 990	E: janelle.montgomery@dpi.nsw.gov.au
Monique White	Dairy	M: 040 097 2206	E: monique@dairysa.com.au
Andres Jaramillo	Sugar	M: 0475 973 282	E: AJaramillo@sugarresearch.com.au
Gae Plunkett	Rice	M: 0419 790 019	E: gplunkett@rga.org.au

This project is supported through funding from the Australian Government Department of Agriculture and Water Resources as part of the Rural R&D for Profit and Sustainable Rural Water Use and Infrastructure Programmes, in addition to CRDC, RIRDC, Dairy Australia, Sugar Research Australia, NSW DPI, STBIFM, NCEA, Rubicon & Padman Stops.

CottonInfo Information when you need it

NSW SUSTAINING THE BASIN
Irrigated farm modernisation

We would appreciate your comments on the 2016 Smarter Irrigation Technology Tour

1) How would you classify yourself? Tick

Grower/Farm Manager ☐ Farm Staff ☐ Consultant ☐ Retailer ☐

Agency ☐ Other ☐_____

2) Which industry do you work in" Tick

Cotton ☐ Dairy ☐ Rice ☐ Sugar ☐ Other, please specify_____

3) How much land do you have developed (manage, if consultant) for irrigation? _____ ha

4) How did you hear about this tour? Tick

Friend/family/other farmer ☐ Advisor ☐ Media eg radio ☐ CottonInfo ☐

Other ☐ please specify_____

5) What was your main reason for coming along on this tour?

_____

_____

6) Do you currently have any automated irrigation on your farm/s (on clients farms)? (circle and specify) YES NO

If Yes, please describe (eg gates on main supply)_____

_____

_____

7) What new automation technologies are you considering for your farm?_____

_____

_____

8) What other automation ideas show promise (may not suit your system)?

_____

_____

_____

Delivery & Content	**Disagree**				**Agree**
9) The tour met your aims and expectations	1	2	3	4	5
10) The presentations/demonstrations were of a high standard	1	2	3	4	5
11) The information presented was at a level you could understand	1	2	3	4	5
12) The topics/demonstrations covered were useful.	1	2	3	4	5
13) It was beneficial to visit farms in other irrigation sectors	1	2	3	4	5

14) How could we have improved the tour to be more useful for you?_____

_____

Best Practice

Changes in knowledge, skill, attitudes and aspirations

where **1 is very basic** and **5 is very good** (*Circle your rating*)

15) Please rate your level of knowledge of the automation technologies currently available in the irrigation industry.

Before the tour	1	2	3	4	5
After the tour	1	2	3	4	5

16) Please rate your level of understanding of the automation technologies currently available and how they could benefit your farm system.

Before the tour	1	2	3	4	5
After the tour	1	2	3	4	5

17) Please rate your level of confidence in automated technologies.

Before the tour	1	2	3	4	5
After the tour	1	2	3	4	5

18) What are the barriers to adopting automation in your (clients) farm business?_____

_____

_____

19) What percentage increase in potential efficiencies do you believe you could achieve by adopting automation in your surface irrigation system?

Labour efficiency _____%, Water use efficiency_____%, Other, please specify_____

_____

20) What are some current gaps in irrigation research?_____

_____

21) What did you find most valuable from this tour?

_____

_____

22) Will you do anything differently as a result of what you've learnt on the tour? YES NO

If so, what?_____

_____

_____

Any other comments_____

_____

THANKYOU

TWEETS

You Retweeted

CottonInfo @CottonInfoAust · 20 Nov 2016

Join us for CottonInfo's smarter irrigation technology tour to see irrigation automation in action: cottoninfo.com.au/events/2016-sm… #cotton #ausag

6 1

You Retweeted

Irrigation Australia @IrrigationAus · 10 Nov 2016

Smarter Irrigation tour heads to southern NSW queenslandcountrylife.com.au/story/4284822/… via @qclnews

Smarter Irrigation tour heads to southern NSW

With pressure to improve labour, water and energy efficiencies various, irrigators are looking at new irrigation layouts and the associated automation.

queenslandcountrylife.com.au

2 2

You Retweeted

CottonInfo @CottonInfoAust · 27 Nov 2016

Last chance to register for the #smarterirrigation tech tour! See automated irrigation in action. Register here: cottoninfo.com.au/events/2016-sm...

2 1

Janelle Montgomery @NellMontH2O · 4 Dec 2016

Smarter Irrigation Technology Tour off and running. Seeing irrigation automation in action. #smarterirrigation @NSWDPI_STBIFM

2 3

Janelle Montgomery @NellMontH2O · 4 Dec 2016

Made it to the Murray. Smarter Irrigation Technology Tour. #smarterirrigation @NSWDPI_STBIFM

1 6

Janelle Montgomery @NellMontH2O · 5 Dec 2016

Malcolm Gillies NCEA presents the latest irrigation automation research. Exciting future for irrigation. #smarterirrigation @NSWDPI_STBIFM

1 2

Janelle Montgomery @NellMontH2O · 5 Dec 2016

Day 1 #smarterirrigation tour. Rubicon Water, factory to farm tour @NSWDPI_STBIFM @CottonInfoAust

3 7

Janelle Montgomery @NellMontH2O · 5 Dec 2016

Innovative Australian technology providing global irrigation water mgt solutions- Rubicon Water #smarterirrigation #cotton @Dairy_Australia

3 5

Janelle Montgomery @NellMontH2O · 6 Dec 2016

#smarterirrigation Tour, dairy and cotton together seeing irrigation automation in action. Sharing ideas across commodities @CottonResearch

4 8

Janelle Montgomery @NellMontH2O · 6 Dec 2016

Day 2 #smarterirrigation tech tour. Automation solutions for bankless layouts @PadmanStops @NSWDPI_STBIFM @CottonInfoAust

6 7

Janelle Montgomery @NellMontH2O · 6 Dec 2016

#smarterirrigation tour Berrigan irrigation layout sparks interest of northern growers. Simple system easy to trial on farm @NSWDPI_STBIFM

2 2

Janelle Montgomery @NellMontH2O · 7 Dec 2016

Portable irrigation automation means a good nights sleep and productive days #smarterirrigation @NSWDPI_STBIFM

5 3

Janelle Montgomery @NellMontH2O · 7 Dec 2016

Smarter Irrigation for Profit check facebook for more footage from the #smarterirrigation tech tour m.facebook.com/SmarterIrrigat...

4 5

Janelle Montgomery @NellMontH2O · 7 Dec 2016

Not on the #smarterirrigation tour? Tour booklet cottoninfo.com.au/publications/w ...

4 7

Janelle Montgomery @NellMontH2O · 7 Dec 2016

No more siphons or rotabucks. Improved pipe through the bank designs could be the answer #smarterirrigation

3 4

You Retweeted

Malcolm Gillies @MalcolmGillies · 6 Dec 2016

Exited to be invited to share @sugarresearch and @CottonResearch on the #smarterirrigation tour

sugarresearch, IAgE, NCEA and 2 others

5 11

Janelle Montgomery @NellMontH2O · 8 Dec 2016

No tailwater, long runs and automation at Whitton. #smarterirrigation tour. @NSWDPI_STBIFM @CottonInfoAust

2 5

Janelle Montgomery @NellMontH2O · 8 Dec 2016

Thanks farmers who hosted #smarterirrigation tour sharing experiences with surface irrigation design @NSWDPI_STBIFM

2 4

Growers gear up for CottonInfo 2016 Smarter Irrigation Technology Tour

http://www.queenslandcountrylife.com.au/story/4284822/smarter-irrigation-tour-heads-to-southern-nsw/

10 Nov 2016, 12:53 p.m.
News

A Federal Govt initiative as part of the Rural R&D for Profit and Sustainable Rural Water Use, the project is supported by CRDC, RIRDC, Dairy Australia, Sugar Research Australia, NSW DPI, STBIFM, NCEA & Rubicon & Padman Stops.

They also want a system that is flexible with changing water availability and irrigation area. In addition, precision application and irrigation scheduling technologies are becoming available.

Following the success of the 2015 Cotton Irrigation Automation Tour, CottonInfo has joined forces with Dairy Australia and Sugar Research Australia to showcase a range of innovative surface irrigation systems and management practices used in Southern NSW.

The 2016 Smarter Irrigation Technology Tour will include 10 farm visits with a range of irrigation layouts and levels of automation (located in Northern Victoria, Berrigan, Coleambally, Carrathool and Griffith), manufacturers Rubicon Water, Padman Stops and the IREC regional trial site at Whitton.

Tour participants will see various surface irrigation layouts and hear from irrigators who have fully automated their systems.

Tour participants will see various surface irrigation layouts and hear from irrigators who have fully automated their systems.

They will also get an insight into the decision process for investing in these systems, how they manage any associated risk and their adoption of complementary water management tools and technologies.

The tour will also provide a platform for researchers from the Smarter Irrigation for Profit project to discuss their latest research.

Lead by CRDC, this project aims to improve water productivity, efficiency and farmer profitability by 10–20 per cent through the adoption of automated and precision application technologies. It's a significant national irrigation project across four irrigated commodities - dairy, sugar, rice and cotton.

A number of irrigators who went on last year's tour were inspired by what they saw and heard and have since implemented change on their farms.

Ralph Grey, Mungindi, has converted two fields from siphon to a 'through-the-bank' system, with potential for automation and is looking forward to the accompanying labour savings, a more timely and efficient irrigation process and yield improvements.

Murray and Ben Watson, Wee Waa, realised the potential of their pipe through the bank system, and ability to automate in the future. Depth sensors to monitor channels are their first step towards surface irrigation automation.

Tom Siddens, St George, never thought it possible to automate at home, but after the tour he now knows automation can be possible and he can definitely get rid of siphons. Tom has three different irrigation layouts, including pipes through the banks (PTBs), GL Bays and since the tour has designed a hybrid of the two.

The 2016 Smart Irrigation Technology Tour runs from December 5-9.

A coach will depart from Moree on Monday 5 December, stopping along the Newell Highway.

www.cottoninfo.com.au/events/2016-smarter-irrigation-technology-tour